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How Ambidextrous Is Your Company's Culture?

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Problem Formulation

This master's thesis assesses ambidextrous organizations, and compares the innovation culture of ambidextrous companies to non-ambidextrous companies. The paper covers an extensive literature review - ambidexterity and six building blocks for an innovative company culture - accompanied by data-analysis from a survey sample.

Our research question is:

What are the differences in innovative cultures between ambidextrous organizations and non-ambidextrous organizations?

Preface

This paper is a master's thesis written during the spring of 2015, and it is our final work of the Master of Science program 'Industrial Economics and Technology Management' at Norwegian University of Science and Technology (NTNU). Our master's specializations are 'Strategy and International Business Development' and 'Change Management', of which two students specialized in the former, while one of us specialized in the latter.

This master's thesis is part of a larger research project called SISVI (Sustainable Innovation and Shared Value Creation in Norwegian Industry). Our paper particularly investigates how ambidexterity relates to innovative company cultures, and which cultural differences that are present between ambidextrous and non-ambidextrous organizations. What makes this thesis intriguing is that the research on ambidexterity in relation to culture is scarce, and to our knowledge, no one has previously investigated how different aspects of company cultures comes into play when comparing ambidextrous and non-ambidextrous organizations.

We would like to thank our supervisor, Professor Alf Steinar Sætre, and his doctoral students Marta Morais-Storz and Nhien Nguyen, who all guided us through the writing of this thesis. Special thanks is also needed for Silje Merete Sæthren Grønning, who wrote her project thesis with Lasse Martinsen in the fall, and thus contributed substantially to the content in this master's thesis. Finally, we would like to thank Léonor Gavel-Solberg, who shared an office with us this spring, and participated in many discussions during the work.

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Abstract

Companies need to be more innovative in meeting the increasing demands of today's global competitive pressures and rapid market changes. In recent years, the need for innovation has made ambidexterity – the ability to achieve incremental and radical innovation simultaneously – an appealing concept to literature. Further, literature has found organizational culture to be a key for managing innovation. However, while it is evident that culture and ambidexterity have great relevance for innovation, the number of articles written on the intersection between these remain scarce.

In this master's thesis, we examine the concept of ambidexterity in relation to a comprehensive framework for innovative cultures – comprised of the six building blocks: resources, processes, success, values, behaviors, and climate – in order to enhance the understanding of how these two concepts are related. To our knowledge, a conceptualization of an entire company culture has not previously been investigated with a particular focus on ambidexterity. The broad scope of the innovative culture framework used means that this paper includes a comprehensive literature review, which can be valuable for anyone interested in company cultures for innovation.

Drawing on survey data from SISVI – a Norwegian project set in the cross-section between business and research – we propose that ambidexterity and a company's culture for innovation are positively correlated. Findings indicate that all aspects of the cultural framework are indeed positively correlated to ambidexterity, suggesting that a company can improve its level of ambidexterity by improving the company's culture for innovation.

Sammendrag

Med dagens økende globale konkurranse og raske markedsendringer stilles det stadig høyere krav til innovasjon i bedrifter. De senere årene har dette gjort konseptet ambidekstri - evnen til å mestre inkrementell og radikal innovasjon samtidig – til et attraktivt konsept innen forskning. Videre har litteraturen også funnet at organisasjonskultur kan være nøkkelen til å mestre innovasjon. Selv om det er tydelig at kultur og ambidekstri har stor relevans innen innovasjon, er antallet artikler om skjæringspunktet mellom disse svært begrenset.

I denne masteroppgaven undersøker vi begrepet ambidekstri i forhold til et omfattende rammeverk for innovasjonskulturer - bestående av de seks byggeblokkene: ressurser, prosesser, suksess, verdier, atferd og klima - for å øke forståelsen av hvordan disse to konseptene er relatert. En omfattende konseptualisering av bedriftskultur er, så vidt vi vet, ikke tidligere undersøkt med fokus på ambidekstri. Bredden til det brukte rammeverket for innovasjonskultur gjør at oppgaven inneholder en omfattende litteraturstudie, noe som kan være verdifullt for alle som er interessert i bedriftskulturer for innovasjon.

Med data fra SISVI - et norsk forskningsinitiativ i skjæringspunktet mellom næringsliv og forskning - foreslår vi at ambidekstri og bedrifters innovasjonskultur er positivt korrelert. Funn i studien tyder på at alle sider av det kulturelle rammeverket er positivt korrelert til ambidekstri, noe som tyder på at en bedrift kan forbedre sitt nivå av ambidekstri ved å forbedre bedriftens innovasjonskultur.

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CHAPTER 1

Introduction

In today's economy, with high global competitive pressures and rapid market changes, destructive attitudes like complacency and invulnerability restrict innovation and expose companies to the threat of being bypassed by its competitors (Nagji & Tuff, 2012; Rao & Weintraub, 2013; Tellis, Prabhu, & Chandy, 2009). Thus, the viability of companies depend on their ability to keep innovating (Nagji & Tuff, 2012).

Innovation, however, is a two-edged concept; on the one hand, companies must master incremental innovation in order to face day-to-day competition (Govindarajan & Trimble, 2010). On the other hand, they must master radical innovation to create future sources of revenue. While radical innovations are characterized by discontinuity in technology and the market, incremental innovations strive to enhance processes, make operations more effective, improve quality and decrease costs (Garcia & Calantone, 2002). This often puts companies in a dilemma, as radical and incremental innovations require different structures, processes, and cultures (O'Reilly & Tushman, 2004).

According to Tellis et al. (2009), successful innovation requires a strong company culture. However, how does an innovative company culture simultaneously support incremental and radical innovation? We argue that the answer is to become *ambidextrous*. An ambidextrous organization is able to reap the benefits of both incremental and radical innovation, through exploration of new business opportunities while simultaneously exploiting current capabilities (Birkinshaw & Gibson, 2004; O'Reilly & Tushman, 2004; Raisch, Birkinshaw, Probst, & Tushman, 2009). As a result, ambidextrous organizations outperform their competitors on innovation (He & Wong, 2004; M. Tushman, Smith, Wood, Westerman, & O'Reilly, 2010). However, why are ambidextrous organizations

more innovative than their competitors? Moreover, is it possible that the differences are rooted in the organizational culture?

Despite an increasing number of articles on ambidexterity in recent years, articles written about innovative cultures in ambidextrous organizations remain scarce. As a result, the impact of company cultures on ambidexterity is still unclear. Hence, a study of this nature could provide a better understanding of why some companies innovate better than others do. More specifically, in this study, we investigate ambidextrous and non-ambidextrous organizations to assess which cultural differences that are present, and if these differences help explain ambidextrous organizations' superiority on innovation outcomes. From these considerations, we arrived at the following research question (RQ) for our master thesis:

RQ: What are the differences in innovative cultures between ambidextrous organizations and non-ambidextrous organizations?

We attempt to answer this question by performing a study on Norwegian industry companies. To achieve this, we are using a framework for innovation culture created by Rao and Weintraub (2013), combined with measurements for ambidexterity (He & Wong, 2004). The literature review leads us to seven working hypotheses, which are tested on Norwegian industry-companies. Our goal, then, is to contribute to current research by giving a broader understanding of the link between ambidexterity and innovative company cultures.

1.1 SISVI

This master's thesis is a part of the Norwegian project SISVI (Sustainable Innovation and Shared Value Creation in Norwegian Industry). SISVI is a four-year competence project set in the cross-section between business and research, and "aims to provide Norwegian industrial firms with four crucial building blocks they can use when developing their own unique competitive strategy" ("About SISVI," 2014). These blocks are internationalization, innovation, interactions in

networks, and integration and implementation. The purpose of SISVI is to develop knowledge that will strengthen the long-term competitive capabilities in the Norwegian industry, such that it is consistent with the concept of *shared value*. Shared value is value that "is created in a manner that meets both financial and societal needs where the latter typically encompasses environmental and societal aspects" ("About SISVI," 2014).

This master's thesis is part of the innovation-block – work package two – of SISVI. This work package aims to understand people's motives and how incentives affect the innovation process, in particular when facing the tensions with short-term profit pressures and long-term sustainability issues ("SISVI - WP2 - Innovation," 2014). The SISVI-project further seeks to better understand how companies can create shared value in developing economies through inclusive business model development. Moreover, the research in SISVI will "address how collaboration through private-public partnerships and the institutionalization of learning and adaption processes between actors in the value chain can stimulate shared value creation" ("SISVI - WP2 - Innovation," 2014).

We wish to contribute to the SISVI-project by providing a clearer understanding of how certain aspects of the company culture affects the innovativeness of a firm. Hopefully, our master's thesis will provide new and relevant insights about innovation culture to the SISVI-project. Finally, we emphasize that our research interest is primarily innovation culture in general, and that shared value is not directly relevant to the scope of our research.

1.2 Structure of Master's Thesis

In the next section – our theory-chapter – we describe the literature relevant to this paper with an emphasis on ambidexterity and the framework for an innovative company culture; a framework conceptualized and operationalized by Rao and Weintraub (2013). Further, we present our working hypotheses resulting from the

literature review, followed by a description of the methodology used and results. Finally, we end the thesis with a discussion of our findings and our conclusion.

CHAPTER 2

Theory

This chapter attempts to give a thorough review of theory that relates to ambidexterity and company cultures for innovation, with the aim of discovering advantages and restrictions ambidextrous companies have in achieving an innovative company culture. The first part of the theory-chapter is an introduction to innovation, and it is thus the topic of the next section. After a theoretical outline of innovation, culture, and innovation's relation to culture, we continue by describing ambidexterity, followed by a description of an innovative company culture. The final part contains six sections, one for each of the six building blocks an innovative company culture comprises according to the framework of Rao and Weintraub (2013).

2.1 Innovation

One definition of innovation is given by Schilling (2013): "The practical implementation of an idea into a new device or process" (p. 18). In order to innovate, a creative idea must be combined with resources and expertise that make it possible to convert the creative ideas into something useful (Schilling, 2013). One must notice that innovation is not a single event, but a series of activities which are linked to each other. Trott (2012) defines it as a management process: "Innovation is the management of all the activities involved in the process of idea generation, technology development, manufacturing and marketing of a new (or improved) product or manufacturing process or equipment" (p.15), and, as will be evident, this has implications for how one can best arrange for innovation.

When seeking to gain an increased understanding of innovation, it is essential to investigate various dimensions of the concept. One dimension represents product innovation, which are made in the outputs of an organization; its goods and

services. Another is process innovation, which relates to the way an organization conducts its business (Schilling, 2013). These types of innovations often come in tandem, either because a product innovation enables development of a process innovation, or vice versa (Schilling, 2013). Further, innovations are also characterized as either radical or incremental, depending on the "newness" of the innovation. Radical innovations represent significant leaps in technology development (D. J. Kelley, O'Connor, Neck, & Peters, 2011), whereas incremental innovations "... makes a relatively minor change from existing practices" (Schilling, 2013, p. 46). Therefore, radical innovations require more experimenting and iterative problem solving, demanding increased organizational flexibility, while incremental innovations require more planning and implementation, demanding higher efficiency (Kessler & Chakrabarti, 1999). This complexity associated with radical innovation makes this especially difficult to handle, and not surprisingly, literature has shown that many companies struggle with radical innovation (Johnson, Christensen, & Kagermann, 2008). Of the most common distinctions made on types of innovation, these are the ones we find most relevant to the scope of this paper, particularly the tensions between radical and incremental innovation.

We now know what innovation is, and we are also familiar with different dimensions of innovation. However, why is innovation important?

2.1.1 The Increased Importance of Innovation

Due to increased competition and globalization, companies are making enhanced efforts to improve innovation performance in order to remain competitive (Trott, 2012). Cooper (1990) states that in the face of "increased competition from home and abroad, maturing markets, and the heightened pace of technological change, corporations look to new products and new businesses for sustained growth and competitive advantage" (p. 44). In order to survive, firms must be able to adapt and change, and innovation has long been argued to be the engine of growth (Trott,

2012). From a macroeconomic perspective, there are two sources for a country's economic growth: capital accumulation and technological progress (technological innovation). Further, capital accumulation cannot by itself sustain growth, and sustained growth thus requires sustained technological progress (Blanchard, Amighini, & Giavazzi, 2013).

Notably, how companies do business can be as important, even more so, than what they offer to the customer (Amit & Zott, 2012). According to Teece (2010), a requisite for success is offering a compelling value proposition in combination with a business system that satisfies this with the necessary quality at an acceptable price. Even if an innovation is remarkable by itself, and becomes widely adopted by society, it will fail without the right business model to accompany it (Johnson et al., 2008).

From this, it is evident that innovation is a broad term, covering several aspects of business and everyday life. Today, there are several management tools and best practices guidelines available for managers, which aims at assisting organizations to succeed in the pursuit of innovation. However, in order to truly understand the process of innovation, one must also understand how innovation is related to organizational culture.

2.2 Organizational Culture

Jay B Barney (1986) emphasizes that organizational culture can be a source of sustained competitive advantage. However, he further explains that in order for the innovation culture to be a source of sustained competitive advantage, it needs to create positive economic consequences, be rare, and be perfectly inimitable. When reading literature on innovation, the focus tends to be on technological innovation and how to successfully achieve it. Claver, Llopis, Garcia, and Molina (1998) emphasize that although there is a great need for technical preparation in material, financial, and human resources for successful technological innovation to take place, the corporate culture is of great importance, and should not be

overlooked by managers. A clear definition of corporate culture is given by Claver et al. (1998):

> We define corporate culture as a set of values, symbols and rituals shared by the members of a certain firm, describing the way things are done within an organization when solving internal managerial problems, together with those related to customers, suppliers and environment (p.61).

2.3 Organizational Culture and Innovation

Organizational culture is a key to managing innovation (Khazanchi, Lewis, & Boyer, 2007): "In other words, the hardware of technological innovation requires the software of a corporate culture which is aimed at innovation" (Claver et al., 1998, p. 64).

When discussing technological innovation, as an example, the culture can play an important role by stimulating the process of generating new ideas and applying them. The important role of the human factor in technological innovation is especially emphasized, and the need for people's acceptance of change (Claver et al., 1998). Trott (2012) also points out that there is a need for more managers today to recognize that change is at the heart of innovation, and that changes occur by decisions people make. An innovation-supportive culture is usually thought of as fostering team-work, and it includes having creative employees which are not afraid of taking risks (Jassawalla & Sashittal, 2002). Further, the organizational members should be comfortable with admitting mistakes and pursuing their own ideas (Edmondson, 2004; Rao & Weintraub, 2013). The importance of organizational culture for innovation is growing in awareness among researchers (Jassawalla & Sashittal, 2002; Rao & Weintraub, 2013), which is why this master's thesis has been undertaken.

Thus far, we have described what innovation is and its increasing importance. We have also outlined the organizational culture and how it is linked to innovation as

a potential source of competitive advantage. In the next section, we continue our paper by describing ambidexterity, one of the main topics of this master's thesis.

2.4 Ambidexterity

Throughout history, being able to do things equally good with both hands – in for example a swordfight – has proven advantageous, and these individuals have been known as ambidextrous. In recent times, this beneficial ability has inspired academic researchers, who have adapted the concept in order to describe companies' ability to innovate, known as ambidexterity.

2.4.1 The Concept of Ambidexterity

The basic idea of ambidexterity is to simultaneously balance the exploration of new opportunities and exploitation of existing capabilities (O'Reilly & Tushman, 2004; Raisch et al., 2009; Sarkees & Hulland, 2009), which allows development of both radical and incremental innovation, respectively. Sarkees and Hulland (2009, p. 46) differentiate between innovations that are characterized by "… refinement and incremental improvements that allow for enhanced utilization of firm resources", which we refer to as exploitation, and other innovations that are characterized by "…radical change, risk, and experimentation which allows for new methods, relationships, products, or services to be created", which we refer to as exploration. Although the idea is simple to understand, literature reveals that several different interpretations of the concept exist.

In their literature review on different perspectives on ambidexterity, Raisch et al. (2009) argue that successful ambidextrous organizations balance seemingly conflicting tensions: differentiation and integration of activities, individual and organizational levels, sequential and simultaneous timing, and finally internal and external knowledge integration. The first tension – separation or differentiation of activities – refers to whether explorative and exploitative activities should be separated into distinctive business units, or if the company should adapt mechanisms that allow for simultaneous exploration and exploitation. Second, while organizational ambidexterity usually refers to formal structures or coordination mechanisms, many academic researchers argue that ambidexterity is

rooted in individuals' ability to explore and exploit. The third tension considers the perspective of time, whether exploration and exploitation should be sequential activities or be performed at the same time. The final tension is about whether ambidexterity should be considered from an internal or an external perspective. While most literature consider ambidexterity as something each company does, research on other topics highly value the importance of external relations, creating expectations that ambidexterity can also be considered in a network perspective.

Although Raisch et al. (2009) present many different perspectives of ambidexterity, most literature separates between structural ambidexterity (O'Reilly & Tushman, 2004) and contextual ambidexterity (Birkinshaw & Gibson, 2004). Structural ambidexterity is the most traditional view of ambidexterity, and refers to separate structures for exploratory and exploitative activities, while tight managerial coordination allows sharing of resources like cash, talents, expertise, and customers. Further, it is shown to be a preferred way to organize for innovation in several studies (Gilbert, Eyring, & Foster, 2012; Govindarajan & Trimble, 2010; O'Reilly & Tushman, 2004). The argument for structural ambidexterity is that exploration and exploitation are too different to coexist. However, strict separation has also resulted in many failed innovation initiatives, as the link between R&D and the rest of the company becomes too weak to create acceptance for new ideas (Gibson & Birkinshaw, 2004). Thus, Gibson and Birkinshaw (2004) argue that the exploratory unit must still build on existing resources, and the exploitative unit still has to explore some new opportunities. This means that one unit cannot only do either exploration or exploitation. In other words, each unit has to balance the dilemma of exploration and exploitation; in essence transmitting the dilemma all the way down to the individual-level, suggesting that individuals end up with a choice of doing explorative or exploitative activities (Birkinshaw & Gupta, 2013). In literature, this individual-level ambidexterity is commonly referred to as contextual ambidexterity, and should serve as a complementary explanation for increased performance

(Birkinshaw & Gibson, 2004). To summarize these arguments, structural ambidexterity is not necessarily the best way to organize a company, and even if it was, the separated units must still confront the exploration/exploitation dilemma. From this reasoning, Gibson and Birkinshaw (2004) suggest that ambidexterity should be measured on individuals, before being aggregated in units or in the company, leading to the concept of contextual ambidexterity.

Contextual ambidexterity refers to ambidexterity on an individual level. The idea is that managers and employees themselves make decisions of whether to do exploitative or explorative activities (Gibson & Birkinshaw, 2004). Compared to companies that solely engage in exploration or exploitation, ambidextrous companies need systems and structures that are more flexible, as well as a greater emphasis on the human aspects of the company. Birkinshaw and Gibson (2004) identified four ambidextrous behaviors in individuals. These individuals take initiative beyond what is expected of them. They are also cooperative and opportunity seeking, in attempting to combine efforts with others. They exhibit brokering skills, and they are always looking to build internal linkages. Finally, they are good at multitasking, and are comfortable with having different roles in different situations.

2.4.2 Ambidexterity and Performance

In general, ambidexterity is positively related to performance. M. Tushman et al. (2010) found that ambidextrous organizational designs are relatively more effective than functional, cross-functional, and spinout designs for innovation streams. This is in line with the results from O'Reilly and Tushman (2004), who found that ambidextrous organizational design is far superior over other organizational designs regarding developing and delivering innovation. Additionally, M. Tushman et al. (2010) showed that switching to ambidextrous designs improved innovative performance, while shifting away from ambidextrous design decreased innovative performance.

Furthermore, Gibson and Birkinshaw (2004) show that performance correlates positively to contextual ambidexterity, and that an organizational context with social support and performance management only contributes to increased performance through ambidexterity. These findings indicate that ambidexterity should be the ultimate goal for companies, and that companies must strive to create an organizational context where ambidexterity can exist. Another study on contextual ambidexterity found that "…interaction between explorative and exploitative innovation strategies…" (p. 481) are positively related to sales growth rate, while a relative imbalance between exploration and exploration is negatively related to sales growth rate (He & Wong, 2004). These findings support the ambidexterity hypothesis, and emphasize the importance of relative balance between exploration and exploitation. In a similar study on ambidexterity, Sarkees and Hulland (2009) found that companies that simultaneously engage in exploration and exploitation outperform those that have a strong overweight in one of those areas.

Thus far, we know that ambidexterity can help companies manage innovation streams, and succeed with both incremental and radical innovation, but one question then arises: How can a company become ambidextrous?

2.4.3 Becoming Ambidextrous

Becoming ambidextrous is definitively possible, but literature takes on different approaches. Some argue that managers are most important, while other argue that culture is most important. O'Reilly and Tushman (2004) argue that ambidextrous organizations require managers with special abilities in understanding the different needs for exploration and exploitation. Managers must also be committed to operating ambidextrously (O'Reilly & Tushman, 2004), and have a high tolerance of ambiguity (Sætre & Brun, 2013). Among those who focus more on culture are Sarkees and Hulland (2009), who take on an external perspective,

and Gibson and Birkinshaw (2004), who look at ambidexterity in relation to the organizational context.

In their study of ambidexterity, Sarkees and Hulland (2009) provide guidelines regarding ambidexterity in companies. They argue that companies should assess their level of ambidexterity, figure out whether or not they should be ambidextrous, and finally they suggest how companies can become ambidextrous. While most studies have measured ambidexterity in companies through an internal assessment of exploitation and exploration (Gibson & Birkinshaw, 2004; He & Wong, 2004; O'Reilly & Tushman, 2004; M. Tushman et al., 2010), Sarkees and Hulland (2009) assess ambidexterity by asking relevant stakeholders, including management, employees, customers, and alliances about the perception of the company. They argue that managers cannot get a true understanding of their company without input from key stakeholders. Differences between answers from executive management and of key stakeholders may identify issues in the company that can benefit from deeper investigation. Sarkees and Hulland (2009) recommend questioning these stakeholders to reveal the reasons of these differences. Finally, in order for the company to become ambidextrous, Sarkees and Hulland (2009) argue that top management needs to meet with those who have a different understanding of the company's exploration and exploitation activities to discuss these differences. Discussion about issues is necessary in order to reveal weak links and to create a to-do list for the company.

In their article on "building ambidexterity into an organization", Birkinshaw and Gibson (2004) emphasize that presence of both performance management and social support will create a high-performance organizational context that give rise to a truly contextual ambidextrous organization. Performance management is a factor that includes a combination of stretch and discipline, which when present stimulates people to deliver high quality results, while simultaneously making people accountable for their actions. Social support is a combination of support and trust, which when present provides people with security and the latitude

needed for performance behavior. Birkinshaw and Gibson (2004) argue that the combination of both performance management and social support creates a high performance context that "…gives rise to a truly ambidextrous organization" (p. 51). Their idea is that creating a high performance context enables individuals to exhibit initiative, cooperation, brokering skills, and multitasking abilities (Birkinshaw & Gibson, 2004).

Birkinshaw and Gibson (2004) end their paper by providing a guide on how to achieve ambidexterity: Companies must diagnose their organizational context by measuring their levels of social support and performance management. They further need to focus only on a few improvement areas that are consistently employed. It is also important that managers build understanding at all levels in the company. Moreover, contextual ambidexterity and structural ambidexterity should be seen as compliments. While structural separation might sometimes be essential, Birkinshaw and Gibson (2004) argue that it should be temporary. The structural separation is a way to give a new initiative enough resources and space to get started, and it should be a goal to eventually reintegrate with the mainstream organization. Finally, contextual ambidexterity initiatives should be viewed as "driving leadership" rather than "leadership-driven". In essence, Gibson and Birkinshaw (2004) argue that ambidexterity should arise from the context of the company, rather than from management decisions, leading us to the next part: Ambidexterity and company culture.

2.4.4 Ambidexterity and Company Culture

As a concept, ambidexterity is quite versatile. It makes a suitable concept for explaining organizational dualities, such as flexibility and efficiency, and the number of articles on this topic has grown exponentially the last couple of years (Birkinshaw & Gupta, 2013). However, only a handful articles have been written about culture and ambidexterity. Of the few empirical-based studies on this intersection, both Lin and McDonough Iii (2011) and Wang and Rafiq (2014) find

empirical support for organizational culture's important effects on ambidexterity and innovation outcome.

Lin and McDonough Iii (2011) found that high knowledge-sharing cultures positively influences ambidexterity, and that strategic leadership is well suited to foster this kind of culture, which in turn means that a knowledge-sharing culture mediates between strategic leadership and ambidexterity. Further, they discovered that culture is much more important than leadership in facilitating innovation, emphasizing the importance of organizational culture for innovation. Lin and McDonough Iii (2011) argue that leaders do not "…institute exploitative and explorative activities to achieve ambidexterity" (p. 504), but they integrate these activities by creating a culture that promotes sharing of knowledge and ideas.

In their article on ambidextrous organizational culture, contextual ambidexterity, and new product innovation, Wang and Rafiq (2014) find close relationships between culture, ambidexterity, and innovation. Further, they found that ambidexterity mediates between culture and innovation. The authors conceptualize ambidextrous culture as a construct consisting of organizational diversity and a shared vision. In this context, organizational diversity encourages creativity, while the shared vision provides a few simple, formal rules to the company. Through their study, Wang and Rafiq (2014) show that companies that combine these mechanisms can integrate both exploration and exploitation in business units. Further, this integration allows companies to balance new product innovation with regard to speed to market. These findings indicate that "… it is through developing a distinctive capability of contextual ambidexterity that ambidextrous organizational culture as a causally ambiguous resource creates new product innovation outcomes" (p. 71). These findings are consistent with those of Gibson and Birkinshaw (2004), who found that an appropriate organizational context gives rise to ambidexterity. Finally, Wang and Rafiq (2014) show that these findings are consistent across 2 different industries in British and Chinese companies, indicating that ambidexterity is a function of heterogeneous resources

and capabilities, rather than industry and cross-cultural differences. Summarizing their arguments, ambidexterity is created through organizational culture, meaning that culture is the root of both ambidexterity and innovation outcomes.

This concludes the theoretical part on ambidexterity and why it is important for radical and incremental innovation. We now move on to elaborate the innovative company culture framework of Rao and Weintraub (2013), which, together with this part on ambidexterity, forms the basis for our research hypotheses.

2.5 Framework for an Innovative Culture

Figure 1 - Six building blocks for an innovative company culture.

With the importance of organizational culture in mind, our project thesis is built around a framework describing six building blocks for an innovative culture, as conceptualized and operationalized by Rao and Weintraub (2013). Measuring innovation is difficult, but Rao and Weintraub (2013) have created a framework which is supposed to capture the culture for innovation in an organization. They present six building blocks, which they claim are the essence of an innovative culture. These building blocks cover different aspects on an organizational culture for innovation and are dynamically linked: resources; processes; values; climate; behavior; and success (Rao & Weintraub, 2013). The six building blocks are further composed of three factors (18 in all), and each of those factors consist of three underlying elements (54 in all) (Rao & Weintraub, 2013). The building blocks are presented with the tools-oriented building blocks (resources, processes, and success) first, followed by the people-oriented determinants (values, behaviors, and climate). In the sections that follow, we describe and guide the reader through the theory behind each building block, factor, and element in the framework. We begin with resources.

2.6 Resources

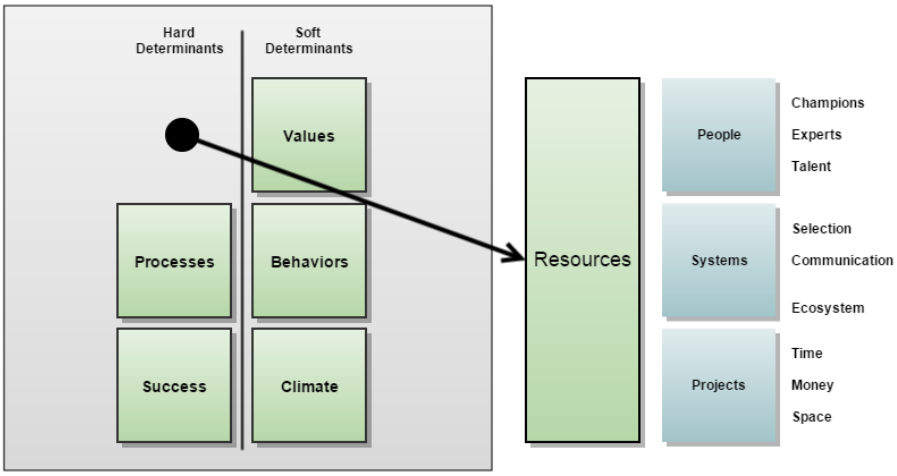

Figure 2 - The resources building block.

This section describes resources for innovation. We describe the resources in general first, before continuing with reviewing each factor and each element in the Rao and Weintraub (2013) framework. Finally, we provide a summary and relate the theory to ambidexterity.

A firm's resources and capabilities can be viewed as bundles of tangible and intangible assets that are heterogenic to competitors, and it may help explain a firm's performance in a changing competitive environment (Barney, 1991; J. Barney, Wright, & Ketchen Jr, 2001; J. B. Barney, Ketchen, & Wright, 2011; D. J. Collis & Montgomery, 2008). A firm's tangible assets comprises physical assets and financial assets. Physical assets can be a firm's technology, plants and equipment, geographical location, and raw material access (Barney, 1991). Financial assets can either be internal funds – such as liquidity at hand and unused debt – or external funds – such as new equity and high risk debt (Chatterjee & Wernerfelt, 1991). Intangible assets, on the other hand, are made up of *knowledge assets* - what the organization knows - and *behavioral patterns* - the way the organization organize and operate (Bessant, Caffyn, & Gallagher, 2001).

Grimaldi, Cricelli, and Rogo (2012) further divide intangible assets into three main components: human capital (the company's people); structural capital (the organizational structure and internal relations); and relational capital (external relations).

The resources and capabilities of a firm – bundles of tangible and intangible assets – can help generate a value-creating strategy, enabling the firm to perform better and more efficient than competitors; thereby being a source to competitive advantage (Barney, 1991; D. J. Collis & Montgomery, 2008). In order to obtain a sustainable competitive advantage, Barney (1991) presented a framework in which these assets need to fulfill four characteristics: being valuable, rare, inimitable, and non-substitutable.

Competitive advantage is usually the result of a combination of different assets (J. F. Christensen, 1995; Hadjimanolis, 2000). If tangible assets are viewed as inputs, intangible assets become the capacity to process, coordinate, and shape inputs towards given strategic objects (J. F. Christensen, 1995; David J. Collis, 1994). David J. Collis (1994) argues that intangible assets are directly related to the efficiency and effectiveness to which a company implements and chooses activities that adds value to their products and services. He further argues that intangible assets therefore can be a determinant of efficiency in the process of making inputs into outputs. Although tangible assets are important and fundamental as inputs for achieving competitive advantage, intangible assets are often seen as crucial factors for obtaining a sustained competitive advantage (Grimaldi et al., 2012). This is because intangible assets often are both firm- and path specific, and additionally developed over time (D. J. Collis & Montgomery, 2008; Hadjimanolis, 2000). Thus, more so than tangible assets, intangible assets have the potential of being valuable, rare, inimitable, and non-substitutable (Barney, 1991).

The viability of companies depend on their ability to continue innovating (Nagji & Tuff, 2012). Research has shown that there is a clear connection between a firm's tangible and intangible assets and its innovation performance (J. F. Christensen, 1995; Hadjimanolis, 2000). Intangible resources in particular are found to be closely tied to a firm's ability to innovate (Grimaldi et al., 2012; Hadjimanolis, 2000). Grimaldi et al. (2012) argue that innovation is the main catalyst of intangible assets components, competitive advantage, and value creation in firms. In other words, as a firm generates innovative outputs, the firm will acquire a stream of new knowledge and skills that adds to the firm's portfolio of intangible assets. These assets accumulates over time as the firm learns more about the given innovation. The assets are thus both firm- and path specific since the learning process will vary among firms. Innovation will therefore generate intangible assets that are valuable, rare, inimitable, and non-substitutable; a source to sustainable competitive advantage (Grimaldi et al., 2012). However, due to the nature of changing markets, assets are just temporarily a source of competitive advantage (Barney, 1991; D. J. Collis & Montgomery, 2008). Firms therefore need to continuously innovate to ensure a stream of new tangible and intangible assets in the future, so that they are able to sustain their competitive advantage (Grimaldi et al., 2012; Hadjimanolis, 2000).

Thus far, we have described resources – both tangible and intangible – as an introduction to resources, and outlined their importance to innovation. Following this, we review literature on projects, people, and systems for innovation, as these three factors are what comprises resources according the framework used (Rao & Weintraub, 2013).

2.6.1 People

A firm's innovation performance is dependent on its human capital (T. M. Amabile, 1998; T. Brown, 2008; Hadjimanolis, 2000; Kanter, 2006; D. Kelley & Lee, 2010; D. J. Kelley et al., 2011; Miller, 2006). Each individual contributes to

the firm's collective knowledge (David J. Collis, 1994; D. Kelley & Lee, 2010; D. J. Kelley et al., 2011; Miller, 2006), effectively making each individual a part of the firm's intangible assets.

According to Rao and Weintraub (2013), people – viewed as a resource – consists of: champions of innovation who can act as committed innovation leaders, experts of innovation that can support projects, and the internal talent making it possible to succeed with innovation projects. These types of people are labeled *champions*, *experts*, and *talent*, and are the elements that comprise people (Rao & Weintraub, 2013).

According to Smith and Tushman (2005), "… exploring and exploiting require fundamentally different and inconsistent organizational architectures and competencies" (p. 525). In order to address the issue of exploring in large companies, J. B. Quinn (1985) claims that innovative enterprises attempt to model the practices of small companies with the use of groups functioning in a skunk-works style. This way, people with different competences work without intervention from organizational or physical barriers to the development of an idea. In other words, this style permits teams to explore new ideas without the interrupting pressure of exploiting current operations. One should expect the teams to be composed by a careful balancing of engineering, production, and marketing talents, but J. B. Quinn (1985) claims that few groups use this classic form. Instead, he uses the analogy of raising a child to explain the introduction of new products and processes to the world: The "mother" is the champion of the idea, while the "father" is the authority figure that supports the idea – the innovation expert. Finally, the "pediatricians" – the specialists or talent in the organization – are the ones that get the product or process through the difficult times. We begin this section by looking at the first element, champions, before we move on to experts and talent.

Champions

Individuals labeled as innovation champions are critical for success in innovation (D. Kelley & Lee, 2010; D. J. Kelley et al., 2011; Miller, 2006; Shane, 1994). Shane (1994) defines innovation champions as individuals "who takes a personal risk to overcome organizational obstacles to innovation" (p. 397). He further argues that they are valuable for an innovation process since they have the possibility to hinder distraction from the established business. In some respects, innovation champions drive an organization to look beyond its current businesses and incremental innovations (D. Kelley & Lee, 2010). However, literature suggests that innovation champions are not just involved in radical innovations, but innovations on multiple levels (D. Kelley & Lee, 2010). This means that innovation champions can facilitate both radical and incremental innovations.

Innovation champions behave by showing a compelling interest to innovation in such a way that they engage others and create lasting support for the given innovation (Howell & Shea, 2001). An innovation champion thus needs to master a variety of skills. Especially collaborative skills are crucial for an innovation champion; these help keeping the innovation teams intact, create common goals, and share knowledge (Kanter, 2006). This skill is highly related to what Shane (1994) identify as equality: the role of including as many members as possible from an organization into the innovation process. To do this, the innovation champions need to relate to people from different areas of the organization, such as different divisions and across the organizational hierarchy. Thus, collaborative skills play an important role in order to create efficient cross-functional ties. Innovation champions, then, need to engage the entire organization into an innovation, which is not necessarily easy to accomplish.

Financial tools are often used to measure whether or not an innovation project is desirable (C. M. Christensen, Kaufman, & Shih, 2008; Shane, 1994). Further, people often use these tools to persuade other members of the organization into supporting a given project. Innovation champions need to possess persuasion

skills, but not persuasion based on financial tools. Rather, Howell and Higgins (1990) claim that "by appealing to larger principles or unassailable values about the potential of the innovation for fulfilling the organization's dream of what it can be" (as cited in Shane, 1994, p. 336). However, if the organization rejects an innovation project, Howell and Shea (2001) argue that an innovation champion needs to persist under adversity, and never give up. Thus, an innovation champion will always act as a fuel for innovation. In accordance with the abovementioned analogy, we have now given a description of the "mother" in an innovation project. The next topic is the "father" in the project, or the innovation expert.

Experts

According to Rao and Weintraub (2013), "a cadre of innovation experts who know, teach and implement innovative practices is one of the most important innovation resources a company can have" (p. 31). Further, J. B. Quinn (1985) claims that effective management of innovation is independent of scale of operations or cultural differences.

Among the critical factors for successful innovation in small companies, J. B. Quinn (1985) uses "experts and fanatics" as a label. These people are usually founders of a company that tend to be pioneers in their technological field, and fanatics regarding solving problems. Being both experts and fanatics, these people perceive the probability of success to be higher than others do. Moreover, this commitment allows these people to carry on in spite of frustrations, ambiguity, and setbacks that follows large innovations (J. B. Quinn, 1985).

J. B. Quinn (1985) claims that the visions of an innovative company are tied to the realities of the marketplace in which they are present. Although each company adapts its techniques to their own style and strategy, two elements are always present. Innovative companies always have a strong market orientation at the top of the company, and they also have mechanisms that ensures interaction between technical people and marketing people at the lower levels (J. B. Quinn, 1985). The

experts of innovation, then, need to implement and maintain these mechanisms in addition to the maintenance of a strong top-level market orientation.

It is normal for managers to feed resources to the most promising options while at the same time keeping other options open (J. B. Quinn, 1985). Early on in a project, managers allow chaos and replication, but they demand more formal planning and control when the project scales up and development becomes more expensive. At these late stages, however, innovation experts maintain flexibility and avoid being too dependent on the original plan. By seeking inputs from manufacturing, marketing, and customer groups at an early stage, managers can prepare to modify their plans as the project progresses (J. B. Quinn, 1985). According to J. B. Quinn (1985), innovative companies maintain a flexibility to their programs for as long as possible, and their plans are frozen only for strategic purposes (e.g. timing).

Smith and Tushman (2005) claim that top management teams balance performance in the short-term and adaptability in the long-term through trade-offs in allocation of resources and decisions about organizational designs. This in turn requires balanced strategic decisions, in which top management teams confront and overcome barriers that can result in tendencies for both consistency and inertia (Smith & Tushman, 2005). This means that top management teams should support innovation, in spite of tendencies for inertia, and ensure a coexistence of agendas that are inconsistent, in spite of forces for consistency.

Talent

Talents are important in order to develop business opportunities and release the potential of growth (Nagji & Tuff, 2012; Ready & Conger, 2007). This is because in evolving businesses talents can use their skills to fill key positions, which are crucial for success. The main reason for lack of internal talent is that talent practices mismatch the company's needs. In other words, the lack of talent is a result of insufficient pipelines. According to Ready and Conger (2007), successful

companies manage to adapt a talent process that is highly rooted in the company's strategic and cultural objectives. This makes them able to not only produce talents, but also the right type of talents. So, how could companies become better at producing talents?

Toterhi and Recardo (2013) suggest a method they call the "talent funnel". The first step is to create a talent strategy and align it with the organizational strategy. This supports Ready and Conger's (2007) view of matching talent processes to company requirements. When done, the next step is talent acquisition. The focus, they argue, is to define needs and the set of skills required to fill these needs. This is because the set of skills required for one innovation could differ completely for another (Nagji & Tuff, 2012). The third step is talent development – the process of guiding the talents through the "funnel". The outcome of this process depends on how well the organization integrates its acquired talents, and how well it further motivates and creates clearness to the work. Finally, the last step relates to how the organization can retain talents. "If you have highly creative and ambitious people who feel trapped in moribund businesses, they are going to leave" (Hamel, 1999, p. 82). The key is therefore to continuously challenge and give the talents freedom to reach their potential. In the end, organizations must realize that people are the most important assets (Toterhi & Recardo, 2013).

The first of the resource-factors are thus people. We have described the mother, the father, and the pediatricians, all three critical in bringing up the child that innovation is in this analogy. The second factor of resources, and the next topic, is systems.

2.6.2 Systems

According to Rao and Weintraub (2013, p. 35), systems for innovation require appropriate "recruiting and hiring systems in place to support" innovation, collaboration tools that support innovation initiatives, and that companies must be good at leveraging "… relationships with suppliers and vendors" in order to

pursue innovation. These statements culminate in three elements that make up systems for innovation, namely *selection*, *communication*, and *ecosystem* (Rao & Weintraub, 2013). In what follows, we review each of the three elements in chronological order.

Selection

When hiring and assigning personnel to tasks it is important to look for intrinsic motivation in addition to skills, as qualified people who are personally intrigued and challenged by the task is more likely to produce creative work than unmotivated people (T. M. Amabile, 1988). Clayton M Christensen and Overdorf (2000) argue that managers must carefully consider what kind of team that should work on a project, and which organizational structure that team needs to work within. Thus, the tools and systems that allow a company to put the right people with the right skills in the right place at the right time are key components of an organization's talent management (Ready & Conger, 2007). This is achievable through good design, technical excellence, and with clear links between processes and the company's objectives. If these systems are combined with vitality, talent management may be a "secret weapon" in a competitive environment (Ready & Conger, 2007).

In order to optimize the talent management system, Toterhi and Recardo (2013) suggest applying the previously mentioned talent funnel, which is an adapted form of the sales funnel. They argue that the talent funnel can support corporate strategy by creating a talent strategy, define and fill the needs, develop the talents, and embed discipline. The talent funnel is a cultural overhaul of the talent management program meant to acquire highly talented people. Organizational leaders who wish to identify, attract, and retain top-notch talent should therefore use the talent funnel approach to manage their human capital portfolio, where the ultimate goal is an employee for life (Toterhi & Recardo, 2013).

Communication

Gilbert et al. (2012) argue that firms need to organize incremental and disruptive innovations into two separate businesses. Only then, firms can simultaneously reposition their core business while building a future. However, the key to success in both types of innovation lies in the communication and coordination between business units, where coordination ensures that each unit gets what it needs, while being protected from interference from other business units (Gilbert et al., 2012; Govindarajan & Trimble, 2010). Still, firms cannot undermine the importance of promoting mutual learning and innovation through cross-sectional collaboration and communication, as failing to do this kills innovation efforts (Kanter, 2006). Therefore, the question is how to coordinate the separate businesses so that they create synergies over chaos.

Swink (2006) argue that the issues of innovation are that firms often lack supporting infrastructure and processes, and on a higher level have technical and organizational barriers. Moreover, he states that the key to innovate successfully is to integrate new product development and supply chain innovation, which he defines as collaborative innovation. Collaborative innovation can be organized as a structured process; where guidelines are set and the focus lies on efficiency. Alternatively, it is organized as an unstructured process; no guidelines in which the focus lies on creativity. Swink (2006) suggests using a combination, using an unstructured approach in the early phase of new product development when the demand for creativity are higher, and then slowly shift towards a structured process to ensure efficiency.

Eventually, however, there will be conflicts between businesses potentially weakening coordination and communication. Firms therefore need a strategy to mitigate these conflicts as they arise. Govindarajan and Trimble (2010) suggest three types of actions, or tools, that firms can apply in order to achieve this. First, divide responsibilities between labors. Second, the new disruptive business must be built from scratch, so that it could be customized to do what it is supposed to

do. Finally, mangers must reduce the tension between the units by creating a feeling of interdependence, and constantly motivate collaboration.

Ecosystem

Ecosystem – in the context of cultures for innovation – means the relationships an organization have to its suppliers and vendors (Rao & Weintraub, 2013). While some companies innovate internally, use their suppliers to produce according to specifications, and believe that the customer does not yet know what he wants, others leverage their relationships to tap all available sources of information. Suppliers, for instance, can provide ideas for improvements on product design or even impact the efficiency of the entire manufacturing process (Ittner & Larcker, 1997). Similarly, customer feedback can influence what features to add or remove to an offering, and more broadly, what parts of the product- or service design that brings value, and consequently what parts that are redundant.

Ittner and Larcker (1997) investigated companies in the automotive and computer industry to measure performance effects of different management techniques. While different techniques yielded different results in terms of performance, both industries appeared to improve performance with the establishment long-term partnerships with suppliers and customers. Normann and Ramírez (1993) claim that successful companies reinvent value, as opposed to just adding it. Moreover, they do this by focusing their strategic analysis not on the company or industry, but the value-creating system itself. In this system, different economic actors – like customers and suppliers – collaborate to co-produce value (Normann & Ramírez, 1993).

In today's global markets, establishing and maintaining an ecosystem that includes external actors – both upstream and downstream – becomes more and more important. One reason, according to Normann and Ramírez (1993), is that value has become more dense. They explain density as being the amount of information and other resources economic actors can utilize to leverage their own

value creation. Thus, the increased density of value means that increasingly more opportunities for creating value are packed into an offering. For instance, going to IKEA is not just shopping but also entertainment, which among others includes daycare for kids and restaurants.

Strategy is about creating value, and the increased density of value has three strategic implications (Normann & Ramírez, 1993). First, a company's goal is less about doing something of value for the customer, and more about having the customer take advantage of the increased density and create value for themselves. To some extent, companies are not really in competition with one another anymore; it is the offerings that compete for the customer's time and money (Normann & Ramírez, 1993). Second, as offerings become more complex, so do the relationships needed to make them. Thus, an important strategic task is reconfiguring a company's relationships and business systems. Finally, "… if the key to creating value is to co-produce offerings that mobilize customers, then the only true source of competitive advantage is the ability to conceive the entire value-creating system and make it work" (Normann & Ramírez, 1993, p. 69). With this, we leave the description of systems for innovation, and introduce projects as the final resource-factor for an innovative company culture (Rao & Weintraub, 2013).

2.6.3 Projects

According to Rao and Weintraub (2013), projects demand dedicated time, finances, and physical and/or virtual space to pursue new opportunities. Hence, *time*, *money*, and *space* are the elements that projects comprises. As before, we begin this section by looking at the first element, time, before we move on to money and space.

Time

Rao and Weintraub (2013) emphasize the importance of giving people enough time to pursue opportunities. Indeed, time is a necessity for innovation to succeed.

Kanter (2013) emphasizes time as one of the nine most important factors for innovation, stating that managers wanting to see innovation in their company should leave slack for experimentation – both in terms of time and money – otherwise ideas will never be developed.

Several innovative companies schedules time exclusively for innovation, like Google's "20% time" and W.L. Gore's "10% time" (Rao, 2012; Schrage, 2013). This extra free time for innovation initiatives allows employees to work on any project they like, and has resulted in dozens of significant projects for the mentioned companies. Innovation programs like these can create numerous successful innovations in a company that values innovation. However, keep in mind that this is no quick fix for innovation, and that these kinds of programs do not work for all companies. Failure is always an option; most innovations never make it, are put on hold, or the market doesn't exist (Cooper, 1990). Moreover, innovation will not flourish unless managers are supportive of new ideas. In order for innovation programs like these to work, Kanter (2013) argues that there must be a high tolerance for failure, and that managers must let go of their conservative attitudes and be supportive of new ideas. If these two work-environmental aspects are present, special devoted time to pursue innovative projects can create fruitful opportunities for companies.

Money

Innovation projects are highly constrained by its money, or financial assets (T. Brown, 2008). Not devoting an adequate amount of financial resources to innovations will eventually strangle them (Kanter, 2006). Firms that have a portfolio of innovation projects therefore face a dilemma regarding the funding of projects. Which innovation projects should be funded and which should not? One solution is to use financial calculations such as NPV. The main problem, however, is that the future earnings are not necessarily possible to calculate for radical innovations (C. M. Christensen et al., 2008). This is because radical innovations are exploring new market opportunities, which have an unknown potential for the

future. Incremental innovations, on the other hand, relate to firm's daily activity and are therefore easier to quantify both regarding risk and financial contributions. The result is often that firms prefer to fund incremental innovations over radical innovations since they have lower risk and give quicker results (C. M. Christensen et al., 2008). In practice, firms are choosing short-term income over long-term.

Markets can suddenly change, creating an urgent need for innovations. This implies that a need for the financial assets funding these innovations can also occur quickly, making the availability of financial assets important (T. Brown, 2008; Kanter, 2006). T. Brown (2008) argues that to be able to respond to these rapid market changes, firms need to make budgets that take into account changes, so that money is available when there is need for innovation. Furthermore, lacking financial assets results in individuals channeling their creativity towards finding additional resources (T. M. Amabile, 1998), which disrupts the focus needed to innovate successfully (O'Reilly & Tushman, 2004). Thus, lack of financial assets will inhibit a firm's ability to respond to market changes, and at the same time reduce the likelihood of innovating successfully.

Space

Rao and Weintraub (2013) define space as the virtual or physical space firms have to pursue new opportunities or innovation. Moultrie et al. (2007) claims that a firm's physical environment – including both virtual and physical space – is connected to two types of processes: the process of aligning the physical environment and the firm's strategic goals, and the process of using the physical environment in order to achieve the strategic goals. Thus, as long as innovation is a strategic goal, the physical environment affects and contributes to innovation. Moultrie et al. (2007) argue that physical environment might contribute to innovation by enhancing the innovation productivity and effectiveness, and that it affects how fast a firm is able to reconfigure its assets to meet changing demands. However, just dedicating space to innovation is not enough; the innovation space needs to match the innovation strategy. Therefore, firms continuously need to

evaluate their available space in order to ensure that strategic and realized intent are the same, and align them if necessary (Moultrie et al., 2007).

Oksanen and Ståhle (2013) argue that the link between innovation and space is a social and human-centered process. By creating favorable conditions for creativity and learning among individuals, physical environment can contribute to enhance innovation (Oksanen & Ståhle, 2013). Since space requires that individuals be physically in attendance, the experience and knowledge gained are specific to each individual and therefore firm specific. Thus, space can indeed contribute to firms' competitive advantages. Finally, Oksanen and Ståhle (2013) found that spaces that contributes to innovation hold five characteristics: they enhance communication, are easy to modify, act as a socio-technical ecosystems, are value reflecting, and attract creative talents.

2.6.4 Summing Up

This part of the theory-chapter has described resources according to the Rao and Weintraub's (2013) framework. Resources – as a bundle of intangible and tangible assets – are inarguable essential for succeeding in innovation. However, literature considers intangible assets as more crucial than tangible assets, as they reflect company capabilities. People – as a resource – are of great importance for a company's innovation performance. This, however, should be intuitive as people are the main components of any firm. Further, managers face a challenge when acquiring and developing resources in order to create fit between resource and company goals. Thus, determining how assets complement an innovation is therefore essential for succeeding with innovation.

The literature on the resource building block has revealed that some requirements of radical and incremental innovations – such as funding criteria – are incompatible with one another. As ambidextrous organizations combine radical and incremental innovation, these findings indicate that ambidextrous organizations successfully combine seemingly incompatible resources. This,

however, would require the organization to have processes that support this combination of “incompatible” resources. Thus, processes is the next topic we address.

2.7 Processes

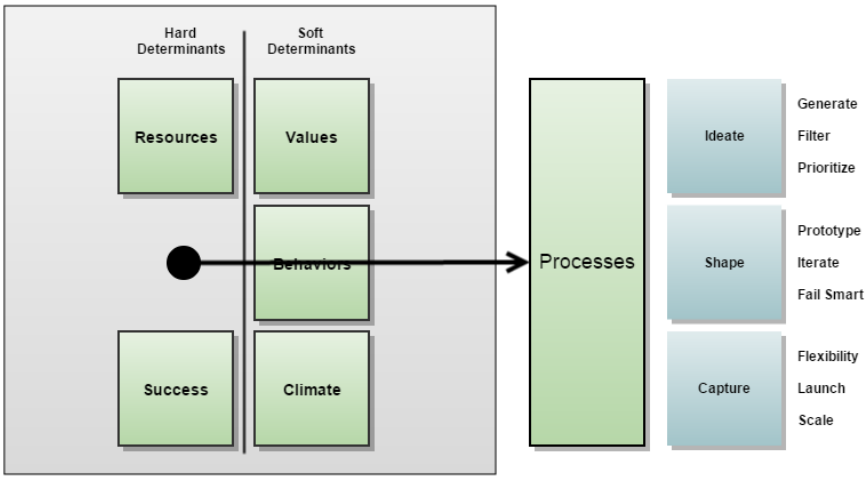

Figure 3 - The processes building block.

This section covers processes for innovation, and represents the second building block for an innovative company's culture (Rao & Weintraub, 2013). We adopt the definition of innovation processes from Kline and Rosenberg (1986): "The process perspective of innovation considers innovation as a series of interrelated activities, where new knowledge is created and used through these activities" (as cited in Grimaldi et al., 2012, p. 306). This building block comprises the factors ideate, shape, and capture, which are further broken down into nine distinct elements in accordance to the figure above (Rao & Weintraub, 2013).

Theory tends to simplify the innovation process by splitting it into smaller stages of activities in order to guide and focus these activities (Du Preez & Louw, 2008). Examples of such stages are information generation and information collection. Du Preez and Louw (2008) argue that the innovation process itself is important, as the quality of the innovation – whether it be a physical product or a process – strongly depends upon the quality of the process used to develop and implement the innovation.

When discussing new product development processes, several models today have been created as a response to the increased pressure to reduce the cycle time and product "hit rate". Some models tend to view an innovation process as being sequential and linear, while others tend to take a more dynamic and iterative approach. Du Preez and Louw (2008) illustrate this by showing that new product development-theory has been developed through six generations: ranging from simple market push- or pull-strategies, to iterative and dynamic processes where all stages are linked to the external environment as the most advanced generations. Cooper (1990) argues that a sequential and linear model – a stage-gate model – gives a better overview and adds discipline to the innovation process. Stage-gate systems have previously worked best with incremental innovations, where one of the characteristics is relatively low levels of ambiguity compared to radical innovation. It has been argued, however, that stage-gate models do not handle ambiguity very well, and the role of ambiguity in the new product development process (Brun, Saetre, & Gjelsvik, 2009), thereby limiting their applicability. Moreover, inflexible processes are likely to have a negative influence on innovation (Kanter, 2006) as tight discipline and control undermine creativity (T. M. Amabile, 1998).

In order to enhance creativity, a company can take on an iterative and dynamic approach (T. Brown, 2008). Miller (2006) and Brun et al. (2009) argue that dynamic and iterative models are more suited when dealing with radical innovations. This means that companies can deliberately choose to implement an innovation processes best suited for their innovations, whether they focus on incremental or radical innovations. Additionally, organizations can deploy different processes for different units, depending on the radicalness of innovations in the unit, effectively creating a structural ambidextrous organization (O'Reilly & Tushman, 2004). The following section describes ideate, the first of three factors that processes comprises.

2.7.1 Ideate

We understand the process factor "ideate" as the idea generation and idea selection part of the innovation process. Rao and Weintraub (2013) emphasize that the ideation process should generate ideas in a systematic way, and that those ideas should come from "… a vast and diverse set of sources" (p. 35). Further, ideation includes a filtering and refinement of ideas used to identify promising opportunities. Finally, ideation includes selection of ideas based on a clearly voiced risk portfolio. These three statements make up the elements of ideation: *generate*, *filter*, and *prioritize* (Rao & Weintraub, 2013). We begin this section by looking at the first element, generate, followed by filter, and finally prioritize.

Generate

Successful implementation of new processes or products depends on a person or team having a good idea that is developed beyond its initial state. Thus, every innovation begins with creative ideas (T. M. Amabile, Conti, Coon, Lazenby, & Herron, 1996). These ideas are closely tied to the creativity of individuals (T. M. Amabile, 1988; T. M. Amabile et al., 1996). T. M. Amabile et al. (1996) argue that creativity – as the basis for all ideas – sow the seeds for successful innovation. Creativity is found to be dependent upon three factors; employee's expertise, creative-thinking skills, and intrinsic task motivation (T. M. Amabile, 1988, 1998). Expertise covers the knowledge and skills individuals in the company possesses, while creative-thinking skills refers to how individuals approach problems and solutions, with emphasis on how they connect existing ideas into new combinations. Intrinsic motivation emerges from the work itself and encourages individuals to work for the challenge, interest, enjoyment and satisfaction of doing a task. While individuals' expertise and creative-thinking skills determine what individuals are capable of doing, intrinsic motivation will determine what the individual actually does (T. M. Amabile, 1988). Although all three factors can be developed and influenced, intrinsic motivation is by far the factor most easily influenced. T. M. Amabile (1998) found that managers can

increase intrinsic motivation – and thus indirectly creativity and innovation – in a work environment that includes challenges, freedom, resources, suitable work-group features, supervisory encouragement, and organizational support. The other two factors require large efforts over extended time.

Many ideas develop internally within a unit of a company, but the "biggest sparks" are often created when fragments of ideas come together (T. Brown, 2008; M. T. Hansen & Birkinshaw, 2007). Related to this, Holmes and Glass (2004) argue that a company's researchers must be encouraged to interact with other researchers, customers and cross-discipline experts in order to increase a company's innovative performance. Further, M. T. Hansen and Birkinshaw (2007) claim that ideas can come from three sources: from within a unit in the company; from collaboration across units; or through collaboration with parties outside the company. They further emphasize the importance of having diverse sets of sources for information and ideas, as opposed to a large number of similar sources. H. W. Chesbrough (2003) argues that successful firms manage to exploit outside ideas to advance their own business while leveraging their internal ideas outside their current operations. To succeed in innovation, then, firms need to take on both an internal and external approach; they have to focus on creativity, collaboration and diversity at the same time (T. M. Amabile & Khaire, 2008). These elements are all parts of the Rao and Weintraub (2013) questionnaire, and are thus discussed in their respective sections.

Ideas that originate from outside the company let companies exploit new insights and knowledge and help them advance their own business (M. T. Hansen & Birkinshaw, 2007; Holmes & Glass, 2004). H. W. Chesbrough (2003) suggests that companies use open innovation to achieve this. Open innovation is a concept where the boundaries between firms have become more porous, and ideas shuffle in and out (H. W. Chesbrough, 2003). Examples of companies with an "open innovation"-strategy are companies that focus their activities on either funding, generating or commercializing innovation. H. W. Chesbrough (2003) argue that

the role of R&D needs to extend beyond the boundaries of the firm, and that innovators must integrate their ideas, expertise, and skills with external organizations in order to deliver results to the marketplace in the most effective way. Birkinshaw, Bouquet, and Barsoux (2011), however, argue that while open innovation is advantageous for solving a narrow technological problem, internal innovation forums have a higher understanding of context. Open innovation therefore provides a broad range of expertise, but internal innovation forums have an understanding of context that sometimes outweigh their lower breadth.

Filter

Companies must filter and refine their ideas in order to follow the best opportunities (Rao & Weintraub, 2013). Companies should therefore develop suitable filtering processes and criteria, and filter ideas according to their overall strategy (Du Preez & Louw, 2008). The challenge is to filter out bad ideas, while keeping the risk of stopping good ideas as low as possible.

Kock, Heising, and Gemünden (2014) find in their study that creative encouragement, process formalization, and ideation strategy all positively relate to successful idea generation. Creative encouragement is an open action strategy where the number and variety of ideas increases, whereas process formalization is a closed action strategy that focus, integrate, and select ideas. Further, ideation strategy is aligning idea generation and idea selection activities to the company's overall innovation strategy. Kock et al. (2014) suggest viewing the ideation phase from a portfolio perspective, which influences front-end success and indirectly project portfolio success. The front-end of innovation is in this context defined as the process from the beginning of idea exploration until the project requires significant investments. Kock et al. (2014) conclude that managers should balance process formalization and creative encouragement simultaneously as they have complementary effects on front-end innovation success.

Nagji and Tuff (2012) argue that innovation may be a reliable driver for growth if the filtering mechanism balances a firm's portfolio of innovations. This implies using different filters for different types of innovation, where the goal is to achieve an optimal balance in a company's portfolio. Similarly, Kanter (2006) argues that managers should categorize ideas based on financial size, and apply different filtering criteria for big, medium and small ideas. This approach may enhance the development of small ideas, as these often get a low priority if all projects have the same evaluation criteria.

Veryzer Jr (1998) argue that radical and incremental innovations follow different paths before the filtering stage. While incremental innovations usually begin with market research and business analysis before the product is developed, radical innovations go through phases of exploration, convergence, formation, and preliminary design before evaluated by the management team. The radical innovation process is therefore a more dynamic approach with overlapping phases, while linear processes are better suited for incremental innovation (Miller, 2006). Even though there is still great uncertainty at this phase in the innovation process – especially for radical innovations – analyses can give management an idea of what potential the innovation has, and if it qualifies for significantly increased funding and resource allocation (Veryzer Jr, 1998).

Prioritize

Companies have to prioritize ideas in order to succeed with innovation. Small budgets, too strict funding criteria and conventional thinking can restrict innovation initiatives and cause them to remain undeveloped (M. T. Hansen & Birkinshaw, 2007). Rao and Weintraub (2013) emphasize the importance of prioritizing projects "… based on a clearly articulated risk portfolio" (p. 35). Nagji and Tuff (2012) have developed the innovation ambition matrix to enable companies to categorize their opportunities in relation to risk and reward. The goal is after all to achieve the highest overall return given the company's tolerance for risk. The innovation ambition matrix divides innovations into core innovations,

adjacent innovations, and transformational innovations (Nagji & Tuff, 2012). Core innovations use existing products and assets to serve existing markets and customers, while transformational innovations is development of new products and assets to create new markets and target new customer needs. Adjacent innovation is a middle point of these two types, with incremental improvements to products and assets to enter adjacent markets and customers. The innovation ambition matrix can help managers prioritize innovation initiatives in two ways: First, it gives an overview of the innovation initiatives in the company, showing how many innovations that are developed, and how much money that is spent on each innovation. Second, it is a starting point for managers to discuss the ambitions for the company's innovation strategy; they can decide how they want the distribution of innovations to look like.

Generate, filter, and prioritize have over the last three sections been explained in accordance to the conceptualization given by Rao and Weintraub (2013). With this, we wrap up the first factor of processes, and move on from ideation to explain the theory behind shaping innovations.

2.7.2 Shape

We understand the processes factor shape as the stage between idea and first result. In the shaping part of the innovation process, Rao and Weintraub (2013) emphasize quickly prototyping promising opportunities, having well-functioning feedback loops between the company and its customers, and using predefined failure criteria to quickly stop projects. Together, these make up the elements of shape: *prototype*, *iterate* and *fail smart*, respectively (Rao & Weintraub, 2013).

The shaping process requires proper management, because it is important to give new ideas sufficient resources for the development to go somewhere (M. T. Hansen & Birkinshaw, 2007). Moreover, many projects die in the shaping process due to lack of resources (T. M. Amabile, 1988). It is therefore considered crucial to allocate sufficient resources when developing a new idea (Kanter, 2006).

Prototype

Prototyping is an important part of innovation, as physical prototypes can persuade decision-makers far better than charts and drawings (T. Kelley, 2001). T. Kelley (2001) states that anything – like products, services, and promotions – can be prototyped, and that no innovation is too complex to be prototyped. In fact, he argues that when facing especially complex tasks, prototyping can help progress by showing what can and cannot be accomplished. In the end, the prototypes will reveal what benefits customers are able to see in the innovations. This view is largely supported by T. Brown (2008), who argues that prototypes are not meant to be finished solutions, but only as evolved as they need to be in order to generate useful feedback. The goal of a prototype is to explore the innovation's strengths and weaknesses, and to identify the future development of the idea. Because of the high value of this early feedback, T. Brown (2008) emphasizes prototyping all the way from the first few weeks until the late stages of innovation, as it should be part of an iterative process towards the final product.

Veryzer Jr (1998) divides the prototype phase of radical innovations into three parts: formative prototyping, testing and design modifications, and prototyping and commercialization. These phases all overlap, as is characteristic for radical innovations. The formative prototype focuses on market and commercialization issues, which often results in a need for customer feedback, and moves the processes into the testing and design modification phase. In the final phase, prototype and commercialization, focus is more on customer benefits of the product, use issues, interface development, and creating marketing plans. In these final stages, the innovation process aligns with those of incremental innovation.

Concerning prototyping speed, Thomke (1998) finds that rapid prototyping, which is characterized as both fast and inexpensive, is a preferred way to build physical or virtual objects for experimentation with new innovations. Thomke (1998) finds that companies with a two-step experimentation approach – i.e. simulation followed by prototyping – can greatly reduce the time to market for innovations

by using low-cost technology prototyping. This will help reduce the time required to develop new prototypes, as well as allowing projects to move earlier into prototyping, which greatly reduces innovations' time to market. This also means that companies might need to alter their strategy for knowledge management between simulation and prototype department, and may also require changes in the company's capabilities (Thomke, 1998).

Iterate

Following the development of the innovation value chain models, the most modern models include considerable emphasis on iterative processes (Du Preez & Louw, 2008). Du Preez and Louw (2008) present a model in which the innovation process has distinguishable stages, but these stages can both overlap and include iterative loops, where these loops can be both within and across stages. Hence, their model combines linear- and spiral innovation processes.

According to T. Brown (2008), design thinking is a concept that especially values iterative processes. He argues that "… innovation is powered by a thorough understanding, through direct observation, of what people want and need in their lives and what they like or dislike about the way particular products are made, packaged, marketed, sold, and supported" (T. Brown, 2008, p. 86). T. Brown (2008) further argues that design thinking embodies three spaces that projects need to pass: inspiration, ideation, and implementation. The first space, inspiration, is the "circumstances … that motivate the search for solutions" (p. 88). Second, ideation is the process where generation, development, and testing of ideas occur. This is the space where the organization create solutions for the current problem. Finally, implementation is the space in which the organization creates a path to market. T. Brown (2008) emphasizes that projects loop back through these spaces, and that the first two spaces are particularly the ones where iteration occurs.

As previously mentioned, innovation is an uncertain process that more often than not leads to failure. In order to succeed, then, one must generate many ideas, iterate back and forth, and move on with the best ideas. A key to this notion is the implication made in continuing with only the best ideas; going with the best ideas implies scrapping the worst. Thus, the theme of the next section is discovering and terminating bad ideas.

Fail smart

While killing the wrong ideas can be dangerous to an organization, not stopping bad ideas might be equally dangerous (Daly, Sætre, & Brun, 2012). Cooper (1990) argues that increasing demands of launching the right products faster force companies to create a more effective innovation process. The result is that companies often focus less on quality in their innovation development programs. Cooper (1990) further presents the stage-gate system for managing innovation. The system divides the innovation process into a set of stages, where the entrance to each stage is a gate where products may pass through, or are terminated. The gates serve as quality controls, easing mangers' task of choosing which projects to proceed with, and which ones to terminate. A stage-gate system can, if employed correctly, increase both efficiency and effectiveness of the innovation process.

When termination of a project is a fact, Daly et al. (2012) argue that termination needs to be combined with accommodation in order to appreciate the human side of innovation. This minimizes the negative effects termination have on creativity in companies, like de-motivating the employees who came up with the idea and those who worked on the terminated project (Kanter, 2013).

When evaluating if projects should continue or not, there are two possible errors: false positives or false negatives (H. Chesbrough, 2004). False positives are promising projects that eventually fail, while false negatives are projects with unsatisfying forecasts that in fact become successful. Most companies limit false

positives by assessing projects' commercial potential, but fewer companies focus on limiting false negatives. H. Chesbrough (2004) suggests monitoring projects even after termination, and suggest doing so either by tracking projects after termination, release the failures to an outsider, out-license the project, or creating an external spin-off venture. If companies follow one of these suggestions, they can notice when a project exceeds expectations, and are able to reassess the commercial potential of the project. Interest from a large customer or the ability to raise significant capital could indicate a false negative.

Thus far, we have described ideation and shaping as two process-factors. According to Rao and Weintraub (2013), capture is the final factor that describes the processes of an innovative company culture. In the next section, we therefore describe the meaning of capture, and the three elements that make up this factor.

2.7.3 Capture

We understand the process-factor capture as the stages from first result until full production. After ideation and shape, an organization has an innovation that is almost ready for the market, but how does this organization capture the potential benefits of the innovation? Rao and Weintraub (2013) emphasize flexible and context-based processes, as opposed to control- and bureaucracy-based processes. Further, they emphasize going quickly to market with the opportunities showing most promise, and finally, rapid allocation of resources to scale up initiatives that show promise. These statements are the elements of capture: *flexibility, launch* and *scale* (Rao & Weintraub, 2013). As before, we describe the elements in chronological order.

Flexibility

Successful innovation requires a certain degree of flexibility in the company's innovation processes (Rao & Weintraub, 2013). While daily operations can benefit from tight planning, budgeting, reviews, and managers with incentives to continue to do what they do, these processes are often too inflexible for innovation

(Kanter, 2006). The nature of innovation is unexpected turns and sidetracks. Thus, Kanter (2006) argues that innovations require more flexible planning and control systems. She further suggests that innovative projects should not have to wait for the next budgeting cycle, for instance by creating an innovation fund. Moreover, Kanter (2006) suggests rewarding people for exploiting unexpected opportunities.

In order to deal with the flexibility issue, O'Reilly and Tushman (2004) test the ambidexterity hypothesis, and find that ambidextrous organizations are better able to simultaneously exploit and explore; these companies have the necessary flexibility to succeed with both incremental- and radical innovation at the same time. We described this theory in detail and more broadly in the earlier section on ambidexterity, and we therefore leave ambidexterity to continue describing launch as the second element of capture.

Launch

Launching products quickly to the market is important, but companies must try to avoid that too strict time schedules negatively affects their innovativeness (T. M. Amabile, 1998; Kanter, 2006; Rao & Weintraub, 2013). H. Chesbrough (2004) emphasizes the importance of speed in innovation processes, and argues that management should focus on shortening time-to-market, both for internally developed and externally licensed products. This is to increase the rate of learning from R&D for the company and the overall performance of R&D. Kessler and Chakrabarti (1999) found several elements that can influence innovation speed, for example clear schedules and time goals, individual experience, and overlapping stages. Particularly interesting are their findings that suggest a contingency approach to innovation, because certain elements are conflicting for incremental and radical innovation. The speed of radical innovations can benefit from clear product concepts, more low-level innovation champions, a higher-level project leader, co-locating, and frequent testing. Incremental innovations, on the other hand, can benefit from vague product concepts, fewer champions, a lower-level project leader, decentralized teams, and frequent testing. These findings

indicate that managers should apply a contingency approach to adapt methods according to the type of innovation at hand (Kessler & Chakrabarti, 1999). However, trying to speed up innovation is not without dangers; tight planning and control creates a risk of killing creativity, and thus innovation at the same time (T. M. Amabile, 1998; Kanter, 2006). Several academic researchers, then, argue that in order to improve innovation performance companies should focus on developing a business model that makes the innovation profitable, rather than getting to market first (Johnson et al., 2008).

Thölke, Jan Hultink, and Robben (2001) investigated different launch strategies for new product features. They found that four different launch strategies were in use among the sample companies: dictatorship, pioneering, establishing, and following. Dictators create new product features that give them a substantial competitive advantage, and thus sets a new standard in the market that the competitors has to follow. Competitors must either develop the feature themselves or buy it from the dictator. Pioneers develop new features with low technological effort to achieve an effective sales argument. The aim is to make the new features too important to be optional. An establishing strategy involves either small improvements of existing features to enter mass markets, or introducing an existing feature into new mass markets. Finally, a following strategy means launching an existing feature in an existing market; these features are necessary for a products success, but does not generate extra profit.

Scale

According to Klingebiel and Rammer (2014), managing innovation portfolios with a combination of early broad funding and late selection relates positively to the portfolio's performance. Moreover, this effect is stronger for more radical product innovations. This breadth-selectiveness strategy enables companies to take advantage of the breadth in resource allocation, while selectiveness outmaneuvers some of the disadvantages of breadth. The greatest benefit of broad funding is that companies can develop several projects, including projects that

might prove to be successful despite not qualifying for funds in an early selection strategy. Further, later selectiveness makes it possible to avoid the escalating costs of broad funding. Klingebiel and Rammer (2014) also found that companies with this breadth-selectiveness strategy are better able to respond to new information, which is particularly important for portfolios that include radical innovations. When selection is made, however, initiatives are scaled and demands for resources increase rapidly. According to Clayton M Christensen and Overdorf (2000), just providing resources to an innovation initiative is not enough. As a company's resources can be appropriate in certain situations, while inappropriate in other situations, each innovation must match its resources in order to be successfully developed.

We end the description of processes at this juncture, but not before providing a summary, which includes lines to ambidexterity relating to innovative processes.

2.7.4 Summing Up

Our literature review suggests that good ideas may originate from a vast and diverse set of sources that are both internal and external to the firm. Further, as ideas move through the "innovation value chain", the process becomes a balancing act between terminating ideas – to ensure efficient processes – and fertilize ideas – so they can flourish. Thus, on the one hand, there is a constant tension between flexibility and capturing, and on the other hand, discipline and prioritizing. Several systems – like the stage-gate system – means to solve process-related problems. No system is perfect, however, and there are consequently pros and cons to all systems.

We identified that that some of the requirements of processes – such as process flow and time – are incompatible for incremental and radical innovation. Literature revealed that radical innovation benefits from increased flexibility, external knowledge sourcing, and a dynamic process flow, while incremental innovation benefits from internal knowledge sourcing and a linear process flow.

These findings suggest that ambidextrous organizations must be able to handle all these seemingly incompatible processes simultaneously. The final tools-oriented building block of and innovative company culture – success – is the topic to address in the next section.

2.8 Success

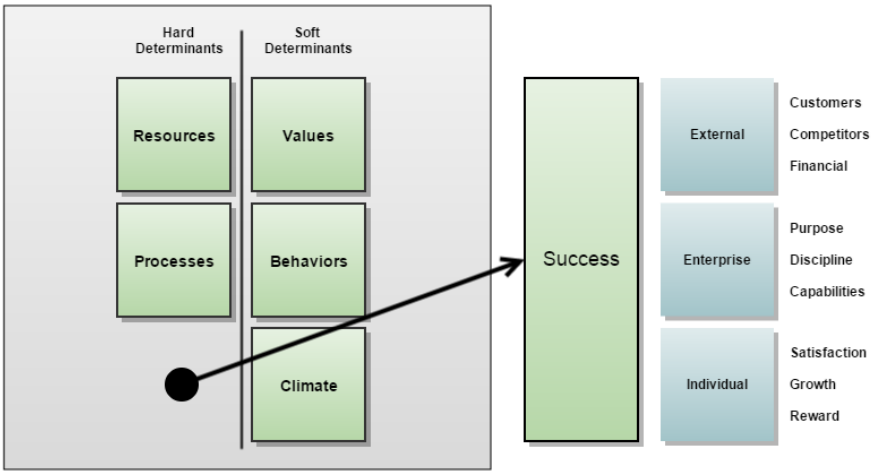

Figure 4 - The success building block.

Rao and Weintraub (2013) emphasize that success reinforces companies' values, behaviors and processes. These will again affect actions and decisions, for instance: whom do we reward, whom do we hire, and which projects do we fund? Rao and Weintraub (2013) argue that success in companies is apparent at three levels: external, enterprise and individual.

Having deep pockets - made from past success- ultimately allows a firm to pursue new innovative opportunities and invest in areas necessary for its continued success. However, a central question would be whether success in fact is good for innovation. According to Clayton M Christensen and Overdorf (2000), industry leaders rarely introduce radical innovations, and innovation in general tends to be more difficult for established firms. Levinthal and March (1993) argue that if an organization has achieved improved performance by developing capabilities and knowledge in one area, the organization's incentive for learning new technologies is actually reduced. It might be, then, that success actually reduces the capability organizations have to innovate, but is that the case for all levels?

In the remainder of this part, we dive deeper into the three levels of success – beginning with external – before ending the section with a summary, as we did with the previous two building blocks.

2.8.1 External

We understand this first innovation success factor, external, as whether external stakeholders consider a company as being innovative. For an organization to be successful on an external level, Rao and Weintraub (2013, p. 35) emphasize that customers think of the organization as innovative. Further, the firm's innovation performance is beyond that of others in the industry, and the organization has the best financial performance in the industry. Taken together, these three criteria make up external success, and the element's labels are *customers*, *competitors*, and *finances*, respectively (Rao & Weintraub, 2013). As in the previous sections, we review the elements in chronological order.

Customers

According to Rao and Weintraub (2013), customers perception of a company as innovative is important. To some extent, this is self-explanatory: a company that is seen as innovative, will have hordes of customers ready to buy "the next big thing", even if the product is actually inferior to one offered by a competitor. Conversely, a company not seen as innovative might struggle to get attention to their new and groundbreaking offering, even if the offering technically outperforms every competitor.

In a purchasing decision context, Puncheva-Michelotti and Michelotti (2010) found that while customers consider companies' ability to deliver value, they also consider corporate social responsibility, emotional appeal, credibility, and patriotic appeal in their evaluation of companies' reputation. Many companies are famous for having a high regard for innovation, and they keep striving to create or maintain an innovative reputation. Henard and Dacin (2010) researched this phenomenon in search for competitive advantages due to intangible assets that

emerge from this strategy. Indeed, they found that a company's reputation for product innovation positively influences customers' behavior. They found that a company's reputation directly and positively influence customer involvement in four ways: by increased excitement about the company, enhancing the image of the company, increasing tolerance for failure, and increasing loyalty to the company. However, their findings indicated that reputation for product innovation does not affect customer price elasticity. In another study that investigated product reputation and market performance, Fuertes-Callén and Cuéllar-Fernández (2014) found that product innovation increases the degree of commercialization and product reputation, which in turn increases market performance. They conclude that this meditating effect of product reputation and commercialization on market performance is an important success factor for innovations, and that companies therefore should integrate innovation and marketing activities. These studies demonstrate the importance of customers' perception of companies' innovativeness for market performance.

While innovation mostly seems to have positive consequences, not all innovations contribute to a better reputation from the customer's perspective. Stock and Zacharias (2013) researched customer loyalty in business-to-business markets in relation to innovation, and used two dimensions for innovation: innovation newness and innovation meaningfulness. In this context, newness and meaningfulness relates to the customer's perception of the innovation. If the newness is high, it means that the customer has to learn much about the offering before benefitting from what is new. With the same reasoning, meaningfulness is whether customers considers an innovation as meaningful for them. Innovation newness is often associated with negative associations, like increased uncertainty or greater learning effort. Innovation meaningfulness, on the other hand, has mostly positive associations, like cost savings or better solutions for customers. Thus, managers must consider both positive and negative customer responses on innovation. From this, managers should not only produce many innovations, but

also make sure that customers consider them meaningful. Finally, Stock and Zacharias (2013) found that the negative effects of newness are lower in companies that have a strong innovative brand. Moreover, the positive effects of meaningfulness can increase through customer involvement and interaction in the value-creating process.

Competitors

Rao and Weintraub (2013) consider competitors' assessment of a company's innovation performance as an important measure for external success. A commonly used benchmark for reputation among competitors and industry specialists is Fortune's list "America's Most Admired Companies" (Iyengar, Kargar, & Sundararajan, 2011), and it is considered important to be on this list in order to succeed in competitive markets. In fact, being on such a list may give economic benefits such as better rent premiums (Iyengar et al., 2011). The "Most Admired" list is based on survey answers from business leaders (executives, directors) and analysts to determine companies' reputation. Iyengar et al. (2011) find that companies "… with a large size, prior ranking and high growth in market-to-book value" (p. 217) are more likely to be on the list, while e.g. profitability and return on assets did not predict reputation. Moreover, executive entrenchment negatively affects reputation. Their conclusion is that companies wanting to be admired should perform better in the market and have a democratic form of corporate governance. This might seem obvious, especially that increased performance correlates positively to reputation, but it not as obvious that competitors admire a company for more than performance. For instance, while prior ranking and company size – neither of them displaying current performance – are important for competitors' opinions, return on assets – which is a measure of financial performance – is apparently not important to gain competitors' admiration. In their study of innovation and reputation using the "Most Admired" list, Safón (2009) targeted the effects on reputation from innovation and product quality in industries with different technological levels, but their findings

indicated no significant differences between high-tech, medium-tech and low-tech industries. However, their findings imply that companies can profit relatively more from focusing on product quality, than on being the most innovative company with regard to the company's reputation. Thus, while being innovative enough to be on the list is a good thing, striving only to increase reputation might not be beneficial.

Financial

Several studies have shown that innovation correlates positively to financial performance. In a large study of more than 19 000 service companies, Cainelli, Evangelista, and Savona (2006) found that innovating companies have been found to out-perform non-innovating companies, both regarding productivity and economic growth. However, their findings indicate a cumulative and self-reinforcing relationship between innovation and companies' productivity; well performing companies are better at innovation and put more resources into innovation. In their study on commercialization and reputation in product innovation success, Fuertes-Callén and Cuéllar-Fernández (2014) found that innovation in general gives companies a competitive advantage by positively affecting market performance, which was measured in sales and new customers.

Research has also found that companies that combine exploration and exploitation performs better than their competitors in terms sales performance, while an imbalance between exploration and exploitation negatively affects sales growth rate (He & Wong, 2004). Regarding radical innovations, Xin, Yeung, and Cheng (2009) found that these innovations only help maintaining strong sales growth and return on sales, while return on assets was not significantly improved, as development of radical innovations actually decrease profitability for companies (Cainelli et al., 2006). Therefore, as radical innovations are often expensive, the short-term effects tend to be reduced performance. On a long-term perspective, the once radical innovation is integrated in the company portfolio and contributes to performance, while new, costly, and radical innovations are developed.

Conversely, incremental innovations give short-term gains, and finding a balance between the two ensures that companies can both exploit the current, while still being able to explore for future viability (Levinthal & March, 1993). At this point, we end the theoretical outline of external success, and move on to the second success factor of an innovative company culture: enterprise.

2.8.2 Enterprise

The second success factor is enterprise, and is about the role innovation has in the company. Enterprise, according to Rao and Weintraub (2013), comprises the elements *purpose*, *discipline*, and *capabilities.* Rao and Weintraub (2013) emphasize that innovation is treated as a long-term strategy, as opposed to a short-term fix. Further, the given organization should have a "… deliberate, comprehensive and disciplined approach to innovation" (p. 35). Finally, the innovation projects in the company should contribute to development of new capabilities. The next paragraph introduces the first element: purpose.

Purpose

Purpose, as described in Rao and Weintraub (2013), is about treating "… innovation as a long-term strategy rather than a short-term fix" (p. 35). Cooper and Kleinschmidt (1995) identified "a clear and well communicated new product strategy for the company" (p. 384) as an important performance driver that separate solid performers from other companies. An organization's new product program should have a long-term focus, and it should include some long-term projects as well.

Levinthal and March (1993) argue that organizational learning has a tendency to sacrifice the long run for the short run. As organizations develop distinctive competencies and niches, they also compromise their ability to learn outside those competencies and niches. Moreover, surviving in the long run obviously requires survival in each of the short runs along the way, and a strategy for short-term survival is likely to increase long-term vulnerability (Levinthal & March, 1993).

Hence, an organization's strategy must include a plan for the long run, as well as ensuring short-term survival. Once an organization has a strategy that includes both long-term viability and short-term success, all they have to do is execute the given strategy.

According to M. L. Tushman (1997), most companies today have well-articulated strategies and visions, but few are able to execute them well. The degree to which managers are able to execute a company's strategies and visions "… depends upon how managers use the organization's processes, structures, rewards, systems, roles, competencies, and culture" (M. L. Tushman, 1997, p. 16). Further, managing streams of innovation – processes for incremental and radical innovation – would require an ambidextrous organization. "It calls for managers who can maintain consistency and encourage continuous improvement in current offerings, while at the same time allowing the flexibility and experimentation that help the firm create or respond to radical shifts in the environment" (M. L. Tushman, 1997, p. 17). Moreover, according to M. L. Tushman (1997), the strategy, structure, people, and processes required for incremental innovation is fundamentally different from that of radical innovation. Thus, managers must ensure that there is several different structures and cultures in the organization, all held together by a single vision and management team. Achieving this, however, would require both managers and employees to think about their actions and decisions; they need to have discipline in their work.

Discipline

As one of three elements describing the factor enterprise, discipline means having "… a deliberate, comprehensive and disciplined approach to innovation" (Rao & Weintraub, 2013, p. 35). Having a disciplined approach to innovation is obviously an advantage for an organization. However, which decisions do one make when faced with a particular innovation? Moreover, is there a difference in discipline for radical and incremental innovations?

As mentioned, a stage-gate system will for many companies be the answer to a disciplined approach to innovation (Cooper, 1990). No system is perfect, however. While being suitable for stable industries and incremental innovations, Brun et al. (2009) argue that stage-gate systems are less fitting for innovation in dynamic environments and management of radical innovation processes. Radical innovations like new product development are characterized by considerate ambiguity, and Brun et al. (2009) and Miller (2006) suggest that new product development should be approached non-linearly with an emphasis on iterations and flexibility. It is therefore implied that the use of stage-gate systems is effective only when dealing with incremental innovations.

However important it is to have a disciplined approach to innovation, it is equally important to separate between types of innovation and understanding that different types requires different approaches. Thus, it is necessary to have disciplined approaches to innovation, but also to vary the approach according to which type of innovation the organization want to pursue. For an ambidextrous organization, this means separating between incremental and radical projects, in which discipline will vary according to type. As the paragraph above emphasized, exploring activities have an approach that is much more flexible than that of exploiting activities. For a radical project, then, discipline might mean considering several ideas before selection, remembering to iterate between phases, and maintaining flexibility despite organizational tendencies for stability. Conversely, incremental projects are likely to have a more classical approach to discipline, where rules and predefined stages and deliverables might be beneficial.

Capabilities

Capabilities, as the final element that comprise the enterprise-factor of success, is by Rao and Weintraub (2013) described as follows: "Our innovation projects have helped our organization develop new capabilities that we did not have three years ago" (p. 35). An organization that excels at developing new capabilities has what the innovation literature refer to as dynamic capabilities. Teece, Pisano, and Shuen

(1997) defined dynamic capabilities as "… the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (p. 516).

The importance of developing dynamic capabilities in an organization would depend, at least to some degree, on the industry to which the organization competes. For instance, a company that competes in the computing industry must at all times adapt to changing environments, and constantly be on the lookout for new and disrupting technologies that could potentially render entire companies obsolete in very short time (Clayton M Christensen & Overdorf, 2000). At the other side of the spectrum, however, automobile makers are known for their conservatism. In this industry, entry barriers are high, and the organizations generally do not introduce disrupting technologies in favor of continuous improvements. Thus, even if all industries can benefit from developing new capabilities, the pace at which it has to be done differ from industry to industry, at least when considering the short-term consequences.

According to Atuahene-Gima (2005), "… market orientation can prevent a firm from being operationally efficient but strategically inefficient by enhancing both product innovation competence exploitation and exploration" (p. 81). By competence exploitation, it is meant investments that refine and extend the existing innovation knowledge, skills, and processes. Competence exploration, on the other hand, means a firms tendency to "… invest resources to acquire entirely new knowledge, skills, and processes" (Atuahene-Gima, 2005, p. 62). In fact, in addition to affecting an organization's innovation performance, the interrelationship between the two forms of competence enhancements is in itself a source of competitive advantage. Though it might be counterintuitive, high levels of both competence exploration and exploitation seems to be less effective than a high/low combination. Therefore, a company that excels at exploiting its current competencies is most likely to succeed with radical innovation when a high level of competence exploitation is combined with a low level of competence

exploration. Conversely, when the tables are turned, so should the distribution of high and low be. In sum, Atuahene-Gima (2005) suggest that radical innovations are most successful when companies use a high (low) level of competence exploration and a low (high) level of competence exploitation. We note that all radical innovations require some exploration of competences, even if it is at a low level. As this concludes our theoretical outline of success at the enterprise level, we move on to describe how success is captured at an individual level.

2.8.3 Individual

According to Rao and Weintraub (2013), individual-level success means that employees are satisfied with their participation in innovation projects, that they develop competences by participating in new initiatives, and finally rewarding people for their participation risky projects, regardless of the outcome. These statements make up the three elements of individual success: *satisfaction, growth,* and *reward.* We begin with the first element: satisfaction.

Satisfaction

Rao and Weintraub (2013) emphasize the importance of keeping employees satisfied through participation in innovation initiatives. Companies can initiate innovations in two ways: bottom-up or top-down (Birkinshaw et al., 2011). The main idea behind the bottom-up approach is that managers are not nearly as much involved in action as other employees, making it easier for those at the frontline to come up with relevant ideas. At the same time, bottom-up innovation efforts benefit from high levels of employee engagement and satisfaction. On the other hand, a top-down approach can be more efficient, and benefits from direct alignment with the company's goals. However, smart companies use both approaches, using a bottom-up approach to increase participation in innovation projects, while using a top-down approach to give the projects the sponsorship they need to survive (Birkinshaw et al., 2011).

Organizations often fail in innovation because they divide employees into two units; those who innovate, and those who continue doing what they already do (J. S. Brown & Duguid, 2000; Kanter, 2006). The reason why this affects innovation negatively is that you create one group associated with fun (feed up on creativity and free from rules and rigid systems), and one associated with more boring and straightforward activities (surrounded by rigid systems thriving for efficiency). As a result, the innovators are satisfied with their degree of involvement in innovation initiatives, while the other group is not. The main issue, however, is not the separation itself, but rather that separation often fosters envy, which further fosters unsatisfied employees. In order to overcome the tension between the two groups, Kanter (2006) suggest the following: the company needs to facilitate communication between the innovation group and its core business, while creating a flexible organizational structure that allows employees to cooperate on innovation projects.

In order to increase participation among employees and strengthen overall innovativeness, Buech, Michel, and Sonntag (2010) propose using a suggestion system. The authors found that suggestion systems is positively related to internal justice and employee's motivation to come up with suggestions. A suggestion system also relates to innovation satisfaction as it enhances the individuals possibility to partake in innovation. The authors further argue that there are mainly two reasons for organizations to use suggestion systems: first, using suggestion systems will reduce expenses related to communication and ideation. Second, suggestion systems will make it possible to direct the innovative efforts made by employees toward company goals.

Growth

According to Rao and Weintraub (2013), participation in new initiatives will stretch and build people's competencies, thereby ensuring future growth. In today's shifting markets, assets are just temporarily a source of competitive advantage (D. J. Collis & Montgomery, 2008). Still, most companies choose not

to include all their employees in innovation initiatives, and therefore loose initiative that could have resulted in new and valuable assets. Instead, they divide the labor into innovators and those who do the routine-based work (J. S. Brown & Duguid, 2000; Kanter, 2006). J. S. Brown and Duguid (2000) argue that all employees should ideally participate in innovation initiatives, as it will contribute to the firm's collective pool of knowledge. In addition, they argue, all employees need to be innovative in order to react and adapt their working processes to a sudden change in the environment.

In order to bump up the pool of knowledge, Wenger and Snyder (2000) suggest applying what they call a community of practice: "groups of people informally bound together by shared expertise and passion for a joint enterprise" (p. 139). Communities of practice give people the opportunity to learn from other and more experienced workers, and at the same time transferring best practices across borders of the firm. This ability to generate and spread new knowledge enables communities of practice to generate knowledge about how they are best organized, making them able to renew themselves. Thus, communities of practices as an organizational form gives firms the advantage of constantly developing the way they build and exchange knowledge (Wenger & Snyder, 2000).

Reward

Rao and Weintraub (2013) emphasize reward as a tool to increase innovation participation among employees. However, reward is a double-edged sword firms have to swing carefully in order to ensure that it cuts the right way. Deci, Koestner, and Ryan (1999) found that tangible assets as a reward correlated negatively to motivation, as tangible assets tend to undermine the intrinsic motivation among people. Thus, a common mistake is that firms use money as a reward for people who participate and show good results in innovation initiatives (Birkinshaw et al., 2011). However, the key to facilitate a desired innovative behavior among employees is to use rewards that target the intrinsic motivation (Birkinshaw et al.,

2011), as it has shown to be extremely powerful in affecting the way people get motivated (Deci et al., 1999).

To increase intrinsic motivation among employees, firms need to focus on social and personal drivers (Birkinshaw et al., 2011). Kanter (2013) suggest three things that can motivate and target the intrinsic motivation. First, an important factor is helping people develop skills, as it motivates people to shape their future. It will also make people able to do things faster and smarter than before, and fill up the firm's collective pool of knowledge (J. S. Brown & Duguid, 2000). Second, firms need to establish a culture that honors individuals that innovate. In practice, firms need to create reward systems that acknowledge people's work (Wenger & Snyder, 2000), for example through publicity or other forms of honoring, giving people recognition for what they have done (J. S. Brown & Duguid, 2000). Finally, Kanter (2013) suggests giving people a wider view of why what they are doing are crucial to the company, guiding the behaviors of employees toward long-term goals.

2.8.4 Summing Up

We have seen that the external reputation of companies' innovativeness affects both customer and competitor behavior, as well as financial performance. Furthermore, companies must be aware of how success in innovation affects themselves as well as their individuals, as there are several aspects that are found to influence organizational values, behaviors, and processes, in line with the argumentation of Rao and Weintraub (2013).

We also see that some elements are relevant to consider when investigating ambidextrous companies. For instance, radical innovations do not only benefit companies; they might actually decrease profitability. Concerning the company, the link between long-term versus short-term orientation seems to have strong links to the exploration – exploitation dilemma, indicating that ambidextrous companies can be expected to have especially clear purposes. Literature also

indicates that radical and incremental innovation require different innovation processes. Regarding individuals, we have seen that a strict separation between an innovative team and the rest of the company – i.e. structural ambidexterity – is a bad approach, as it might decrease satisfaction among employees, and that involvement of all employees should be prioritized as one way to increase intrinsic motivation.

This concludes the tools-oriented building blocks of an innovative company culture (Rao & Weintraub, 2013). The next section introduces the first of the three people-oriented determinants of an innovative company culture. We begin with values.

2.9 Values

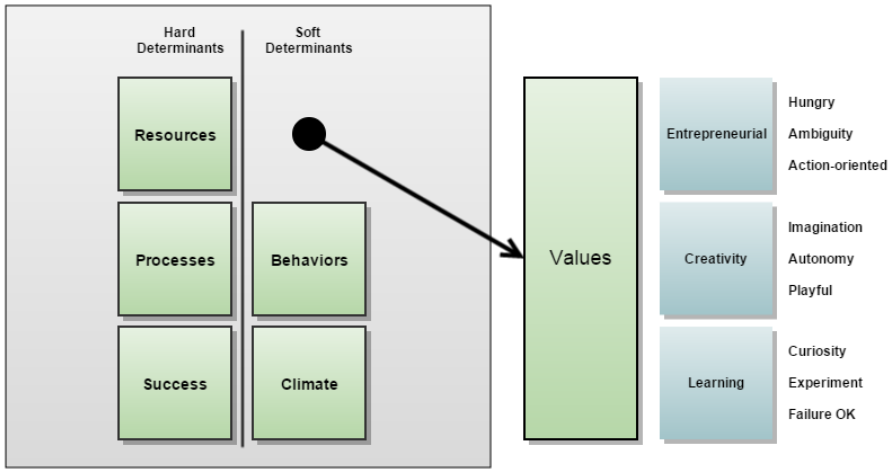

Figure 5 - The values building block.

A company's values are important to the innovative behavior of the organization, and should be supported in tangible ways, as this reflects the company's priorities. Rao and Weintraub (2013) link innovative organizational values to factors such as e*ntrepreneurial*-spirit, *creativity*, and *learning* behavior, and emphasize that time and money spent by the company's management should show that the company value innovative behavior and creativity. It is not enough that the values are simply communicated by senior management; they need to be demonstrated by driving decisions made by the managers (Rao & Weintraub, 2013).

A technical innovation will not develop as desired unless all members of the organization share clear and consistent values (Claver et al., 1998). The values of a company are demonstrated by the way organizational members behave, and therefore also affect what an organization can and cannot do, as the values have implications for the standards by which employees set their prioritizations (Clayton M Christensen & Overdorf, 2000). Prioritization of decisions in a company are made by employees at every level, and employees throughout the organization should therefore be trained to make independent decisions about

priorities which are consistent with the strategic direction and business model of the company (Clayton M Christensen & Overdorf, 2000). Clayton M Christensen and Overdorf (2000) argue that a key metric of good management is whether or not such clear, consistent values have permeated the organization.

According to Khazanchi et al. (2007), value profiles is a dimension of values which may influence innovation. Value profiles can be understood as a cohesive set of organizational values which orient its members and guide their expectations, decisions and actions. On the one side, a company can have a flexibility profile where creativity, change, and empowerment are likely to be focused on by all its members. On the other side, a company might also have a control value profile, encouraging efficiency, productivity, and stability. Therefore, the value profile a company chooses will affect its innovative capabilities. Further, if a company seeks a flexibility value profile in order to increase the creative behavior of their members and enhance the innovation capability of their firm, management needs to provide sufficient resources for people to engage in creative behavior (T. M. Amabile et al., 1996).

As noted, value profiles can be understood as the gathered set of organizational values which members base their decisions and actions on, and its importance for an organization is also highlighted by R. E. Quinn and Rohrbaugh (1983). They worked out a framework for organizational analysis, creating a model for organizational effectiveness. Three value dimensions are presented – control-flexibility; internal-external; and means-ends – and R. E. Quinn and Rohrbaugh (1983) argue that these dimensions can be used to judge whether an organization is effective or not.

Below, we will present different theories and perspectives from the literature on dimensions of organizational values and their impact on innovation.

2.9.1 Entrepreneurial

The entrepreneurial factor presented by Rao and Weintraub (2013) is further broken down into the following elements: *hungry*, *ambiguity*, and *action-oriented*. Hungry can be understood as the desire in an organization for exploring new opportunities and creating new things (Rao & Weintraub, 2013). In the literature, the importance of having organizational values which supports and motivates employees to come up with new ideas and products is emphasized by several authors (Clayton M Christensen & Overdorf, 2000; Khazanchi et al., 2007; Rao & Weintraub, 2013). Ambiguity is the second element of the entrepreneurial block, and is explained by Rao and Weintraub (2013) to affect the innovation culture in an organization. The reason, they argue, is that embracing and tolerating ambiguity is necessary in the pursuit of new opportunities. The last element of the entrepreneurial-spirit factor is action-oriented. Rao and Weintraub (2013) have the view that an innovative culture exhibits a bias towards action in order to avoid analysis paralysis when pursuing new opportunities.

Hungry

Having a clear and well-communicated new product strategy, where the role of new products are communicated as important to reach the company's goals, have proven to be important in new product development processes (Cooper & Kleinschmidt, 1995). Senior management can show that they are committed to the development of new products by, for example, clearly communicating a new product strategy for the company (Cooper & Kleinschmidt, 1995). The process of generating new ideas must be stimulated by the culture in an innovative organization (Claver et al., 1998). Similar to Rao and Weintraub (2013), Khazanchi et al. (2007) also emphasize that having values which underbuilds an organizational desire to explore opportunities is essential for an innovative organizational culture. This desire for innovation and change, however, may be difficult to sustain.

An organization faces several challenges when trying to stay hungry. Levinthal and March (1993) call this 'the success trap', and argue that as an organization develops great competence in an area, they will ultimately increase the engagement in that activity, thereby preferring not to explore new activities. W. M. Cohen and Levinthal (1990) argue that firms become more insensitive to opportunities in the external environment if engaging in little innovation activity. This can lead to a low aspiration level regarding opportunities in the external environment, creating a self-reinforcing cycle as this leads the company to devote little effort to innovation.

The issues organizational values can create for staying hungry and innovating is also discussed by Clayton M Christensen and Overdorf (2000). The authors argue that values ultimately define what an organization is incapable of accomplishing, and further claim that few established companies innovate successfully. Clayton M Christensen and Overdorf (2000) explain this by highlighting that as a company grows its cost structure and values change, making the company less capable of pursuing opportunities with lower gross margins. The second issue they present relates to what the necessary size of the business opportunity has to be in order for the company to pursue the opportunity. Opportunities that small businesses find attractive may not be of interest for larger companies. It is possible, then, that values can make large established companies seem less entrepreneurial and less hungry to pursue new opportunities.

Ambiguity

In order to get a clearer understanding of how the tolerance of ambiguity is related to the innovation culture of an organization, understanding ambiguity in new product development projects is a good starting point. In new product development the innovation process is characterized by considerable amounts of uncertainty and ambiguity throughout the development of the project (Brun et al., 2009). Sætre and Brun (2013) emphasize the link between ambiguity and

entrepreneurial spirit by stating that the shaping of opportunities starts with an embracing of ambiguity.

Brun et al. (2009) create an understanding of how ambiguity in new product development projects can be classified and understood. The authors highlight that ambiguity is present throughout the new product development process, and present a model which classifies ambiguity along two dimensions: subject and source. The subjects of ambiguity include product, market, process, and organizational resources, while the sources of ambiguity include multiplicity, novelty, validity, and reliability.

Ambiguity in a new product development process cannot be completely removed, and consistently trying to minimize all ambiguity can be detrimental to innovation (Brun et al., 2009). This is simply because innovation without newness is not innovation. This highlights that understanding ambiguity and managing it is essential for innovation. The innovation process is characterized by cycles of explorative and exploitative activities, and in order to manage exploitation and exploration, creativity and constraint must be successfully balanced (Sætre & Brun, 2013). This can be understood as being an ambidextrous organization (O'Reilly & Tushman, 2004), and Sætre and Brun (2013) argue that a manager must successfully manage ambiguity in order for an organization to be truly ambidextrous and innovate well. Moreover, exploitation has a tendency to drive out exploration, as the economic returns for exploitation are closer in time and less uncertain (Levinthal & March, 1993). Also, well performing project leaders have the ability to work under conditions of high ambiguity (D. J. Kelley et al., 2011), and are thus better at balancing exploration and exploitation.

Tolerance for ambiguity in the innovation process itself, however, is just one dimension of the ambiguity term. Eisenberg (1984) describes ambiguity in communication as a means of encouraging creativity, thereby stimulating innovation. As an example, the values of an organization tend to be communicated

ambiguously; "organizational values are often implicit in myths, sagas, and stories ... because their equivocal expression allows for multiple interpretations while at the same time promoting a sense of unity" (Eisenberg, 1984, p. 231). Thus, instead of drawing people towards the same views, ambiguity in communicating core values allows for both individual interpretations and a high level of agreement simultaneously.

Action-oriented

Action-oriented is the last element of the entrepreneurial-spirit factor. Rao & Weintraub's (2013) framework implies that exhibiting a bias towards action is good for an innovative company culture.

When investigating the question of how companies can capture new opportunities more effectively, Bingham, Furr, and Eisenhardt (2014) emphasize that there are two components to capturing a new business opportunity: opportunity selection and opportunity execution. They interviewed more than 150 executives from various companies in Asia, Europe and North America, and found that leaders who acted more flexibly during opportunity selection tended to be less flexible during opportunity execution. Conversely, leaders who were more focused during opportunity selection tended to be more flexible in executing those opportunities. Further, their analysis showed that overall focused selection and flexible execution lead to better outcomes than flexible selection and inflexible execution. The reason for this was that when companies were more focused in their opportunity selection, those initial opportunities could provide the foundation for subsequent opportunities. Moreover, the companies who pursued this strategy tended to be more flexible in how they executed the opportunities. Detailed planning decreased the need to justify choices at later stages, and the leaders tended to improvise and experiment more during the execution phase. Bingham et al. (2014) therefore argued in their article that although the given new competitive environment promotes change and flexibility, the old strategic emphasis on focus is still relevant. Thus, on the one hand, being flexible and

opportunistic can lead to great new businesses for a company, as time and effort is not wasted developing detailed plans which one may risk are out of date or even flawed when they are finally done. On the other hand, being more disciplined and creating focused plans when deciding which opportunities to pursue, could ultimately lead to the possibility to capture several opportunities in a row compared to just one (Bingham et al., 2014). This concludes the entrepreneurial factor under values, and we now move on to creativity.

2.9.2 Creativity

T. M. Amabile et al. (1996) define creativity as "… the production of novel and useful ideas in any domain" (p. 1155), and further state that all innovations begins with creative ideas. Although similar concepts, creativity is not to be confused with innovation. A distinction is given by Scott and Bruce (1994), who emphasize that while creativity is related to the production of novel and useful ideas, innovation relates to the adoption and implementation of these ideas.

The creativity factor consists of three distinct elements: *imagination*, *autonomy* and *playful*. Imagination refers to encouraging new ways of thinking and seeking solutions to organizational issues from different perspectives, while autonomy refers to the level of freedom the workplace provides the employees to pursue new opportunities (Rao & Weintraub, 2013). Playful on the other hand, describes whether employees are afraid to laugh at themselves and their delight for being spontaneous in their everyday work.

Today, organizations are placing a greater emphasis on promoting creativity and innovation, as the markets are more turbulent and the future environment is more uncertain (Horwitz & Horwitz, 2007). Claver et al. (1998) also emphasize the importance of creativity for innovation, and Jassawalla and Sashittal (2002) claim that creative behaviors among organizational members is one of the most important values in innovation supportive cultures.

Imagination

According to Kanter (1988), creativity is composed of two elements: awareness of need and ability to construct new ways to address the need. She states that "often, creativity consists of rearranging already existing pieces to create a new possibility" *(*p. 175), which implies that one can be creative without having to invent something completely new. Kanter (1988) also argues that in order to see the world differently, it is a logical prerequisite to interact with people who see the world from a different perspective than we do. Having contact with those who take new angles on problems facilitates innovation; "... the most productive and creative ones were those who had more contacts outside their fields, who spent more time with others who did not share their values or beliefs" (p.176). This statement implies that creativity suffers when organizational members are separated in departments without communicating with members in other departments. People too close to a situation often become hopeless about change and blind to the possibilities (Kanter, 1988).

Autonomy

Having autonomy implies that a person or group of people is left alone, allowed to focus on their work and have a right to make decisions regarding their work (Kanter, 1988). An innovative culture allows for autonomy for the organizational members (Claver et al., 1998), and autonomy of freedom has also been proven to contribute in stimulating creative behavior (T. M. Amabile et al., 1996). Further, some argue that greater autonomy should be given to teams when there is a high level of uncertainty and innovativeness related to the project (D. Kelley & Lee, 2010). However, why is autonomy good for an innovative culture? Kanter (1988) state that "the more routinized and rules-bound a job is, the more it is likely to focus its performers on a few already-known variables and to inhibit attention to new factors" (p. 180). Employees have less incentive to engage in innovation activities when jobs are narrowly, and rigidly, defined.

However, should autonomy always be given to project teams? According to D. Kelley and Lee (2010), different contexts call for different management styles. They argue that the specific innovation project characteristics affect the direct managerial role, and complete autonomy might not always be best. If a project is characterized by a high level of uncertainty and ambiguity, a certain level of managerial involvement and guidance might be positively related to innovation project outcomes (D. Kelley & Lee, 2010). Further, allowing for empowerment of the innovation project leader while still overviewing the project process in order to provide the necessary discipline might be favorable. Research has indicated that autonomy in innovation projects should be balanced with a certain level of accountability (D. J. Kelley et al., 2011). Usage of formal reviews, tools for measuring project progress and having frequent discussions with project leaders are examples of how managers can allow for autonomy while still maintaining overview.

Kanter (1988) claims that the autonomy in an innovation project needs to be balanced with accountability. According to her, although a group of organizational members should follow bureaucratic rules to some extent, the emphasis on seeking constant approvals should not be too strong as this is time consuming, demotivating and inefficient. On the other hand, a lack of control might ultimately lead to overfunded projects with poor results, which is why she emphasizes the need for a balance between these two extremes. Kanter (1988) argues that "the ideal structural context surrounding an innovation project, then, should offer procedural autonomy coupled with multiple milestones that must be reached in order for the project to continue" (p. 198). This implies that there needs to be a balance between accountability and autonomy.

Playful

Being playful can be defined as being eager to play (Merriam-Webster, n.d.). "Play is defined as a free activity in a state of mind conducive to learning through exploration" (Bogers & Sproedt, 2012, p. 79). According to Bogers and Sproedt

(2012), there are three main directions of play research. First, the cognitive value of play is skills, such as learning. Second, the emotional value of play is how we deal with conflicts and stress. Finally, the social value of play is skills such as collaborating. Further, Bogers and Sproedt (2012) argue that playful behavior needs a *ludic place* in order to thrive, which is a space that is psychologically safe; a place where play can happen. Also, Kanter (1988) claims that feeling valued and secure make people more relaxed and thereby more creative.

Work environment perceptions can influence the level of creative behavior in an organization, and characteristics of the organizational context can both support and impede generation of creative ideas (T. M. Amabile et al., 1996). Playing can be a source of creativity, a trigger for innovation, and a support for developing social competence (Bogers & Sproedt, 2012). In addition to being a potential source of imagination and fun, playing can be a facilitator to deep learning. Therefore, if innovation managers are interested in increasing the organization's level of creativity and develop employees' social competences, they should focus on creating a social environment that encourages playful behavior.

In their study, Bogers and Sproedt (2012) observed students participating in a playful game, partly because "games give play a direction, and feed into the general theory of learning …" (p. 76). The authors found that playful games "allow us to get a more holistic understanding of the complex social dynamics that emerge when people have to deal with novelty" (p. 93). Further, the study implied that planning can destroy playfulness, and with it, exploration as well. Related to this, it was also implied that creativity can be hampered by too much strategy. Another implication of this study is that novelty in a dynamic context is easier grasped through physical interaction. Thus, when interacting with others, being playful facilitates learning and improves the understanding of complex situations. Bogers and Sproedt (2012) conclude by stating that "a more playful approach to innovation can provide great opportunities as well as challenges" (p. 94). This leads us to the final factor of values: Learning.

2.9.3 Learning

Values which emphasize learning are according to Rao and Weintraub (2013) essential for the innovation culture in an organization. In order to measure the level of learning, the factor has been further broken down into the three elements: *curiosity*, *experiment*, and *failure OK*. The ability to learn can be a source of sustainable competitive advantage, and capabilities for learning are found in several successful organizations. However, how can 'learning' best be understood?

"An entity learns if, through its processing of information, the range of its potential behaviors is changed" (Huber, 1991, p. 89). According to Huber (1991), one way of better understanding organizational learning is by characterizing it in terms of attributes. In his article, he presents four attributes that characterizes organizational learning: *existence*, *breadth*, *elaborateness* and *thoroughness*. In explaining the existence of organizational learning, Huber (1991) assumes that an organization learns if any of the units obtain new knowledge which can be useful for the organization. When further outlining the meaning of breadth, Huber (1991) argues that if the new knowledge is spread to other components of the organization, and these components recognize it as potentially useful, more organizational learning occurs. Elaborateness affects organizational learning in that organizational learning increases when the number of varied interpretations increases. Finally, Huber (1991) argues that more organizational learning increase when the comprehensions of the different interpretations become uniform in more organizational units.

Furthermore, Huber (1991) argues that organizational learning consists of four distinct processes. The first stage in the process is to obtain knowledge. Secondly, information needs to be shared within the organization among its members, as this will ultimately lead to the existence of new information. Thirdly, Huber (1991) emphasizes that information distribution leads to more broadly based

organizational learning. Finally, a common interpretation must be developed before this knowledge can be stored in the organization's memory for future use. However, learning processes are subject to some important limitations, and those need to be understood correctly by managers, as these limitations affect an organization's ability to successfully innovate (Levinthal & March, 1993).

Levinthal and March (1993) claim that many of the same limits that constrain rationality also constrain learning, and they hereby argue that human beings have cognitive limits which constrain them from learning optimally. In their article, they present temporal *myopia* as a distinct problem of myopia. Temporal myopia is defined by Levinthal and March (1993) as the organizational tendency to ignore the long run. The favoring of short-term profitability can potentially lead to a decrease in an organization's ability to adapt to fast changing environments (Levinthal & March, 1993). Organizations are too often bound to the past and favor activities that more easily lead to incremental gains. Further, specialization and traps of competence can have the unfavorable effect of creating organizations that are unable to create adaptive competences and to engage in new learning activities (Levinthal & March, 1993). Problems with learning how to analyze and handle difficulties and challenges is also addressed as a part of temporal myopia; organizations tend to assume that today's challenges are identical to those in the past, thereby using the same solutions as earlier to solve problems instead of seeking new ways of viewing the problems (Levinthal & March, 1993). One can only hope to have employees that are truly interested in the challenges that are present, and curious to find answers to familiar and unfamiliar problems.

Curiosity

Asking questions in the pursuit of the unknown is important in an innovating culture (Rao & Weintraub, 2013). One of the interesting questions regarding curiosity is why some companies are stuck in old patterns and not reinventing themselves. Levinthal and March (1993) claim that the search for new knowledge and information is decreased by organizational success and increased when the

organization is underperforming. They further argue that preferences are affected by experience. This argument is based on their statement that as a competence in a certain activity increases; preferences for those activities will be further strengthened. Ultimately, this increased preference for a certain activity will act as a substitute for search for change in that particular activity, and in the searching for new activities.

Experiment

Rao and Weintraub (2013) emphasize that "constantly experimenting in our innovation efforts" (p.34) is important for innovation. Reviewing existing literature on the field has left us with the impression that experimentation in innovation efforts is essential in a culture which values innovation. Experimentation has been acknowledged as an important contributor to learning processes by Huber (1991), who argues that experimenting contributes to knowledge acquisition in organizations. Further, when proposing conditions for the generation of a corporate culture based on technological innovation, Claver et al. (1998) claim that the existence of research and development values in an organization is one of the main contributors to successful innovation. However, how exactly does experimentation contribute to innovation?

According to Levinthal and March (1993), research generates new knowledge and increases an organization's ability to absorb new knowledge generated by others. Further, outside knowledge can be critical to the innovation process, and W. M. Cohen and Levinthal (1990) introduce a term: absorptive capacity. They define absorptive capacity as "… the ability of a firm to recognize the value of new, external information, assimilate it and apply it to commercial ends …" (p. 128), and argue that it is critical to the innovative capabilities of an organization. They further argue that the level of prior related knowledge in an organization affects the ability of an organization to utilize and evaluate external knowledge. According to W. M. Cohen and Levinthal (1990), learning is cumulative and its performance is greatest when the object of learning is related to what is already

known. By arguing that prior knowledge underlies absorptive capacity, having already accumulated a certain amount of knowledge in an area will thus allow for more efficient accumulation in the next period.

Experimentation is important for innovation as it increases learning in an organization and its ability to take advantage of external knowledge. But experimentation often produce failures, highlighting the fact that learning from failure is important in order to fully exploit the positive effects experimentation can have on the innovation capabilities in an organization.

Failure OK

The final element under the learning factor, as well as the building block of organizational values, is failure OK. This element emphasizes the importance of having employees that are comfortable with failing, and that failure should be treated as an opportunity to learn.

As already noted, one will not always succeed when experimenting. Failures are likely to occur and organizations should thus focus on learning from them. Edmondson (2011) goes as far as arguing that generating failures for the purpose of learning and innovation is what describes an exceptional organization.

Edmondson (2011) emphasizes that the attitude many managers today have towards failure, namely that all failures are bad, is the main reason preventing organizations to learn from them. She states few managers succeed in learning from failure, partly because they fail in their responsibility to create a culture which makes it safe for organizational members to admit mistakes. Organizations learn from failure from the essential activities of: detection, analysis and experimentation. Having a culture where employees are blamed for every mistake they do has the unfortunate consequence that several failures will end up being unreported, meaning there will be no opportunity to ever learn from them for the organization (Edmondson, 2011). Edmondson (2011) further present a spectrum of reasons for failure, from blameworthy to praiseworthy, and that leaders today

think of failure the wrong way and must be aware of the fact that failure occurs on the entire spectrum.

By investigating patient care groups in two different hospitals, Edmondson (1996) found that the perceptions among employees of what the consequences would be of making mistakes influenced the frequency of reporting them. Edmondson (1996) investigated eight different units, and she found that the nurse manager's behavior was of great importance to the extent to which unit members reported failures. From these findings one could argue that leaders are in a unique position to affect the rate at which organizational members admits failure, and that employees notice the way past errors have been handled and are particularly aware of the behavior of the leader. Although the research was made on a group level, Edmondson (1996) suggest that the findings could offer a useful perspective for investigating errors and the handling thereof in organizations.

Having presented these positive consequences of admitting failure, it should be mentioned that analysis of failure, however, is not an activity without challenges. Levinthal and March (1993) introduce the concept of failure myopia, referring to the impact a biased representation of the past reality can have on learning. The general idea is that if an individual or organization has had success they are more likely to think that they will experience success, and if they have experienced a great amount of failure, they are more likely to think they will fail in the future. This has implications for the way we learn from failure, as successful people will tend to explain that their success is caused by ability and their failure with bad luck.

This part of the paper has described organizational values, which we systematized according to Rao & Weintraub's (2013) framework. The next paragraph gives a brief summary, and draws lines to ambidexterity.

2.9.4 Summing Up

Reviewing literature, it is evident that values can be essential for innovation performance. We have stated that people's behaviors at all levels reflect an organization's true values, but also that allocation of resources in addition to past success can reinforce the values of an organization. Moreover, creativity is one of the most important values in a culture that supports innovation. Finally, in order to achieve a source of sustainable competitive advantage, an organization must have an ability to learn continuously.

We also see that values are important for ambidextrous companies. Moreover, the right values can reinforce and facilitate an ambidextrous organization. In particular, there are many commonalities between ambidexterity and the entrepreneurial-factor. As an example, the handling of ambiguity – which includes a successful balancing of exploration- and exploitation activities – is much easier to succeed with for an ambidextrous organization. Finally, we note that one needs to have the right values in order to properly explore and exploit simultaneously. We will now dive deeper into the literature on the behavior dimension of innovation culture and seek to discover how this block complements organizational values.

2.10 Behaviors

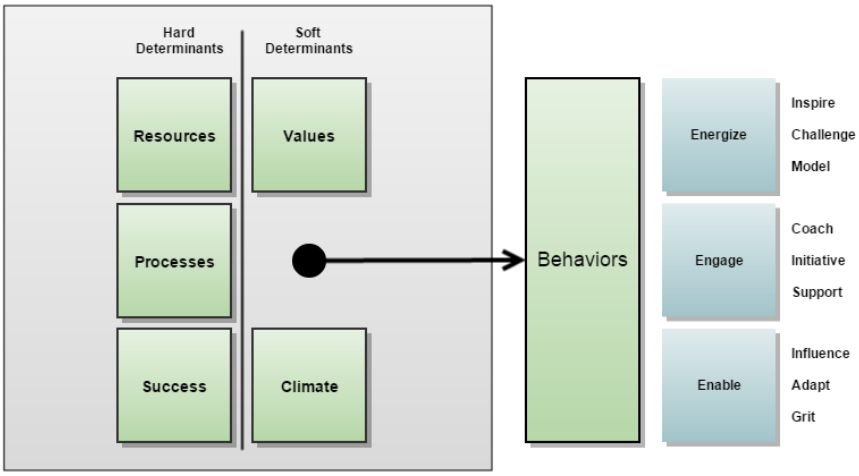

Figure 6 - The behaviors building block.

Behaviors is one of the six building blocks in Rao and Weintraub's (2013) framework, and it is comprised of the three factors *energize*, *engage* and *enable*. Behaviors, in general, can be understood as the way one conducts oneself, and in the context of our master's thesis it is understood as the way people act in the cause of innovation (Rao & Weintraub, 2013).

Behavioral patterns among employees has been suggested to be closely related to implementation challenges or new suggestions in organizations (Bessant et al., 2001). After investigating how high involvement continuous improvement can be built and sustained as an organizational capability, Bessant et al. (2001) argue that achieving continuous improvement as an organizational capability should be seen as achieving a cluster of behavioral changes among employees. They call these clusters of behaviors 'routines', and argue that building and embedding such routines in an organization is a result of extended learning processes. Hence, when seeking continuous improvement and incremental innovation, learning behaviors among employees is argued to play a significant role.

As will become evident, the elements – which build up the three factors of the behavior building block – are mostly related to the behaviors of leaders. One can thereby conclude that having the right leadership and management styles for innovation is seen as essential in an innovation culture. Leadership can be understood as "the process of influencing others towards achieving some kind of desired outcome" (De Jong & Den Hartog, 2007, p. 44), and is important when engaging in innovative activities. In current research there are several perspectives on leadership, such as leader traits and behaviors (De Jong & Den Hartog, 2007), but we will mostly focus on the behavioral aspect. Leader behaviors are intended to result in desired behaviors from subordinates in the organization and research has shown that the way leaders behave can greatly affect the employee's individual innovative behavior (De Jong & Den Hartog, 2007). Edmondson (2004) states: "In short, leader behavior sets a salient example of how to behave …" (p. 249), implying that members on different levels in an organization might copy the behaviors of their leaders as they set the standards. Hence, if leaders are continuously looking for ways to do things better and improve results, employees will do the same.

The various elements we will present are intended to represent different aspects of innovative behavior (Rao & Weintraub, 2013). The elements in the framework – as stated – mostly capture leader behaviors, but this should not be understood as if leaders are the only ones who are desired to, or responsible of, displaying innovative behaviors. Edmondson (2004) define innovative behavior as "doing novel or different things intelligently, to produce final outcomes" (p.259), and as the definition implies, innovative behavior is not something reserved only for senior of middle managers. Thus, one can assume that everyone in an organization is capable of showing innovative behavior. Therefore, although we touch upon some aspects of employee innovative behavior in other building blocks, we will use this section to both investigate the given elements for leader behaviors as

presented by Rao and Weintraub (2013) , as well as outlining certain aspects of innovative behaviors of organizational members on all levels.

2.10.1 Energize

We understand the behavioral factor energize as leader-behavior which causes enthusiasm and vitality to subordinates in the pursuit of innovation. According to Rao and Weintraub (2013), energize can be described with the elements *inspire, challenge,* and *model.* These elements are explained as leaders who: inspire employees "with a vision of the future and articulation of opportunities for the organization"; challenge employees "to think and act entrepreneurially"; and "model the right innovation behaviors for others to follow" (p. 34). How an innovation culture benefits from leaders focusing on inspiring employees, and how it can be accomplished, is the topic of the next section.

Inspire

One way leaders can inspire employees to engage in innovative activities is through inspirational statements. Inspirational statements from leaders have the purpose of creating unity in a group (Eisenberg, 1984), and one such statement could be leaders articulating the company's vision for the future. The goal is to create a collective vision for the future which is agreed upon by all or most employees, thereby creating a sense of direction and purpose. Such statements do not necessarily need to be very precise and concrete in order to have an effect on employee innovative behavior. In fact, as there will always be multiple interpretations in social systems, having a certain level of abstraction and ambiguity in leaders' statements "allows for both agreement in the abstract and the preservation of diverse viewpoints" (Eisenberg, 1984, p. 232). Eisenberg (1984) thereby argues that the process of making meanings for followers, and infusing employees with values and purpose, is a leader responsibility that is less one of consensus-making and more one of expressing values at a level of abstraction at which agreement can occur.

Inspirational statements can provide a vision for the future, which is one of the leader behaviors identified by De Jong and Den Hartog (2007), which were connected to innovative behavior of individual employees. According to De Jong and Den Hartog (2007), such leader behavior consists of "communicating an explicit vision on the role and referred types of innovation providing directions for future activities" (p. 49), and, based on their research, was suggested to be both related to idea generation behavior and application behavior among employees.

Another way it has been argued that employees can be inspired in their innovation efforts, is if there exists a company culture where all employees are known with the potential of innovative activities, and where communication and sharing of knowledge is well-established. According to Claver et al. (1998), as technological innovation can be a resource for competitive advantage, staff should be trained in becoming aware of which competitive advantage lie precisely in technological innovation. If such knowledge is shared by all the members of the firm, it can create a self-reinforcing cycle where a strong company culture facilitates sharing of this knowledge, which again inspire employees and further strengthen the culture.

Hence, we can see that inspiration does not necessarily require a manager or leader providing thorough and visionary statements for the future, as colleagues and well-established work processes can be argued to play just as an important role. However, the manager plays an essential role. One way to inspire is to challenge employees, which is the topic of the next section.

Challenge

A key problem in managing innovation lies in how to get people to pay attention, or how to trigger people to appreciate and pay attention to new ideas, needs and opportunities (Kanter, 1988). In an innovative company culture, Rao and Weintraub (2013) suggest that leaders ought to challenge employees to think and

act entrepreneurially. Thus, a question quickly rises: how does one best challenge employees?

One way for leaders to do this is by communicating expectations. Scott and Bruce (1994) argue that "the degree to which a supervisor expects a subordinate to be innovative is positively related to the subordinate's innovative behavior" (p. 585). Thus, according to them, the manager's expectation of a subordinate to be innovative is perceived as facilitating the subordinate's innovative efforts. To put it in another way: by expecting an employee to think and act entrepreneurially, the manager implicitly challenges this person to behave in such a way, which again enhances the employee's innovation effort. Further, Kanter (1988) states that whether the organization's culture pushes "tradition" or "change" can in itself be seen as a general source of expectations for innovation. Hence, it is likely that leaders in organizations that push "change" will challenge their employees to think and act entrepreneurially to a higher degree than leaders in an organization that pushes "tradition".

Another way leaders can challenge employees is identified by De Jong and Den Hartog (2007). One of the leader behaviors they found influencing individual innovation – which they labelled *intellectual stimulation* – consisted of "teasing subordinates directly to come up with ideas and to evaluate current practices" (p. 49). According to some of the leaders they interviewed, such behavior was believed to be related to idea generation behaviors among their employees.

T. M. Amabile et al. (1996) identified challenge as a source for creativity. They identified two different forms of workload pressures, which they named excessive workload pressure and challenge. While the first is expected to undermine creativity, the second "may add to the perception of challenge in the work that positively correlates with intrinsic motivation and creativity" (T. M. Amabile et al., 1996, p. 1162). Hence, a sufficient amount of pressure is challenging and motivating, while too much pressure can ultimately undermine creativity. This

implies that managers wishing to challenge their employees to reach higher levels of creativity must balance the workload pressure imposed on their employees.

The third element that energize people, according to Rao and Weintraub (2013), is model, and is addressed in the following section.

Model

Rao and Weintraub (2013) also include an element in their framework that is aimed to capture whether or not leaders model the desired behaviors necessary for innovation. One may thus wonder why this is so important in order to succeed with innovative activities. Should it not be enough for leaders to simply communicate which behaviors and activities they want organizational member to engage in, and expect subordinates to display behaviors thereafter? Unfortunately, it is unlikely to be that easy.

As noted, Edmondson (2004) claims that leaders set examples of how to behave, in which employees tend to follow. Her view is supported by the results of De Jong and Den Hartog (2007), who found that innovative role modelling is one of the leader behaviors connected to individual innovative behavior. According to them, innovative role-modelling behavior is understood as "being an example of innovative behavior, exploring opportunities, generating ideas, championing and putting efforts in development" (De Jong & Den Hartog, 2007, p. 49), and, based on their research, is suggested to both being related to idea generation and application behaviors among employees. Of course, employees' behaviors also may be quite affected by the behaviors of other people they engage in activities with. However, Tyler and Lind (1992) state that although team members are likely to attend to each other's actions and responses, the members are particularly aware of the leader's behavior (as cited in Edmondson, 1999, p. 356). When looking at research done on climates for specific strategic outcomes, one can see that the organization's climate for a specific outcome will impact the employees' behaviors regarding that outcome (Klein & Sorra, 1996). For instance, Zohar

(1980) found that climate for safety is related to factory safety (as cited in Klein & Sorra, 1996), achieved both by how leaders inspire and also in how they model innovation behaviors related to these climates. Thus, if it is likely that people will behave in ways similar to their leaders, it is important that leaders display and model the right behaviors for others to follow.

2.10.2 Engage

Like all other factors describing a building block, engage has three elements that describe its composition (Rao & Weintraub, 2013). To engage means to participate or become involved in something, and related to innovation culture, one can understand the term as meant to describe behaviors among leaders that help foster a motivated and productive workforce. The first element, *coach*, describes behaviors where leaders spend time to coach and provide feedback on employees' innovation efforts. The second element, *initiative*, describes behaviors where people at all levels take initiative to innovate. Finally, *support* describes leaders' ability to provide support to project team members, both during successes and failures. It should be noted that although coach and support are similar concepts – as both constructs include the aspect of providing feedback and helping employees – they are distinct. In this paper, as it is in Rao and Weintraub's (2013) paper, the concepts are distinguished the following way: coaching is interpreted as improving the skills of the employee, while support is more about providing emotional support; e.g. maintaining a team member's motivation in a particular situation. In addition, support can also imply someone with power endorsing a project, meaning support is more ambiguous than coach is. However, as the terms are highly interconnected, many behavioral patterns in organizations are simultaneously related to both concepts.

Coach

It is a leader responsibility to provide sufficient support and coaching to employees, but it is also a responsibility of the employees to be willing to make

themselves vulnerable to feedback from others (Jassawalla & Sashittal, 2002). In order to ease the process of providing useful coaching, Jassawalla and Sashittal (2002) found in their study of new-product development processes that employees in those cultures which were found to be highly innovation-supportive often voiced the sense of control they felt about their own involvement in the development process. By communicating to their leaders how they found the work tasks and own achievements, leaders could thus provide the necessary coaching.

It should be emphasized, though, that coaching is by no means an easy leader responsibility. Communicative misunderstandings and different interpretations stand in the way between the intended outcome of such a process and the actual result. Often, when a leader coach an employee, or provides support to project team members, the employee will project the meaning of the message in way that is consistent with his or her own beliefs (Eisenberg, 1984). Building on this, as the objective of the coaching should be to maintain the employee's creativity one could argue that the coaching should focus on challenging and inspiring the employee, as opposed to direct instructions on how to solve problems.

Edmondson (1999) describes what she calls learning behavior as "activities carried out by team members through which a team obtains and processes data that allow it to adapt and improve" (p. 351). If a team is to discover gaps in its plans and to make the correct adjustments, the members must test assumptions and discuss their differences openly, as opposed to privately or outside the group. For managers, this implies facilitating a psychologically safe environment through coaching and support of team members. By doing this, leaders can facilitate a climate in which people at all levels engage in learning activities and take *initiative*; the topic of our next section.

Initiative

The second element of the engage factor is *initiative*. All members in an organization should take initiative to innovative. Jassawalla and Sashittal (2002)

argue that taking initiative, in addition to exhibiting creativity and taking risks, is both important and expected from participants in innovation-supportive cultures. If people in an organization generally take initiative, the organization has what Baer and Frese (2003) refer to as a 'climate for initiative'. They argue that the "organizational environment has to be supportive of an active approach toward work" (p. 46), and that proactively switching between dual work roles (e.g. striving toward continuous improvements and standardized production work) requires an environment at work in which such behaviors are expected, valued, and frequently displayed. Baer and Frese (2003) further found that "companies with a high degree of process innovativeness but with low levels of climates for initiative and psychological safety were actually worse off than if they had not innovated at all" (p.61). Thus, it seems that a climate for initiative combined with a climate for psychological safety is a natural prerequisite for successfully implementing a process innovation.

There are several possible positive outcomes from having individuals displaying initiative in an organization; "evidence suggests that individual-level initiative is related to better performance" (Baer & Frese, 2003, p. 49). In the long run, personal initiative may lead to new ideas, smoother production and service processes, increased quality and ease of implementation, and finally better performance (Baer & Frese, 2003).

However, as taking initiative interrupts routines, it may not be welcome to an organization in the short run. This limitation can be elaborated further by connecting it to what Levinthal and March (1993) define as traps of distinctive competence. Organizations will more frequently engage in activities in which they are more competent, as opposed to activities in which they are less competent. As a result, the organization accentuates distinctive competence, and becomes specialized to niches that will yield immediate advantage. It can therefore become more difficult for people to take initiative in an organization on endeavors that are less related to current competences. It is important that managers are aware of this,

and treat ideas and other outcomes from employees' personal initiatives in a thorough way. Otherwise one may risk missing out on great opportunities, as well as employees that might stop proposing new ideas if they do not feel their suggestions are taken seriously.

Support

As previously described, we consider support and coaching to be concepts of similar meaning, but distinguished from one another, as support focus more on emotions of individuals, while coach focus more on task-related guidance.

According to De Jong and Den Hartog (2007), providing support for innovation consists of "acting friendly to innovative employees, being patient and helpful, listening, looking out for someone's interests if problems arise" (p. 49), and is suggested to be both related to idea generation behavior and application behavior among employees. One concrete way leaders can behave supportive towards subordinates engaging in innovation efforts is to make sure people see their own progress. This way, leaders' support may increase their employees' motivation and productivity. Seeing progress in meaningful work is one of the most important boosts of emotions, motivation, and perceptions during a workday, as emphasized by Teresa M Amabile and Kramer (2011), who state that progress is the single most important boost during a workday.

The discussion of support is further expanded by adding the meaning of endorsement to the concept, and linking it to realization of objectives. When an innovator has generated an idea with potential for organizational implementation, he or she needs to build a coalition, which is to acquire power by selling the project to potential allies (Kanter, 1988). According to Kanter (1988), support – endorsement, backing, approval, and legitimacy – is an organizational power tool that can be invested in action. Someone initiating innovation must often compete in a "political market" in order to gain support or legitimacy for his or her idea. Thus, just as the leaders have a responsibility to provide support to their co-

workers, the ones taking initiative must equally seek to acquire support for their ideas. Support is thus needed from co-workers – as well as leaders – for the innovators to succeed.

In order to provide support for innovative behaviors, managers need to be involved in innovation activities, and are often required to monitor projects. D. Kelley and Lee (2010) found that manager involvement in innovation activities is not just a matter of the amount of involvement, but also the type of involvement. When projects exhibit high levels of innovativeness and are strategically related to the organization, the manager tend to empower the project leader and act more like a sponsor that provides support to the project leader. On the other hand, when projects diverge strategically from the organization and require large amounts of resources, the manager may assume more directive control.

However, support is not only needed to triumph ideas through the innovation process, it is also needed when ideas are killed. Innovation is risky, and most innovation projects get terminated at some point (Cooper, 1990; Levinthal & March, 1993). Termination of such ideas runs the risk of innovators to both lose face and risk appearing less than competent (Daly et al., 2012). Thus, managers discussing failing projects with innovators must let the innovators maintain their positive face – maintaining their positive self-image and acceptance among others – while, at the same time, convincing them to surrender autonomy – reducing negative face – when projects are terminated (Daly et al., 2012). When projects fail, it is important to get something positive out of the experience. Hence, support is needed to maintain a stream of creative ideas and individual initiatives. This was also emphasized by De Jong and Den Hartog (2007), who stated that, according to their interviewees, the way leaders dealt with mistakes seemed to be a key driver in the implementation stage of the innovation process.

This section shows the importance of support from leaders, even during failures, and concludes the section of behaviors that engage. The final factor of the

behavior-block is ‘enable’ and it shows the importance of “getting things done”, or, more precisely, enabling people to “get things done”.

2.10.3 Enable

Someone who enables gives means or authority to someone else to do something. The three elements which, according to Rao and Weintraub (2013), describe enabling behaviors are *influence*, *adapt*, and *grit*. They are further explained as: leaders that use the right influence strategies to overcome organizational obstacles; leaders that “modify and change course of action when needed”; and leaders that persist in following opportunities even in hardship, respectively (Rao & Weintraub, 2013, p. 34).

Influence

Because of their legitimate authority, leaders are in position to create strategies for coping with obstacles. One particular example would be to always make sure they have allocated enough resources to the innovation activities. De Jong and Den Hartog (2007) list “providing resources” as one of the leader behaviors that affect individual innovative behavior among employees. According to them, such leader behavior is related to the application stage of the innovation process, as implementing innovative ideas takes time and often requires a great amount of financial resources. However, allocating large amounts of resources does not come without side-effects: D. Kelley and Lee (2010) state that managers are likely to exert control when projects have high resource requirements and are strategically unrelated. One of the reasons for this is that the high resource requirements demand someone with proper influence and access to sufficient funds.

Leaders might also expect having to use their position and formal power to persuade others in order to be able to go forward with a project (Kanter, 1988). Especially strategically unrelated projects can be subjects of resistance from top management, and the novelty – at least as perceived by the firm – might call for

several changes along the way (D. Kelley & Lee, 2010). Thus, managers supporting these kinds of projects need grit to overcome resistance in the organization, adapt as new knowledge emerge, and have enough influence to make sure the project progress as intended.

Consulting employees and asking subordinates for their opinion before initiating change is also a strategy leaders might use. This strategy is aimed at increasing the motivation among subordinates to engage in change activities, which innovation might require, as employees are likely to feel increased ownership to an activity if they have been involved in shaping it (De Jong & Den Hartog, 2007).

To enable means more than simply using influence in the organization. It is also about adapting to changes in the environment, which is the topic of the next section.

Adapt

As already emphasized, environments are always changing. In order to survive, firms must constantly struggle to keep their alignment with changing external conditions. In almost every organization, there is a constant tension between the need for stability to accomplish daily tasks efficiently, and a need for creativity and exploration in order to make improvements to products and manufacturing processes as environments change. The problem for organizations, therefore, is to make sure they engage in sufficient exploitation and exploration. In order to do that, the firm needs dynamic capabilities. Dynamic capabilities are at the heart of the ability of a business to be ambidextrous – to explore and exploit (Trott, 2012) – and can be defined as "a set of abilities that make a firm more agile and responsive to change" (Schilling, 2013, p. 120). Leaders should thus focus attention towards developing the company towards becoming an organization capable of handling changes, and they must be capable of making decisions themselves, which enables the company to keep its alignment to the external surroundings.

The requirements for the leader to adapt to new circumstances also go for internal situations. Kanter (1988) states that flexibility is a requirement for idea realization, as innovations often encounter unexpected obstacles that require re-planning and redirection. If someone detects and reports critical flaws with a project, the leader has a responsibility to adapt to the new circumstances. However, for the manager to be able to adapt to new internal circumstances, he or she needs to know about the errors that has been made; the errors must be reported by the employees.

At first, one may think of this element as meant mostly to capture the decisions made by a leader on which direction to take, but being adaptable would in many cases include allowing subordinates to make decisions to which they consider best. This aspect of being adaptable can be connected to the behavior of delegating, as described by De Jong and Den Hartog (2007): "Giving subordinates sufficient autonomy to determine relatively independently how to do a job" (p. 49).

Grit

Leaders persisting in following opportunities can be thought of as especially important in innovative projects due to the often high levels of ambiguity present. A leader facing adversity on an innovation project may consider reducing the novelty of the job at hand. By reducing the novelty, the ambiguity is also reduced, making it easier to exploit the present opportunity. However, if too much ambiguity is removed, there is hardly any innovativeness left. After all, "innovation without newness is self-contradictory" (Brun et al., 2009, p. 81). According to Brun et al. (2009), it is preferred to accept ambiguity and cope with it. Coping can sometimes mean reducing ambiguity to keep the project alive, and other times it means sustaining ambiguity in order to maintain innovativeness in the project. Therefore, regardless of the decision made by the leader on how to cope with ambiguity, there is a need for grit. Without it, the company risks terminating projects far too soon, with nobody to defend the idea.

2.10.4 Summing Up

It is evident that leader behavior has the potential to affect the innovation culture in a company in several ways. Besides having potential direct effects on the innovativeness of a company culture by removing organizational obstacles, inspiring and challenging employees, the leaders' behaviors has also been found to affect people positively by providing support, coaching and modelling behaviors of openness.

These behaviors are important in facilitating an environment in which it is possible to be ambidextrous. How the leader behaves can affect the degree of difficulty as perceived by the employees. For instance, through coaching accompanied by support, a leader can teach an employee to be ambidextrous in his work. Finally, we see that adapt is an element to which ambidexterity is particularly relevant, and it is one of the few elements of behaviors that are directly connected to the theory of ambidexterity.

Thus far, we have described the literature on values and behaviors, and how they relate to the framework conceptualized by Rao and Weintraub (2013). We have found similarities and differences across building blocks, factors, and elements, but we also need to address climate – the last people-oriented determinant of an innovative company culture (Rao & Weintraub, 2013).

2.11 Climate

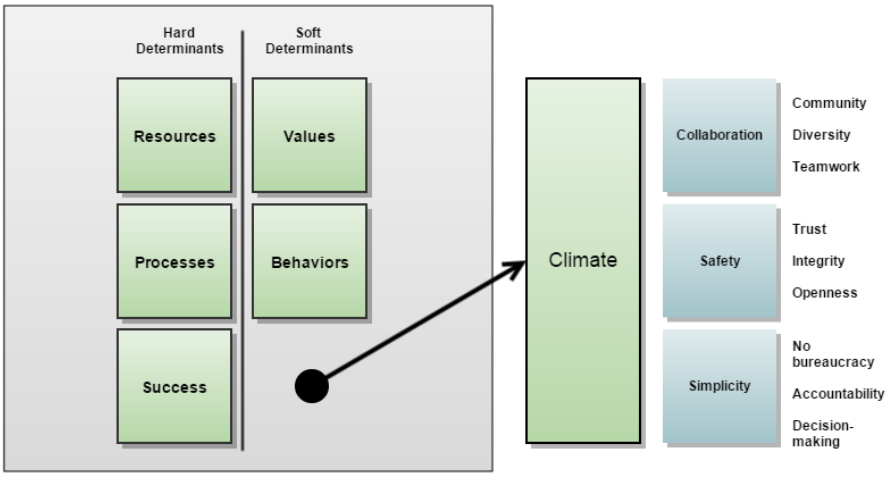

Figure 7 - The climate building block.

Climate is one of the main building blocks of an innovative company culture, and it is comprised of the three factors: *collaboration, safety*, and *simplicity* (Rao & Weintraub, 2013). The climate of an organization is argued to greatly affect its innovative capabilities. According to Rao and Weintraub (2013), "an innovative climate cultivates engagement and enthusiasm, challenges people to take risks within a safe environment, fosters learning and encourages independent thinking" (p. 30).

According to Reichers and Schneider (1990), it is important that culture is not confused with climate; "... culture constitutes a 'deeper, less consciously held set of meanings than most of what has been called organizational climate'" (as cited in Baer & Frese, 2003, p. 48). Further, Baer and Frese (2003) explain that "… culture can most accurately be understood as existing at a higher level of abstraction than climate" (p. 48), as climate is often linked to the activities that produce visible and tangible outcomes.

Baer and Frese (2003) argue that there are two conflicting views of organizational climate. The first is an aggregated psychological climate, where the organizational

climate is the property of individuals and describes how individuals generally perceive the organization. As a contrast, Glick (1985) defines organizational climate as "a broad class of organizational, rather than psychological, variables that describe the organizational context for individuals' actions" (as cited in Baer & Frese, 2003, p. 48). Whether climate is a shared perception or a shared set of conditions is still subject to controversy. However, many authors have emphasized the importance of the climate for innovation.

Having the right climate for innovation is seen as one of the most important elements for successful new product development (Cooper & Kleinschmidt, 1995). It is not hard to see why the climate plays a key role when participating in innovative activities, as employees need to: feel safe enough to speak their minds and offering different points of view; engage in debates without feeling threatened or insecure; and trust their colleagues enough take risks and daring to participate actively when working in teams. If a team wish to discover gaps in its plans and make the changes that is needed, team members must test assumptions and discuss openly rather than privately or outside the group. This set of activities is what Edmondson (1999) refer to as learning behavior, and it is not possible to achieve without a certain amount of trust. Trust is an essential part of work climate, and, as with psychological safety, also involve perceptions of risk or vulnerability (Edmondson, 2004), thereby greatly affecting the risks employees are willing to take when engaging in work activities.

However, achieving an innovative climate where creative ideas flourish and people actually engage in risk-taking is not possible without motivated people. Creativity will be optimized when people are primarily intrinsically motivated, which means they are motivated by the interest, enjoyment, satisfaction, and challenge of the work itself (T. M. Amabile et al., 1996). Focusing on creating a desirable climate for innovation can therefore be seen as a critical management task. At this juncture, we introduce the first climate factor, which is collaboration.

2.11.1 Collaboration

The collaboration factor is by Rao and Weintraub (2013) further broken down into the three elements *community*, *diversity*, and *teamwork*. Community is understood as the uniformity of the perceptions the organizational members have of how innovation is and should be conducted in their workplace. As the level of diversity can greatly affect the work outcome in an organization (Horwitz & Horwitz, 2007; Kanter, 1988; Rao & Weintraub, 2013), Rao and Weintraub (2013) suggest in their framework that having appreciation and respect for the differences that exist in the organization positively affects the innovation culture. However, of course appreciation and respect alone is not enough; one must leverage on these differences and use them to create competitive advantage (Rao & Weintraub, 2013). Further, teamwork is implied to be important for an innovative culture, as a well-functioning team will more easily be able to capture opportunities (Rao & Weintraub, 2013). The three elements and their potential effect on innovation culture will now be further investigated.

Community

Rao and Weintraub (2013) find the uniformity of the perceptions the organizational members have of what innovation is, and how it should be conducted, as important in an innovative culture. This raise the questions of why it is essential to speak a common language of innovation, and further, what does it actually means to speak a common language about innovation? Literature has given us insight to this area, and we understand it to both cover the aspect of which innovation projects to pursue, as well as how the innovation process is to be conducted.

In order to speak a common language about innovation, individuals must understand the company's strategic intent, which is "a long-term goal that is ambitious, builds upon and stretches the firm's existing core competencies, and draws from all levels of the organization" (Schilling, 2013, p. 121). In some

respect, deciding the company's strategic intent can be paradoxical. On the one side, the company must ensure that new initiatives leverage existing core competencies, while on the other side, as environments constantly change, new initiatives should be differentiated from what already exists. By having a common view within the organization where all employees know and understand the company's strategic intent, people know which innovation projects will be supported, and to what extent ideas would have to be related to current operations in order to be approved.

However, how is it possible to attain a community when every individual interpret and compare messages to their own values, which, at least to some extent, must differ between individuals? According to Eisenberg (1984), central metaphors have the strength of, through the use of strategic ambiguity, promoting *unified diversity*. By this, it is meant that individuals believe they agree on the meaning of being part of a community, while their actual interpretations can continue to be somewhat different. When communicating, people can use strategic ambiguity to allow for projection, such that those attending to the message can fill in a meaning that is consistent with their own beliefs (Eisenberg, 1984). The result is that people perceive greater similarities between one another, further strengthening the community within the organization.

Speaking a common language of innovation would imply having organizational members that trust each other's suggestions and ideas. Trusting colleagues and their ideas for projects could both be beneficial and devastating to innovation in an organization. Knowledge transfer from a trusted colleague may change the cognitive map of the receiver, and ultimately direct attention and search towards the area of the knowledge transferred (McEvily, Perrone, & Zaheer, 2003). This may be positive for innovation, as pointed out by McEvily et al. (2003): "Such shortcuts in knowledge acquisition can speed organizational learning, alertness and responsiveness" (p. 97).

However, always agreeing on decisions and moving quickly in the terrain is not necessarily always beneficial. W. M. Cohen and Levinthal (1990) emphasize that effective communication could in fact end up decreasing an organizational member's ability to exploit information originating from diverse external knowledge sources, possibly leading to "... the not-invented-here syndrome, in which ideas, knowledge and inventions developed outside their own group are rejected" (Morten T Hansen & Nohria, 2004, p. 24).

Diversity

Is diversity within the organization good or bad for innovation? When investigating the effect member diversity in an organization or group may have on innovation outcomes, certain questions quickly rise, such as: which type of diversity; professional or demographic? How does diversity affect innovation? Moreover, can there be too much diversity? Trying to answer these questions, as teams tend to be the most common organizational structure for carrying out innovation projects (D. J. Kelley et al., 2011), one can start by investigating the relationship between team diversity and team outcomes.

Proponents of heterogeneous teams argue that having cognitive diversity within a group promotes creativity, innovation and problem solving. The opponents, however, argue that homogenous teams is better, as they have shared characteristics that positively affects their team cohesion and performance (Horwitz & Horwitz, 2007). By quantitatively reviewing earlier work in the literature on this specific topic, Horwitz and Horwitz (2007) found support for their hypothesis that task-related diversity of team members was positively related to team performance, while bio-demographic diversity did not seem have any significant effects on team performance outcomes. Their findings are important because they imply that authors must specify which type of diversity they are referring to when researching the relationship between team member diversity and innovative performance.

When investigating how diversity possibly affects innovation outcomes, the positive effect of having diverse professional backgrounds for innovation has been emphasized by W. M. Cohen and Levinthal (1990). Notably, possessing exceptional problem-solving skills is good for innovation, and if good problem-solving is what one seeks to achieve, W. M. Cohen and Levinthal (1990) state that absorptive capacity and the problem-solving skills of the individuals within a group will increase if the individuals have different educational backgrounds, as this affects the knowledge structures of the individuals. Further, we have presented creativity as important for innovativeness, and T. M. Amabile et al. (1996) emphasize that team member diversity combined with mutual openness to ideas will ultimately expose members of the group to new ideas, thereby affecting creative thinking positively. This view is shared by Kanter (1988) who argues that diversity and breadth of experience facilitates the generation of new ideas and brings new perspectives to the table, thereby stimulating creativity.

Evidently, diversity within a group or organization is beneficial to the innovativeness of the culture, but is diversity always good? Which challenges does diversity bring about? Though emphasizing the importance of having diverse educational backgrounds, W. M. Cohen and Levinthal (1990) also state:

> Assuming a sufficient level of knowledge overlap to ensure effective communication, interactions across individuals who each possess diverse and different knowledge structures will augment the organization's capacity for making novel linkages and associations - innovating - beyond what any one individual can achieve (p. 133).

Thus, one could argue that although innovation may benefit from professional diversity, some degree of knowledge overlap is needed, as this ultimately will affect the communication within a group or organization. Moreover, Kanter (1988) emphasizes that though diversity in an organization gives an individual more discovery, member diversity also can make it difficult to later agree on

which innovation projects to implement on a larger scale. Horwitz and Horwitz (2007) further explain that if a person is more knowledgeable in an area, good communication and exchange of knowledge can be negatively affected by using specialized language when discussing an issue or opportunity, thereby illustrating the possible hinder diversity can be to effective communication.

We see that there are conflicting views in the literature of whether diversity has positive or negative effects on team outcomes, and thus on innovation. As a last point to this, diversity might also be thought of as covering the aspect of hierarchical position within the company. Evidently, mutual respect for one another in an organization despite diverse demographical background and formal position is essential for a good organizational climate. Mutual respect across hierarchical boundaries is important for participation among employees, and employee participation is claimed to both enhance learning, reduce resistance to organizational change and increase the ability to continuously improve processes within an organization (Klev & Levin, 2012). We therefore see respect for diversity as a very important element of the innovation culture, linked to organizational climate, learning, change, and well-performing teamwork. The latter is the next topic we address.

Teamwork

Well-functioning teams are seen as an important element for innovation, partly because, as already mentioned, innovation projects are usually carried out in teams (D. J. Kelley et al., 2011). Teamwork can stimulate creative project outcomes and innovation (Kanter, 1988), and, as we will further discuss later, some systems for new product innovation efforts actually require a project team approach as an organizational structure to organize successfully for the new product projects (Cooper, 1990). With this in mind, the reason for why Rao and Weintraub (2013) include working "well together in teams to capture opportunities" (p. 34) as an element of an innovative culture should be evident. However, what kinds of teams

are most effective for innovation? What characterizes a well-performing innovative team?

Cross-functional teams are often mentioned in the literature as enhancing the innovativeness of teams, and Kanter (1988) argues that innovation in general is increased by encouraging structural integration across fields in an organization. The importance of having established cross-functional teams was emphasized by Cooper and Kleinschmidt (1995), who, after analyzing the new product development successes in 135 companies in north America and Europe, concluded that one of the company-level drivers for achieving desired results were utilization of cross-functional teams in the product development process. Their findings could be seen in comparison to our previous discussion of diversity in teams, emphasizing the likely importance professional backgrounds can have on team outcomes. Further, continuing on what characterizes a well-performing team for innovation, Cooper and Kleinschmidt (1995) identified that having a dedicated leader, frequent communications and having developed effective methods for making decisions was beneficial for innovation.

However, based on what we have presented of literature so far, it should be obvious that having a dedicated leader or effective methods for decision-making is alone not enough to ensure good teamwork for innovation. Teamwork involves social and psychological processes ultimately affecting a team's ability to innovate. As Baer and Frese (2003) state: "Successful cooperation requires the existence of a climate in which employees feel safe in displaying proactive behavior in a social context, or a climate of psychological safety" (p. 47). Edmondson (2004) supports this view of focusing on establishing the right climate within a team by claiming that the level of psychological safety in a team is likely to affect the way members interact with each other. The team climate is therefore argued to greatly affect the overall performance of a team. If innovation is one of the criteria by which performance is judged, climate may also affect innovation. However, teams in different organizations have different scopes for

innovation, and would not this affect the degree to which team climate actually affects team innovation?

Bain, Mann, and Pirola-Merlo (2001) found evidence supporting their hypothesis that one needs to distinguish between various types of teams when investigating the relationship between team climate and team innovation. They investigated the relationship between team climate with team innovation and team performance of 38 teams in two different types of organizations: one research organization and one development organization. According to them, the distinction between research teams and development teams corresponds to teams on the one side, which create new knowledge, and teams one the other side, which develop useful products and processes. It was not surprising to Bain et al. (2001) when they found a stronger pattern of relationships between team climate factors and indicators of team innovation in research teams than in the development teams. This could be explained by the kind of work performed by research teams, which involved a higher degree of uncertainty and creativity (Bain et al., 2001). We have seen that good collaboration requires a diverse, but coherent community in order to make teamwork effective. However, teams will not be able to collaborate effectively unless there is a safe work climate, which is the next factor we describe.

2.11.2 Safety

Safety is the second factor of the climate building block, and consists of three distinct elements: *trust*, *integrity* and *openness*. The level of trust is characterized as the members in the organization "actually doing the things we say we value" (Rao & Weintraub, 2013, p. 34). Integrity is linked to the question of reacting when actions are inconsistent with organizational values, while openness describes whether organizational members freely voice their opinions and dare to present unusual, new ideas (Rao & Weintraub, 2013).

As noted, innovation is a high-risk endeavor, often requiring employees to challenge themselves and respond quickly to incidents under ambiguous

conditions. Many technologically driven implementation attempts fail, and one reason is suggested to be that leaders neglect the development of organizational climates in which the participating people in a change process should feel safe in taking interpersonal risks, discuss problems openly, approach work proactively, and are encouraged to propose new ideas (Baer & Frese, 2003). The importance of having a safe environment where people are not afraid to admit mistakes in order to learn from failure, be creative, and feeling comfortable with taking initiatives will be elaborated on in this factor.

Trust

McEvily et al. (2003) define trust as a "willingness to accept vulnerability based on positive expectations about another's intentions or behaviors" (p. 92). McEvily et al. (2003) understand 'trust' as an expectation about others intentions or behaviors, and therefore separate the term into a distinction between "*actual* versus *perceived* intentions, motives, and competencies of a trustee …" (p. 93). Further, McEvily et al. (2003) claim that as trust simplifies both the acquisition and the interpretation of information, it also makes decision making more efficient. They also claim that trust generates benefits for organizations and their members through direct effects or through enabling effects. The former points to direct effects that trust has on organizational phenomena, such as: communication, conflict management, a negotiation, and company performance. With enabling effects, trust creates or enhances the conditions that are beneficial to obtaining organizational outcomes, such as cooperation and better performance.

There are two main causal pathways in which trust influence organizing: structuring and mobilizing (McEvily et al., 2003). Structuring is understood as the development, maintenance, and modification of a system, which consists of relative positions and links between people in a social space. Resulting from structuring is a network of ongoing and stable patterns of interaction, both formal, like routines, and informal, like cliques (McEvily et al., 2003). Viewing trust from a structural perspective, McEvily et al. (2003) claim that "trust shapes the

relatively stable and enduring interaction patterns in and between organizations" (p. 93). Mobilizing, on the other hand, is understood as "the process of converting resources into finalized activities performed by interdependent actors" (p. 97). It involves motivating people to share their resources, and to combine, coordinate, and use them in joint activities. Also, these resources should be directed towards achieving organizational goals (McEvily et al., 2003). Thus, from this perspective trust motivates people "to contribute, combine, and coordinate resources toward collective endeavors" (pp. 93-94). Moreover, it can generate efficiencies, as trust conserves cognitive resources, lowers transaction costs, and simplify decision-making. If there is uncertainty about other people's intentions, motives, and competencies, it is also difficult to rely on these people. Organizational members actively review their counterparts in order to see if their level of trust can be maintained or increased, and according to McEvily et al. (2003), "it is this fragility of trust that lends it its heuristic quality, rather than being something that can be decided with precision, once and for all" (p. 99).

Integrity

Organizational members with personal integrity can be one of the antecedents of a safe work environment. Psychological safety can be important in order to maintain a behavioral integrity, which ensures that people can actually do what they deem important in a consistent manner, whether it is displaying controversial beliefs or actually following safety procedures. Edmondson and Lei (2014) discuss a research undertaken by Leroy and colleagues (2012) on leaders "enforcing safety protocols while encouraging employee error reporting" (p. 35), where "... a team priority of safety and team psychological safety both mediated the relationship between reported treatment errors and leader behavioral integrity related to safety" (as cited in Edmondson & Lei, 2014, p. 35). Further, according to Jassawalla and Sashittal (2002), "... effective leaders foster a social environment of integrity and trust in which participants feel comfortable seeking clarifications, testing their understanding, proposing risky ideas, offering

dissenting opinions, and making themselves vulnerable to feedback from others" (p. 51).

Openness

Voicing opinions and contributing with unconventional ideas is suggested to positively contribute to an innovative culture (Rao & Weintraub, 2013). As noted, Edmondson (2004) emphasizes that by modeling openness and fallibility, leaders can improve the atmosphere of psychological safety in the workplace. This implies that if leaders model behaviors in which certain matters are better left unspoken, employees will follow this example. Overall, if a leader is coaching-oriented and invites for questions and feedback, there is a great chance that the team members will feel safe in their workplace.

Rao and Weintraub (2013) emphasize that the value of their survey increases as the number of respondents increase, and in particular, when the respondents come from different hierarchical corporate levels. Employees on all hierarchical levels might be carrying new, controversial ideas, and these ideas should be heard. As already mentioned, members in an organization have different skills, knowledge, and access to information, which ultimately affects their views on which changes an organization should make or opportunities the organization should pursue (Klev & Levin, 2012). Encouraging employees to voice their opinions on organizational matters and actively participate in a safe environment should thus be seen as an important focus for management.

Jassawalla and Sashittal (2002) highlight the fact that having organizational members who show willingness to make themselves vulnerable to feedback from others is essential in an innovative culture. Negative feedback also includes the possible termination of an innovation project, which an employee might find demotivating, or perhaps even embarrassing. However, as Daly et al. (2012) state: "Decision-makers' perceived accessibility and openness, according to informants, makes termination decisions more palatable to innovators" (p. 22), implying that

a decision-maker's perceived openness might enhance the tolerability of having a project killed. Finally, considering the competence trap introduced by Levinthal and March (1993), one could argue that the more an organization becomes specialized within a niche, the more important the need for new, unconventional ideas and an open environment might become. As this concludes the safety factor, we now move on to the last factor under climate: simplicity.

2.11.3 Simplicity

The last factor of the climate building block is simplicity, which is broken down into the three distinct elements: *no bureaucracy*, *accountability* and *decision-making*. The first of these elements, no bureaucracy, refers to procedures, rules, and rigidity within an organization. Rao and Weintraub (2013) imply in their framework that a minimization of rules, policies, and rigidity simplifies the workplace. An interesting question to ask in relation to innovation and bureaucracy is whether bureaucracy merely acts as a limitation for innovation. What are the consequences, if any, for a company's innovation efforts if there is not enough bureaucracy? The second element, accountability, addresses the issue of people in an organization not taking responsibility for their own actions, and blames others instead. As we have already emphasized, innovation is not a straightforward process, and many innovation projects become failures (e.g. Cooper, 1990). In order to learn from failures and secure future successful teamwork, admitting mistakes and avoiding blaming others is essential. The importance of the third element, decision-making, have been touched upon earlier as it relates to the question of who has the necessary authority to make decisions in innovation projects in an organization, as well as it relates to the ease of moving initiatives forward. Rao and Weintraub (2013) suggest that having a well-known "route" for initiatives in an organization positively affects the innovation culture.

No bureaucracy

One strategic tension for managers lies between knowing when to exert control over the development of the organization and when to let go (de Wit & Meyer, 2010). According to de Wit and Meyer (2010), the strategic paradox arises from the need of both having a demand for top management control, as well as having a demand for what they refer to as organizational chaos.

Control is defined as "the power to direct and impose order" (de Wit & Meyer, 2010, p. 486), and proponents of tight top management control has a view that it is top management's responsibility to ensure that the organization always is aligned with the environment (de Wit & Meyer, 2010). de Wit and Meyer (2010) further define chaos as "disorder or the lack of fixed organization"(p. 486), and explain that the demand for organizational chaos is often desirable as experimentation, skunk works, pilot projects and new initiatives could eventually pay off in terms of organizational innovations. This perspective also argues that having too much management control can potentially end up destroying an organization's ability to learn and innovate (de Wit & Meyer, 2010). With these two conflicting views, how should leaders arrange for innovation?

Kanter (1988) claims that flexibility and little rigidity within an organization is one of the requirements for successful idea realization. She emphasizes that as many innovation efforts encounter unforeseen obstacles, re-planning and redirection is often necessary. Evidently, this uncertainty and ambiguity in the development process calls for a need for greater flexibility in innovation projects. Further, earlier we emphasized the important role trust plays for the innovative capabilities of an organization, and adopting bureaucratic procedures and control has been argued to stand in the way of efforts to achieve congruence of values, which is a foundation of trust (McEvily et al., 2003). Moreover, proponents for the organizational chaos and flexibility perspective argue that as innovation and learning in an organization is largely initiated by the organization's members,

giving them a certain amount of freedom is essential for learning and innovation to be properly integrated in the organization (de Wit & Meyer, 2010).

However, then there is the question: can there be too much freedom? If so, what are the potential hazards of having too little bureaucracy for innovation efforts in the organization? de Wit and Meyer (2010) highlight the fact that a lack of existing structures, processes and routines could end up making people in the organization uncomfortable. This view is shared by McEvily et al. (2003), who claim that adopting bureaucratic procedures and control does create a sense of reliability in an organization. Further, as innovation projects often are characterized by cost overruns and missed deadlines (Daly et al., 2012). Although pursuing opportunities as they reveal themselves is an important aspect, an issue to consider is the possibility of draining the organization for valuable resources if projects are allowed to continue to prosper without being killed. Clearly, well-understood rules and procedures could play an important role preventing this.

Evidently, when trying to innovate successfully, there is no recipe for what level of bureaucracy in an organization is most appropriate. Poor innovation projects should not be left to themselves and drain the organization for valuable resources (Daly et al., 2012). However, opportunities need to be pursued in time, employees must be motivated to participate (Klev & Levin, 2012), and managers should design the organization flexible enough in order to provoke creativity and new ways of doing things (Kanter, 1988).

One possible solution is to separate units. O'Reilly and Tushman (2004) found that firms that had been successful at both exploiting the present business opportunities, and, at the same time innovating for the future, in fact had separated their new, exploratory units from their traditional, exploitative ones. As exploitation and exploration calls for different strategies, structures, processes, and cultures, this arrangement allowed both innovation-types to exist within the same organization at the same time. The exploitative businesses had a strategic

focus on cost and profit, a culture for efficiency and low risk, and a formal and mechanistic organizational structure to achieve their goals. The explorative businesses, on the other hand, had a strategic focus on innovation and growth, a culture for speed, flexibility, and risk-taking, and a loose and adaptive organizational structure as a backbone. The findings of O'Reilly and Tushman (2004) do imply that an ambidextrous organizational design allowing for two different cultures, two different levels of bureaucracy, and two different guidelines for leadership roles can be argued as being an effective solution in arranging for innovation.

Accountability

Accountability is by Rao and Weintraub (2013) understood as the degree to which the employees take responsibility for their actions and avoid blaming others. It might seem trivial at first; of course, one should avoid blaming others for your own mistakes. However, why is this particularly important for the innovation culture? Firstly, there is a connection between accountability and learning from failure. Organizations learn from failure through three activities: detection, analysis, and experimentation (Edmondson, 2011). Obviously, in order to analyze failures, they must first be detected. As small mistakes are often hidden when possible (Edmondson, 2011), analyzing them, and thus learning from them, will ultimately be impossible. Admitting failures, even small ones, and taking responsibility for them thus increases the organization's ability to learn from failure.

Secondly, as innovation requires resources, admitting failures and taking responsibility for poor results might end up saving large amounts of capital for the company. This is either done by surfacing failures in innovation projects early, so that mistakes can be addressed before expanding into expensive disasters (Edmondson, 2011), or projects can be stopped at an early stage, thereby freeing resources for other potentially successful innovation projects (Daly et al., 2012).

Accountability can therefore be seen as contributing to overall company success, saving valuable resources from being wasted.

Thirdly, trust among employees can be negatively affected if members blame each other for their own mistakes. If a leader wants employees to take responsibility for their own mistakes, and develop consistent and early reporting behaviors - as he or she should – it is a natural prerequisite that the mindset is attuned to solving the problem, as opposed to wasting energy on the less productive 'blame game' (Edmondson, 2011). Thus, the trust among employees is something that develops over time, and requires a consistency in how leaders handle mistakes so that there is a consistency to the perceived consequences of being accountable.

Evidently, taking responsibility for your own actions is beneficial for the work climate. However, admitting failures leads to a potential analysis of your mistake, and analyzing mistakes is emotionally unpleasant for the particular person admitting it (Edmondson, 2011). Thus, taking responsible for your actions requires an environment where it is safe to do so, and management can play an important role in establishing such a climate where accountability plays a key role. Firstly, as emphasized, employees notice the everyday behavior of middle-leaders, putting middle-leaders in a unique position to contribute positively to desirable behaviors of accountability by admitting their own mistakes. Further, senior management can also contribute to such a climate by being formally held accountable for particular company results. As an example, this can be done by linking senior management compensation (bonuses) to innovation performance (such as hit rate for new product development) of the company (Cooper & Kleinschmidt, 1995). Establishing such criteria formally communicates that top management are also held accountable for their areas of responsibility.

Decision-making

Actually knowing how to get started, and how to move initiatives for innovation through an organization, is proposed by Rao and Weintraub (2013) to increase the

simplicity of innovating. Several studies on new product development address the process of moving innovation initiatives through the organization (Brun et al., 2009; Cooper, 1990; Cooper & Kleinschmidt, 1995). Cooper and Kleinschmidt (1995) argue that the quality of execution of the activities associated with a new product process has a major impact on project outcome. After having investigated new product development successes on company levels, Cooper and Kleinschmidt (1995) claim that focusing on predevelopment activities and having well-established procedures for formal new product processes is important to successfully innovate. Based on their findings after having studied the success of new product development in 135 firms across Europe and North America, they subsequently ranked having a high-quality new-product process as the most important performance driver. Handling decisions quickly and efficiently were thereby proven in their study to have a positive effect on new product development activities.

Using stage-gate systems is one way to guide and monitor your innovation process. These systems are both conceptual and operational models for successfully moving an idea to launch. According to Cooper (1990), by following such an approach employees will always know what needs to be done at a given stage, as explicit information about goals to each stage is given and openly communicated. Senior people act as the gate-keepers, and decide which projects are allowed to enter the next stage in the innovation process. Cooper (1990) states that this is important, as it ensures top management's involvement and commitment to innovation efforts. However, though providing efficient processes for decision-making, such systems have been argued to have limitations. Returning to the question of bureaucracy, stage-gate systems are rules-bound, thus increasing rigidity in the innovation efforts. Authors have therefore argued that stage-gate systems, though informative of the innovation process for employees, are unsuitable for pursuing radical innovation projects. Brun et al. (2009) address this issue and highlight the downsides such systems bring about to the early stages

in new product development projects. These stages in radical innovation projects are often characterized by considerable uncertainty and ambiguity, and Brun et al. (2009) claim that potential break-through innovation projects might be cut-off too early or risk missing the window of opportunity as state-gate systems are not properly designed to cope with ambiguity. Thus, well-established systems for innovation projects can, on the one side, contribute to simplicity and efficient decision-making, but on the other side, also lead to increased bureaucracy, from which radical innovation suffers.

Whether or not stage-gate systems is the right way of organizing for innovation in an organization, one could argue that systems for innovation processes do at least provide a transparent roadmap for innovation projects to teams and individuals. Further, as the criteria for evaluation are set in advance, leaders in an organization ensure objectivity in the potential termination-stage, and one could further argue that this is beneficial to the innovation culture, as idea generators would "know" that they have been judged and treated the same way as others.

This part of the paper has described climates for innovation, which we systematized according to Rao & Weintraub's (2013) framework. The next section gives a brief summary, and draws lines to ambidexterity.

2.11.4Summing Up

Climate is essential for innovation. Establishing teams that collaborate effectively on innovation projects is not an easy task without focusing on work climate, as people, according to literature we have presented, engage more in desired innovative behaviors when they perceive the work climate to be safe. The interpersonal climate between employees is central, and leaders should focus efforts on how people perceive this in the organization.

Diversity among employees is beneficial in an organization, as there is a need for diverse competences and opinions. However, one must be aware of how too much

diversity may affect teamwork and climate negatively. Further, a climate perceived by employees as open and with a high level of trust increases the perceived psychological safety, which is important for well-functioning teamwork and company innovativeness.

From an ambidexterity perspective, we have seen that ambidextrous organizations are able to have different cultures and climates inside their organization, allowing companies to utilize the different attributes required for exploration and exploitation.

This concludes the literature review of ambidexterity and six building blocks for an innovative company culture (Rao & Weintraub, 2013). The next chapter of our master's thesis is our working hypotheses.

CHAPTER 3

Working Hypotheses

In this part of the paper, we use the theoretical background to derive working hypotheses (WH) for further investigation. According to Whitney and Smith (1904), a working hypothesis is:

> A hypothesis suggested or supported in some measure by features of observed facts, from which consequences may be deduced which can be tested by experiment and special observations, and which it is proposed to subject to an extended course of such investigation, with the hope that, even should the hypothesis thus be overthrown, such research may lead to a tenable theory (p. 616).

We will present 7 WH's, where the overall goal is to investigate relationships between the different constructs in the Rao and Weintraub (2013) *innovation quotient assessment tool*, and ambidexterity (He & Wong, 2004). While we suggest relationships between an innovative company culture and ambidexterity, we do not suggest causality on any WH's. The reason is simply that our questionnaire does not allow us to claim cause and effect, which we elaborate more on in the discussion-chapter. However, it is plausible that a causal mechanism, if it exists, is one where the company culture is affecting the company's ambidexterity (Lin & McDonough Iii, 2011; Wang & Rafiq, 2014). Before reading this WH-chapter, we believe it is helpful with a reminder of our research question for this master's thesis:

> *What are the differences in innovative cultures between ambidextrous organizations and non-ambidextrous organizations?*

To quickly recap the theory, we have presented the concept of ambidexterity, and the six building blocks of an innovative culture from the framework of Rao and

Weintraub (2013). Further, there are empirical evidences that ambidextrous companies tend to outperform non-ambidextrous companies (Birkinshaw & Gibson, 2004; He & Wong, 2004; O'Reilly & Tushman, 2004; Sarkees & Hulland, 2009; M. Tushman et al., 2010), and that a company with a culture for innovation is likely to outperform other companies in a long-term perspective (Rao & Weintraub, 2013). We already know from the theory chapter that certain organizational cultures can foster ambidexterity (Lin & McDonough Iii, 2011; Wang & Rafiq, 2014). Thus, our aim is to assess how the different aspects of an innovative company culture relate to ambidexterity. To achieve this, we will do numerous tests on innovation culture in relation to ambidexterity.

Innovation is important for long-term survival (O'Reilly & Tushman, 2004). Further, there is a need for balancing incremental innovation to ensure current viability, and radical innovation to ensure future viability (Levinthal & March, 1993). While companies that are not supportive of innovation might financially outperform others on short-term, these advantages run the risk of fading away by newer and better products and services from competitors that do focus on the long-term. Thus, substituting exploration with exploitation can only yield advantages in the nearby future, and risk turning an organization obsolete in the long-term. As the Rao and Weintraub (2013) framework only measures the innovative culture – and not innovation performance – this only tells whether an organization's culture is supportive of innovation. However, the theory implies that it is likely that an innovative company culture makes a company more viable in long-run, as innovation is considered to be the engine of growth (Trott, 2012). While an innovative company culture does not necessarily promise high innovation performance, a company that has no culture for innovation is more or less guaranteed not to perform well in terms of innovation.

The theory thus predicts that an innovative company culture – identified by a high overall score on the innovation quotient assessment – will lead to better long-term performance for a company relative to its competitors. As ambidextrous

organizations tend to outperform their competitors (O'Reilly & Tushman, 2004), we propose that ambidextrous companies will score higher on the innovation quotient assessment than other companies.

> WH 1: The overall innovation quotient and ambidexterity are positively correlated.

In the remainder of the WH-chapter, we suggest relationships between ambidexterity and the different building blocks. These parts are separated according to each building block, and the paragraphs describe how we believe the different factors are related to ambidexterity. We do not suggest relationships between elements and ambidexterity, however, as this would impose issues to validity (Pallant, 2010). As in the theory-chapter, we present the building blocks with the hard determinants first, followed by the soft determinants. Thus, in the next section, we discuss resources.

3.1 Resources

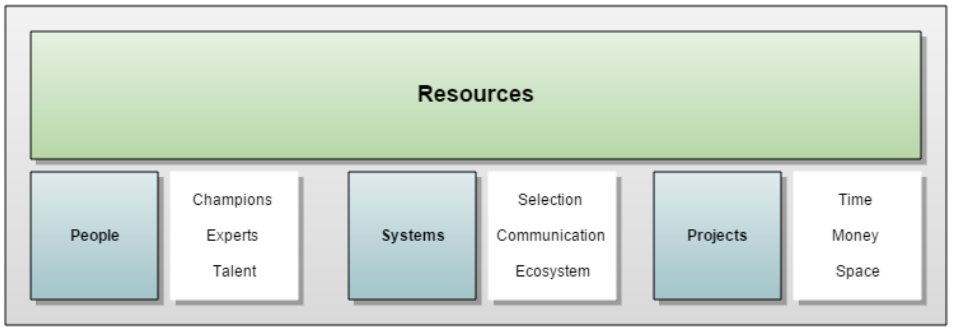

Figure 8 - Resources for innovation.

We previously described resources as a bundle of tangible and intangible assets, and these can be essential in generating a value-creating strategy. We stated that some resources ultimately enable the firm to perform better and more efficient than its competitors, which is a source to competitive advantage (Barney, 1991). We also know – from the ambidexterity chapter – that ambidextrous companies has a competitive advantage over non-ambidextrous organizations. Hence,

ambidextrous organizations may possess resources that enable them to perform better than their competitors. Otherwise, it is possible that ambidextrous organizations have a competitive advantage simply by combining their tangible and intangible assets better than competitors do (J. F. Christensen, 1995; Hadjimanolis, 2000). Either way, it is likely that the resources – represented by score on the resource building block in the innovation quotient assessment – of ambidextrous companies are better administered compared to competing organizations.

> WH 2: The score on the resources building block and ambidexterity are positively correlated.

People is considered the most critical resource of an organization, as "… they have a powerful impact on the organization's values and climate" (Rao & Weintraub, 2013, p. 30). The theory-chapter explained that exploitation has a tendency to take precedence over exploration (Levinthal & March, 1993). To address this, people have the ability to reduce organizational and physical barriers, which allows an organization to succeed with simultaneously exploring and exploiting. We therefore believe that the right people – while important for any organization – is a critical prerequisite for any ambidextrous organization. Hence, we suggest that the people-factor of resources is stronger for ambidextrous organizations than it is for non-ambidextrous organizations.

> WH 2 a): The people-factor of resources and ambidexterity are positively correlated.

The *systems* of an organization gives support to innovation initiatives. As became evident in the theory chapter, innovation is an uncertain process, and the more radical an innovation becomes, the more ambiguity is present. Hence, organizations need systems to organize and manage innovation, and these systems should be supportive of both exploring activities as well as exploiting activities. Of the elements that systems comprises, communication is of particular

importance for ambidextrous organizations. When units or people are working with radical innovations – exploring – while others are working on minor improvements – exploiting – it is important with good communication and coordination in order to achieve synergies between the two (Gilbert et al., 2012; Govindarajan & Trimble, 2010). Hence, we believe that systems do relate positively to ambidexterity.

> WH 2 b): The systems-factor of resources and ambidexterity are positively correlated.

Many innovations are the result of a *project.* In Rao and Weintraub's (2013) framework, projects consists of giving an innovation enough time, money, and space. Thus, projects are about providing tangible assets to facilitate for a successful innovation. Any project needs time, money, and space to be successful, regardless of the company being ambidextrous or not. As we saw in the theory, however, intangible assets are more important for innovation than tangible assets are. The theory therefore implies that people and systems are resources that are more important for an ambidextrous organization. Hence, projects is an important factor for all organizations, but it should not be of greater importance for an ambidextrous organization, relative to one that is not.

> WH 2 c): The projects-factor of resources and ambidexterity are not correlated.

3.2 Processes

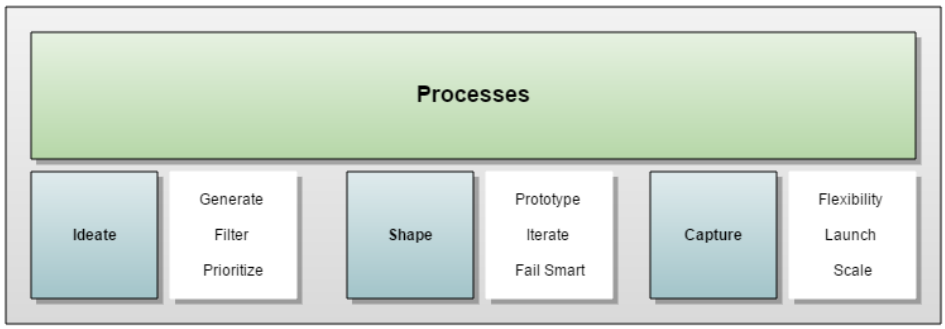

Figure 9 - Processes for innovation.

Whether one attempts to improve an existing offering or introduce something that is new to the world, an organization must have processes that enables an innovation to flourish (e.g. Cooper, 1990). Further, viewing processes as a value chain reveals that any process is only as strong as its weakest link (M. T. Hansen & Birkinshaw, 2007), which implies that each stage in a process is of great importance. In the theory chapter, we described a separation between processes for incremental and radical innovation. For instance, while stage-gate systems work well with incremental improvements, they are less suitable for radical innovation. We therefore believe that ambidextrous organizations understand that different types of innovations require different types of processes, and that they create processes in accordance to this need. We cannot rule out that non-ambidextrous companies also have great processes that vary according to the type of innovation. We know from the theory chapter, however, that ambidextrous companies are better at simultaneously developing incremental and radical innovations (O'Reilly & Tushman, 2004). What this implies, then, is that ambidextrous organizations in overall should develop incremental and radical innovations of higher quality relative to competing firms. According to Du Preez and Louw (2008), the quality of a given innovation depends on the quality of the process used to develop and implement the innovation. Hence, it is likely that

ambidextrous organizations do have processes of high quality that helps them achieve high innovation performance.

> WH 3: The score on the processes building block and ambidexterity are positively correlated.

Ideation and innovation performance are very much dependent on each other, as successful innovation is possible only when an organization is generating the right ideas. This implies generating many ideas, in which the organization moves on with the good ideas, and terminates the bad ones. As we saw in the theory-chapter, ideas can originate from a vast set of sources (M. T. Hansen & Birkinshaw, 2007). With incremental innovation, in which there is less uncertainty (with more information, there is a larger need for understanding of context) and more often problems that are industry specific, both ambidextrous and non-ambidextrous firms tend to rely more on internal information sources (Birkinshaw et al., 2011). As radical innovation is characterized by discontinuity in technology and the market (Garcia & Calantone, 2002), organizations might benefit more from a broad range of expertise, such as with open innovation (e.g. H. W. Chesbrough, 2003). We believe that by separating exploring and exploiting activities, like ambidextrous organizations do, the ones that work with exploring activities are more open to external sources of information. Hence, ambidextrous organizations ought to be better at generating ideas from a more varied range of sources, which should lead to better innovation performance in a long-term perspective. Moreover, in the theory-chapter, we described that filtering of ideas should vary according to type of innovation (Nagji & Tuff, 2012). If all ideas are assessed according to the same criteria, the organization is likely to be biased towards incremental or radical innovations, since these filtering criteria must favor one innovation type over the other. The same goes for the innovation process, in which linear processes fit incremental innovations better, while dynamic processes are more suited for radical innovations (Brun et al., 2009). Thus, organizations that

adapt processes and filter their ideas according to type of innovation are more likely to select the right ideas, and with a better balance of explore and exploit.

> WH 3 a): The ideate-factor of processes and ambidexterity are positively correlated.

Unless companies *shape* ideas, they will not go anywhere. As we saw in the theory, shaping of ideas begins once selected during the ideation phase. Similar to our findings from ideate, different innovation types have different requirements to their shaping from idea into offering. Hence, it is likely that ambidextrous organizations have more control regarding the process of shaping an idea into a product, regardless of the idea's radicalness.

> WH 3 b): The shape-factor of processes and ambidexterity are positively correlated.

In order to unleash the inherent benefits of an innovation, organizations need to be able to *capture* it. As seen in the theory-part, innovation processes often lack the flexibility required to succeed. We stated in the theory, however, that ambidextrous organizations do in fact have the necessary flexibility to succeed with both incremental and radical innovation (O'Reilly & Tushman, 2004). This leads us to believe that ambidextrous companies' advantage in flexibility makes them better at capturing their innovations' true potential for success. In addition to the flexibility-advantages for ambidextrous organizations, much of the previously used logic goes for capture: because ambidextrous organizations use different processes for incremental and radical innovations, they should be better equipped to capture them, both in launching and scaling radical and incremental innovations.

> WH 3 c): The capture-factor of processes and ambidexterity are positively correlated.

3.3 Success

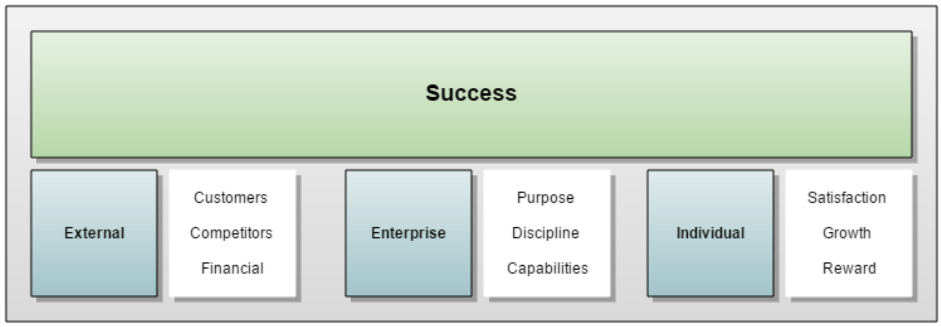

Figure 10 - Success for innovation.

Success is the one building block in which its name is not obvious or clear in meaning. Looking at the factors in the framework, success is how innovative external stakeholders view the firm to be, how innovative the firm views itself to be, and how innovative individuals working in the firm consider the firm to be. As with every question in the innovation quotient assessment tool, external, enterprise, and individual success are all self-reported perceptions by the employees in the firm. In the theory-chapter, we questioned whether success is good for innovation. For instance, we stated that industry leaders rarely introduce radical innovations (Clayton M Christensen & Overdorf, 2000), and that distinct capabilities that develop over time reduces an organization's ability to learn new things (Levinthal & March, 1993). However, Rao and Weintraub (2013) argue that success reinforces an organization's values, behaviors, and processes. Moreover, we stated in the theory that ambidextrous organizations tend to outperform non-ambidextrous organizations (e.g. O'Reilly & Tushman, 2004), which makes it likely that ambidextrous organizations consider themselves to be successful.

> WH 4: The score on the success building block and ambidexterity are positively correlated.

A truly innovative organization is likely to be acknowledged for its' innovativeness by *external* stakeholders. As we have seen in the theory-part, ambidextrous organizations perform – measured by sales growth – considerably better than non-ambidextrous organizations (Fuertes-Callén & Cuéllar-Fernández, 2014). Hence, there is a reason to believe that sales growth will reflect a better financial performance compared to organizations that are not ambidextrous. The external perception among customers and competitors, however, might not reflect how innovative a company really is. Thus, the external perception could be just as high for non-ambidextrous organizations compared to ambidextrous organizations. Overall, we therefore propose the following:

> WH 4 a): The external-factor of success and ambidexterity are not correlated.

Innovation is an important area of focus in all ambitious *enterprises*. From the theory, it is clear that to succeed in innovation there needs to be an alignment between overall strategy and innovation. The problem, however, is that incremental and radical innovations – that demands contradictory structures and cultures – creates a paradox: whether to treat innovation as a long-term strategy or a short-term fix (Rao & Weintraub, 2013). Most organizations choose the latter one; focusing mainly on incremental innovations. Ambidextrous organizations are, as derived in theory, experts at balancing the need for short-term fix through exploitation and long-term strategy by exploring new opportunities of future revenues. Thus, ambidextrous organizations would appear better than non-ambidextrous organizations in understanding the purpose of innovation. Further, we saw in the theory-chapter that discipline favors incremental innovations and not necessarily radical innovations (Brun et al., 2009). Hence, there has to be some balance – or segregation – between discipline and chaos in order to achieve simultaneous exploiting and exploring. Since ambidextrous organizations has divided exploring and exploiting activities, it is reasonable to believe that they

also master balancing discipline and chaos better than non-ambidextrous organizations.

WH 4 b): The enterprise-factor of success and ambidexterity are positively correlated.

The most important factor in a company is probably its *individuals*. As emphasized by reviewed theory, all employees in an organization contribute to the collective pool of knowledge (J. S. Brown & Duguid, 2000). Therefore, it is important to make sure that employees are motivated to enhance the size of the knowledge-pool. The most effective way to motivate employees is by targeting their intrinsic motivation (Deci et al., 1999). One way to reduce the intrinsic motivation, however, is to divide the labor into those who innovate, and those who do not (Kanter, 2006). This would imply that dividing exploration and exploitation could reduce employees' intrinsic motivation. Hence, those exploring might be motivated at the expense of those exploiting, making the overall motivation suffer. Structural ambidextrous organizations might therefore end up having less motivated employees than non-ambidextrous organizations. However, contextual ambidextrous organizations do not necessarily divide into those who innovate and those who do not, in which all or most employees work with both exploring and exploiting activities. For a contextual ambidextrous organization, then, overall motivation might be higher than for competing firms, which makes it possible that overall motivation for all ambidextrous organizations are relatively high. Thus, we propose that ambidextrous organizations will score higher than non-ambidextrous organizations on individual success.

WH 4 c): The individuals-factor of success and ambidexterity are positively correlated.

3.4 Values

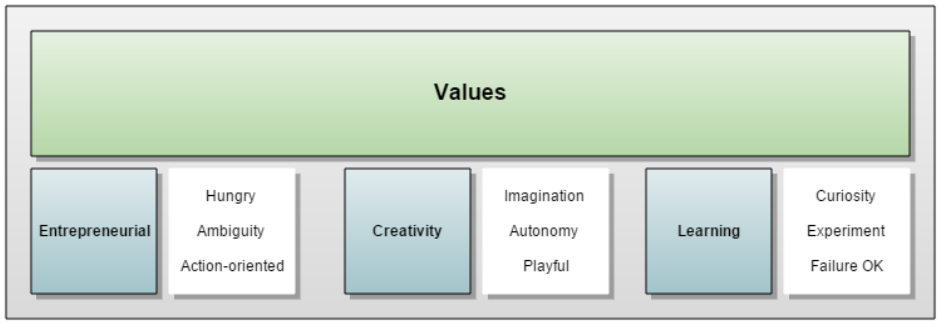

Figure 11 - Values for innovation.

We saw in the theory-chapter that innovation performance in part is dependent on values for initiative, creativity, and risk-taking (Jassawalla & Sashittal, 2002). Moreover, we have stated several times that ambidextrous organizations perform better than others do. Both of these statements has improved innovation performance as the outcome, in which it becomes evident that ambidextrous organizations have a high regard for organizational values. Moreover, Rao and Weintraub (2013) claim that decisions and priorities are driven by values, and we stated that values can be observed by employee behavior and managers' allocation of limited resources (Clayton M Christensen & Overdorf, 2000). With this in mind, we believe that the values of ambidextrous organizations have a considerable focus on innovation, especially regarding balancing exploration and exploitation.

> WH 5: The score on the values building block and ambidexterity are positively correlated.

Being *entrepreneurial* becomes increasingly more difficult as the size of an enterprise increases (Clayton M Christensen & Overdorf, 2000). For one, it is difficult for people working in large companies to be hungry for innovation. For people to stay hungry – assuming that newly hired people are both motivated and hungry to contribute – the organizational values must be a foundation for an

organizational desire to explore opportunities (Khazanchi et al., 2007). Moreover, the previously described success trap (Levinthal & March, 1993) is a challenge in staying hungry, one that ambidextrous organizations might be able to counteract by continuously attempting to explore new opportunities. Another issue regarding entrepreneurial behavior in organizations is the tolerance for ambiguity in projects. As argued by Sætre and Brun (2013), the shaping of opportunities starts with an embracing of ambiguity. Because ambidextrous companies separate exploring- and exploiting activities, they should be better at balancing creativity and constraint, and therefore better at embracing ambiguity. Thus, it is likely that ambidextrous companies exhibit more entrepreneurialism than those that are not ambidextrous.

> WH 5 a): The entrepreneurial-factor of values and ambidexterity are positively correlated.

Creative behavior among organizational members is one of the most important values in an innovation-supportive culture (Jassawalla & Sashittal, 2002). As we described in the theory, creativity should be combined with some form of constraint, where the innovation process is characterized by cycles of explorative and exploitative activities (Sætre & Brun, 2013). Hence, a successful company with a high regard for innovation tend to promote creative behavior when working with radical innovation, and more constraint when developing incremental improvements where more information is available. Because ambidextrous organizations separate their exploring activities from those that are exploitative, they have a better foundation for giving more autonomy to people working on radical ideas – promoting people to explore and make mistakes – while still employing rules for minor improvements and implementation of incremental innovations. Moreover, as Kanter (1988) explained, people's imagination improves when interacting with others that see the world differently. In other words, it is important that groups be composed of people with different views and experience, such that combinations of ideas can emerge. After all, many novel

ideas are merely a new combination of things that already exists. Further, the level of autonomy to people and groups vary with task. The more radical a project is, the more the unit benefits from exploring and failing along the way. Conversely, incremental improvements tend to benefit from less autonomy and more rules, as the company already knows a lot about the problem and the possible solutions. In addressing the final element of creativity, playful, much of the same is relevant. Playful behavior promotes creativity, which is very important in radical innovation (Bogers & Sproedt, 2012). All of this culminates in ambidextrous organizations having an advantage because they separate explorative and exploitative activities, in which it is easier to promote a certain level of creativity, which varies according to task. This is not to say that others cannot promote creative behavior, only that ambidextrous companies can employ relatively rigid systems for everyday activities without limiting the creativity necessary for radical innovation.

> WH 5 b): The creativity-factor of values and ambidexterity are positively correlated.

When *learning*, units obtain knowledge that can be useful for the organization (Huber, 1991). It is evident that units should share this information with others, what Huber (1991) describes as breadth of learning. Moreover, tight coordination from the top is one of the characteristics of an ambidextrous organization (O'Reilly & Tushman, 2004), which implies large amounts of information-sharing. When top management coordinates units that explore and units that exploit, they must constantly communicate with different units, and therefore know what different units are working on. Hence, top management have an opportunity to promote information transfer between units. In the theory, we described temporal myopia as a hinder to learning (Levinthal & March, 1993). When the long run suffers for the short run, learning and the organization's absorptive capacity decrease. An ambidextrous organization must have a constant focus on the long run, and their constant exploration ensures that the organization's absorptive capacity is intact

or improved. Therefore, it is likely that all ambidextrous organizations have an ability to learn well.

WH 5 c): The learning-factor of values and ambidexterity are positively correlated.

3.5 Behaviors

Figure 12 - Behaviors for innovation.

We previously stated that innovative behavior is about doing novel things intelligently in order to produce final outcomes (Edmondson, 2004). The theory implied that everyone is capable of displaying innovative behavior, but the leaders set an example of to behave. In this regard, people tend to mimic others' behavior; particularly that subordinates behave in a way similar to their leaders. Ambidextrous organizations tend to promote innovative behavior from all employees, and tight coordination from the top help ensure that leaders in different units behave in ways that fit the unit's tasks. As an example, someone assigned as leader to a radical project is likely to behave in a way that supports creativity, and therefore may accept ideas that seem far out at an early stage. Conversely, people leading incremental improvement-projects should behave differently. According to Bessant et al. (2001), building routines and working on exploitative activities are a result of extended learning processes. Learning behavior is therefore important for both exploring activities and for exploitative activities. It does not mean, however, that learning behavior is the same for both of those activities.

Hence, ambidextrous companies should have an advantage in promoting the right behaviors to the right task by separating explore and exploit.

> WH 6: The score on the behaviors building block and ambidexterity are positively correlated.

An important task for leaders is to *energize* employees. In the theory chapter, we stated that a leader's expectation of a subordinate to be innovative correlates positively to that subordinate's innovative behavior (Scott & Bruce, 1994). For an ambidextrous organization, where exploration is clearly separated from exploitation, it should be clear what is expected of employees. We note, however, that a non-ambidextrous organization that communicates well is just as good in terms of expectations. On a related matter, Kanter (1988) argues that there is a difference in whether the firm pushes "tradition" or "change". While this is optional for most firms, units that explore must pursue "change". Thus, some parts of an ambidextrous organization (those that explore in particular) must push "change", while this is a choice for non-ambidextrous organizations. As a final note on behaviors that energize, Klein and Sorra (1996) argue that a climate for a specific outcome will affect employees behaviors regarding that outcome; ambidextrous companies' climate for innovation should affect their employees innovative behavior. As we noted earlier, however, the advantage of an ambidextrous organization mainly lies in how they must have certain behaviors in place, whereas a non-ambidextrous firm should display the same behaviors.

> WH 6 a): The energize-factor of behaviors and ambidexterity are positively correlated.

All organizations want employees that *engage* themselves in their work. The theory does not reveal any particular reason for an ambidextrous organization to have more engaged employees, but it is possible, however, that it is easier to accomplish a climate for initiative in an ambidextrous organization. We described climates for initiative according to Baer and Frese (2003), which emphasize an

active approach to work. Further, such a climate, including switching between dual work roles (e.g. striving for continuous improvements and standardization), requires those complementing behaviors to be expected, valued, and frequently displayed. People in ambidextrous organizations often switch between incremental and radical projects, and success in this dual work role requires people to show initiative. Moreover, ambidextrous organizations are more likely to create breakthrough innovations (O'Reilly & Tushman, 2004). A radical project has no chance to live on unless someone shows some form of initiative. Initiative, as one of the elements of engage, is therefore a prerequisite to succeed with radical innovation. For people to stay motivated when they often switch roles, ambidextrous companies must promote behaviors that engage. We therefore believe that engaging behaviors should be related to ambidexterity.

> WH 6 b): The engage-factor of behaviors and ambidexterity are positively correlated.

The final type of behavior that is described in Rao and Weintraub's (2013) framework is *enable*. As we described in the theory, enabling behavior is to give means or authority to someone else to do something. Hence, it is important for top management to be involved in the work done in the organization. For an ambidextrous organization, top management must be involved in order to ensure sufficient top-down coordination between units, which implies that top management contribute with their influence when necessary. Of particular interest to ambidexterity is adapting behavior. Central to this element is dynamic capabilities and ensuring a sufficient balance between exploration and exploitation. Dynamic capabilities, as we described it in the theory, is abilities that make a firm more agile and responsive to a changing environment (Schilling, 2013). Being able to adapt to an environment that constantly changes requires constant exploration. Moreover, being able to afford constant exploration requires constant exploitation, as one can only survive in the long run by surviving each of the short runs along the way (Levinthal & March, 1993). Hence, companies that

are excellent at adapting to changing environments – those that have dynamic capabilities – are in some form also ambidextrous. Put differently, ambidextrous organizations are much better equipped to adapt to changes, as their constant exploration ensures dynamic capabilities. Moreover, an ambidextrous organization is an organizational form designed to adapt to changing environments. In short, we believe that ambidextrous organizations are excellent in displaying enabling behaviors.

WH 6 c): The enable-factor of behaviors and ambidexterity are positively correlated.

3.6 Climate

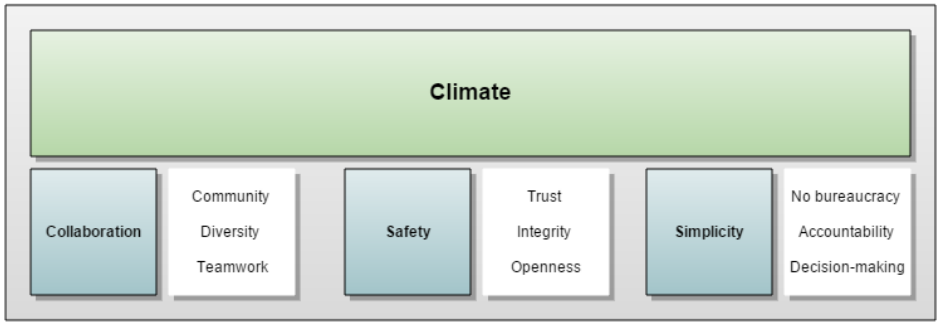

Figure 13 - Climate for innovation.

A climate that nurture innovation is a key element for success in new product development (Cooper & Kleinschmidt, 1995). As seen in the theory, however, the definition of climate is somewhat divided between viewing it as a shared perception or as a shared set of conditions (Baer & Frese, 2003). Irrespective of this, it is evident from our theory-chapter that climate is essential for innovation; it affects learning, engagement, independent thinking, and attitude towards risk (Rao & Weintraub, 2013). Independent thinking and attitude towards risk are especially important for radical innovations, as radical innovations demand for higher risk-taking (C. M. Christensen et al., 2008) combined with more experimentation and increased organizational flexibility (Kessler & Chakrabarti,

1999). Moreover, ambidextrous organizations have a climate supportive of radical innovations, which may counteract the issue of temporal myopia (Levinthal & March, 1993). Thus, in order to nurture the exploratory sides of innovation, ambidextrous organizations ought to have a climate that supports higher risk-taking and independent thinking.

> WH 7: The score on the climate building block and ambidexterity are positively correlated.

A climate that fosters *collaboration* creates an arena where a diverse set of ideas come together (T. Brown, 2008; M. T. Hansen & Birkinshaw, 2007). From the theory-chapter, some types of diversity – such as task-related diversity (Horwitz & Horwitz, 2007) – positively affects climate and innovation in teams. However, the degree to which team climate actually affects team innovation differ based on what the team is set out to achieve (Bain et al., 2001). The authors found that tasks that are more exploratory correlate positively with team climate factors. Thus, as ambidextrous organizations are better at balancing exploring and exploiting, they should overall be better than non-ambidextrous organizations at stimulating team climate so that it produces a balance of exploratory and exploitive outputs. As well as getting individuals together, collaboration is dependent on having a community that speaks a common language about innovation (Rao & Weintraub, 2013). This is obtainable by letting employees know and understand the organization's strategic intent (Schilling, 2013), such that they can act accordingly. Hence, exploring and exploiting activities ought to be a reflection of the organization's strategic intent. Therefore, we argue that ambidextrous organizations have a strategic intent that has a higher demand for both exploratory and exploitative behavior, compared to non-ambidextrous companies.

> WH 7 a): The collaboration-factor of climate and ambidexterity are positively correlated.

Creating a *safe* climate is essential to stimulate a stream of new ideas. As stated earlier, innovation – and especially radical innovations – demands more risk-taking, requiring employees to challenge themselves and quickly respond under ambiguous conditions. Thus, in order to succeed with innovation, it is important to create a climate where employees feel safe in taking interpersonal risks (Baer & Frese, 2003). Central to a safe climate is having an environment that is psychologically safe (e.g. Edmondson, 1999). In order to utilize the creativity and entrepreneurial spirit that lies in each employee – which is essential when developing radical innovations – people must feel that the environment in which they work is psychologically safe. Being able to create radical innovations – excelling at exploring activities – becomes possible when an organization is able to create a safe work-environment. Because ambidextrous organizations are able to explore well, they should be better at creating safe environments.

> WH 7 b): The safety-factor of climate and ambidexterity are positively correlated.

The final factor of climate is *simplicity*, which helps progress in a project. The first element – no bureaucracy – is of particular interest to ambidextrous organizations. In the theory-chapter, we described the issue of balancing control and chaos (de Wit & Meyer, 2010), where we implied that radical innovations favor more chaos, and incremental innovations benefit from more control. As they are conflicting views, it can be difficult to achieve control and chaos simultaneously within the same organization. Hence, as ambidextrous organizations have separated exploitative and exploratory activities, it should allow them to have both chaos and control at the same time. Another advantage this separation of explore and exploit brings, we believe, is that it simplifies the decision-making process in an organization. For instance – as we have mentioned on several occasions – a stage-gate system helps decision-making on incremental innovations, but is less fitting on radical innovations (Brun et al., 2009). In sum, we argue that by separating explorative and exploitative activities – having

distinct processes for radical and incremental innovation – an ambidextrous organization has a climate that simplifies the innovation process by removing unnecessary obstacles.

> WH 7 c): The simplicity-factor of climate and ambidexterity are positively correlated.

On the next page, table 1 summarizes all our working hypotheses.

3.7 Summary of Working Hypotheses

1	*The overall innovation quotient and ambidexterity are positively correlated.*
2	The score on the resources building block and ambidexterity are positively correlated.
a)	The people-factor of resources and ambidexterity are positively correlated.
b)	The systems-factor of resources and ambidexterity are positively correlated.
c)	The projects-factor of resources and ambidexterity are *not* correlated.
3	The score on the processes building block and ambidexterity are positively correlated.
a)	The ideate-factor of processes and ambidexterity are positively correlated.
b)	The shape-factor of processes and ambidexterity are positively correlated.
c)	The capture-factor of processes and ambidexterity are positively correlated.
4	The score on the success building block and ambidexterity are positively correlated.
a)	The external-factor of success and ambidexterity are *not* correlated.
b)	The enterprise-factor of success and ambidexterity are positively correlated.
c)	The individuals-factor of success and ambidexterity are positively correlated.
5	The score on the values building block and ambidexterity are positively correlated.
a)	The entrepreneurial-factor of values and ambidexterity are positively correlated.
b)	The creativity-factor of values and ambidexterity are positively correlated.
c)	The learning-factor of values and ambidexterity are positively correlated.
6	The score on the behaviors building block and ambidexterity are positively correlated.
a)	The energize-factor of behaviors and ambidexterity are positively correlated.
b)	The engage-factor of behaviors and ambidexterity are positively correlated.
c)	The enable-factor of behaviors and ambidexterity are positively correlated.
7	The score on the climate building block and ambidexterity are positively correlated.
a)	The collaboration-factor of climate and ambidexterity are positively correlated.
b)	The safety-factor of climate and ambidexterity are positively correlated.
c)	The simplicity-factor of climate and ambidexterity are positively correlated.

Table 1 - All working hypotheses.

CHAPTER 4

Methodology

This methodology chapter is divided into three main parts. The first part covers our literature search, while the second part covers choices to be made when conducting research. The final part is our research strategy, which includes survey development, construct development with validity and reliability test, and statistical methods.

4.1 Literature Search

The objective of our literature review process is to explore the literature on ambidexterity and cultures for innovation. Two articles have inspired our literature review, these are: "*How innovative is your company's culture*?" by Rao and Weintraub (2013) and "*The Ambidextrous Organization*" by O'Reilly and Tushman (2004). We used these articles as a foundation for our literature review, searching for articles on relevant topics. Literature covers these individual topics extensively, but literature on the intersection between ambidexterity and innovation culture is scarce.

Adapting the literature review approach of Cronin, Ryan, and Coughlan (2008), we divide the literature review process into searching, followed by analyzing and synthesizing. The following will address our approaches in these two stages.

4.1.1 Searching

Our literature search includes a combination of articles provided by our supervisors, and keyword searches in online databases. Further, articles provided by our academic supervisors have served as a basis for our search strategy. The role of our supervisors corresponds to the role of a "locator" or "significant informant", as defined by Biernacki and Waldorf (1981). These are individuals

who have greater accessibility and knowledge about specific topics. Most of the distributed articles can be considered foundations for different topics within fields of innovation and strategy, and could therefore be included in our literature review, as well as inspire our exploratory literature search.

To widen the scope of our literature review, keyword searches in online databases were performed. We primarily chose the Scopus database for keyword searches, as this database has a rich content of peer-reviewed articles on a variety of academic topics. Moreover, to increase diversity in article sources, we also used Web of Science and ABI/Inform. We did not want to search too strictly, because of the diversity of topics being explored. This means that we have included primary, secondary, theoretical and anecdotal sources according to the definition of Colling (2003) (as cited by Cronin et al., 2008). In terms of categories, we limited our search to "Social Sciences", "Business Management and Accounting", and "Psychology", according to the categories in Scopus. Finally, only English-written papers were considered.

Since we wanted to follow the Rao and Weintraub (2013) framework of building blocks at the element level in our literature review, we had to perform extensive keyword searches to cover all topics. Additionally, we performed numerous searches for literature on ambidexterity. An example of a keyword search is included in table 1 below. In the example, we attempt to find literature on the effects of ambidexterity on performance, and similar searches were done on the building blocks, factors, and elements in the cultural framework.

#	Keyword search	Number of results
1	Ambidexterity	434
2	Ambidexterity AND exploration AND exploitation	145
3	Ambidexterity AND exploration w/1 exploitation	135
4	Ambidexterity AND exploration w/1 exploitation AND performance	62
5	Ambidexterity AND exploration w/1 exploitation AND performance AND empirical	13

Table 2 - Keyword searches in Scopus.

4.1.2 Analyzing and Synthesizing

We created three criteria to narrow down the results. These criteria were: first, The paper must address at least one of the topics we want to examine, that is; ambidexterity or one of the 54 elements in Rao and Weintraub (2013). Second, the topic can be identified in the title or abstract. Third, the paper is of an academic nature.

Culture is a broad term, and the framework used encompass many topics of the innovation literature. Moreover, by connecting innovation culture to ambidexterity, we are covering very diverse topics in this master's thesis. This makes old and new, as well as heavily cited and almost uncited papers relevant. Still, we frequently sorted on number of citations and publishing year in order to discover the most popular and most recent articles. Further, as the topics are diverse and some topics are in the early stages of development, lots of relevant articles do not make it to the top tier journals. Because of this, we did not filter on journals.

Using the above criteria, we screened the articles to consider their relevancy for the topic we were searching for. Following this approach on the example from table 2 above, we ended up using two of those 13 papers in our literature review.

In addition to the literature included in this review, we excluded some papers that were initially reviewed. These papers include articles distributed by our academic supervisors that were not directly related to any of our research topics. For instance, on our first meeting with our supervisors, we were given a broad set of articles to get us started, of which some topics became unrelated to the direction our research went. Other articles were left out because they turned out to be irrelevant for our research topics.

4.2 Considerations for a Research Strategy

Bryman (2012) defines research strategy as "a general orientation to the conduct of social research" (p. 35). Quantitative and qualitative research represents two distinct clusters of research strategy. Quantitative research puts an emphasis on the collection and analysis of data, and tends to have a *deductive approach* to the relationship between theory and research (usually testing of theories). Qualitative research, however, emphasizes words and normally has an *inductive approach* to the relationship between theory and data (generation of theories).

We have taken a deductive approach to the relationship between theory and research in our master's thesis. Based on what is already written and known about this particular domain, we have developed working hypotheses to be tested.

Bryman (2012) explains that "an epistemological issue concerns the question of what is (or should be) regarded as acceptable knowledge in a discipline" (p. 27). *Positivism* refers to the position which sees the natural science approach of doing social sciences as the correct way of doing research, and it is the epistemological position we have chosen. The chief ingredient in the positivist approach is to explain human behavior. *Interpretivism*, on the other hand, is a term given to a contrasting epistemological position, which emphasizes a focus on understanding human behavior.

"Questions of social ontology are concerned with the nature of social entities" (Bryman, 2012, p. 32). The position researchers take on ontology is concerned with whether social entities can be seen as objective entities or if they should be considered to be social constructions, built up from the perceptions and actions of human beings. *Objectivism* has a view that social phenomena are external facts which actors cannot influence; "the organization has a reality which is external to the individuals who inhabit it" (Bryman, 2012, p. 32). *Constructivism* is a position which implies that the social order is in constant state of change. Here, by choosing to send out a survey, we are taking an objective position. Deciding whether to use qualitative research, quantitative research, or a mixture of both is by no means an easy task, as becomes evident in the following paragraph.

4.2.1 Methodological Fit

According to Edmondson and McManus (2007), there is a need for methodological fit – "internal consistency among elements of a research project" (p. 1155) – when conducting *field research.* They further define field research as "systematic studies that rely on the collection of original data – qualitative or quantitative – in real organizations" (p. 1155). If the research that is to be undertaken builds on mature theories – well developed models and constructs – it is best complemented by quantitative methods, as qualitative research is likely to produce results that have already been identified (Edmondson & McManus, 2007). When a researcher decides to study nascent theory – "... tentative answers to novel questions of how and why …" (p. 1158) – it is suggested to take a qualitative approach, partly because quantitative methods fail to "... conform sufficiently to basic assumptions of statistical inference" (p. 1172). Finally, if a researcher decides to study intermediate theory – positioned between mature and nascent theories – Edmondson and McManus (2007) suggest to use a blend of qualitative and quantitative data, such that external validity and construct validity of new measures can be established through triangulation.

4.2.2 Assessing the Quality of the Research

There are several criteria from which the quality of a social research is assessed. Bryman (2012) emphasizes that the first issue to consider when conducting social research, is *reliability*. Reliability covers different aspects of the study's quality, but the focus is on whether or not the results are repeatable if the study is conducted more or less exactly the same way again. In other words, are the measures consistent and stable?

Another important aspect to consider when conducting social research is *replication;* a study must be replicable (Bryman, 2012). This criteria puts high demands on researchers to outline in detail their procedures, otherwise replication is not possible. Quantitative researchers are often interested in generalizing findings; especially if the results obtained in a research do not match earlier findings in the area of interest, the more important it is for the study to be transparent.

Further, the *validity* of a study "... is concerned with the integrity of the conclusions that are generated from a piece of research" (Bryman, 2012, p. 47). Bryman (2012) distinguishes between *measurement validity*, *internal validity, external validity*, and *ecological validity*. In essence, measurement validity explains the integrity of conclusions that were generated from a research. If the measurements are valid, they represent the concepts that they are supposed to be drawing on. Bryman (2012) continues by explaining internal validity as whether perceived cause and effect in a study actually represents a causal relationship. Put differently, by asking how we can be sure that it is not other reasons behind the apparent causal relationship, we are actually questioning the internal validity of the research. Moreover, researchers must consider if their results can be generalized to situations beyond that of the research; the external validity of the research. If the study applies only to the respondents in one specific context it cannot be generalized, and it therefore cannot be externally valid. Finally, Bryman

(2012) describes ecological validity as whether the findings in a study are applicable to people's everyday lives. For instance, a laboratory experiment cannot be ecologically valid, whereas field research certainly has the potential of being ecologically valid.

4.2.3 Quantitative Research Strategy

Quantitative researchers are interested in explaining, which again means to examine the causes of phenomena. Why are things the way they are? When explaining phenomena, there are pitfalls quantitative researchers need to be aware of.

There is a strong concern in most quantitative research on causality; does x cause y? The relationships between "dependent" and "independent" variables reflects the tendency to think in terms of causes and effects (Bryman, 2012). It is, however, difficult to be certain that the relationships between variables do in fact work the way researchers propose. Another important aspect to consider has to do with generalization. According to Bryman (2012), quantitative researchers are usually concerned with being able to say that his or her findings can be generalized beyond the particular context in which the research was conducted. Bryman (2012) argues that research can only be generalized to the population from which it was selected.

Replication is another issue to consider. We want the influences of the researcher's biases and values to be reduced to a minimum. If a scientist's findings could not be reproduced, questions could be raised regarding the validity of her findings (Bryman, 2012).

4.3 Our Research Strategy

This section describes how our master thesis was conducted; including research design, survey development and translation, data collection, measurement and validation of constructs, aggregation, and statistical methods to be used when analyzing results.

4.3.1 Research Design

A research design provides "... a framework for the collection and analysis of data" (Bryman, 2012, p. 46). It represents a structure that guides the execution of a research method and the analysis of data. A cross-sectional design – the design we have chosen – is, in the context of this thesis, the most appropriate research design to answer our working hypotheses. The cross-sectional design is often called a survey design (Bryman, 2012), and is a quantitative research strategy. As Bryman (2012) defines:

> Survey research comprises a cross-sectional design in relation to which data is collected predominantly by questionnaire or by structured interview on *more than one case* (usually quite a lot more than one) and at *a single point in time* in order to collect a body of *quantitative* or *quantifiable data* in connection with two or more variables (usually many more than two), which are then examined to detect *patterns of association* (p. 60).

A cross-sectional design was used, as experiments, longitudinal designs, and case studies did not fit our research (Bryman, 2012). Experiments require a control group to be compared to the research group, which is a problem in studying phenomena that occurs in real organizations. Regarding longitudinal designs, we simply did not have enough time to complete such a research. Finally, case studies do not fit well when comparing several organizations. When selecting a cross-sectional design, Bryman (2012) states that a self-completion questionnaire has several advantages over structured interviews: they are cheaper to administer; quicker to administer; there are no interviewer effects; and it is more convenient for respondents. The disadvantages, like difficulty of asking other kinds of questions that initially were not in the interview-guide/questionnaire, are not as relevant for our research as the advantages are.

4.3.2 Surveys Used

The Innovation Quotient assessment (Rao & Weintraub, 2013) is a survey that uses a Likert scale in order to measure how innovative people perceive their organization's culture to be. By choosing a randomized sample, or, even better, having all employees answer the questionnaire, we can aggregate the results for an indication of an organizational culture's strengths and weaknesses regarding innovativeness. As the theories in company culture are relatively mature, a quantitative assessment is suitable. Moreover, as we wish to connect two theoretical frameworks – ambidexterity and the innovativeness of a company culture – we see the need to complement the Innovation Quotient assessment with a measurement for ambidexterity developed by He and Wong (2004). In order to answer our WHs, we therefore compare results from two different quantitative surveys in our cross-sectional design.

4.3.3 Survey Development and Translation

The survey used in this master's thesis (see appendix A) was created using a combination of two established surveys. The English-written survey was therefore already phrased correctly. However, as we have deployed the survey to Norwegian industry-companies, it was essential to offer the same survey written in Norwegian. Our task, then, was to make sure we actually asked the same questions in Norwegian, and that the questions had correct grammar. How to translate questionnaires, according to Dillman, Smyth, and Christian (2009), is one of the most important challenges for multi-language surveys. According to the authors, literal translation tends to change the meaning of the question, if only slightly, and that this will not be detected with back-translation strategies also focusing on literal translation. It is therefore more important to translate the concept than it is to translate the direct wording of the question. The solution, then, is to "… focus on ensuring that each language maintains the meaning of the question and concepts within it, even if doing so means deviating from a literal translation" (Dillman et al., 2009, p. 455).

For our translation, we were two groups – six people in total – writing a master's thesis on a similar theme, and our joint supervisor Alf Steinar Sætre working together to ensure the translation being as accurate as possible. Such a translation requires that the translators are bilingual, and preferably that the native tongue is that of the target language (Sousa & Rojjanasrirat, 2011), which is true for everyone working on the translation. Further, when the target language is the native tongue, nuances in the language is more accurately captured (Beaton, Bombardier, Guillemin, & Ferraz, 2000).

The first step was to have two people translate the English questions into Norwegian, while our supervisor did the same independently of those two. When two different translations are done independently, we can reduce discrepancies from ambiguous wording in the original questions (Beaton et al., 2000). The next step was to have two people read through each of the translations without reading the English version first, where the objective was to ensure that the phrasing was understandable with correct Norwegian grammar. Without reading the English-phrased questions first, we avoided being biased to the original phrasing, and focused on whether the questions made sense, and if their formulations were in good grammar. After this step, our supervisor and four students met together to work through the different translations and proof-readings, in order to create one common translation. In this step, sometimes labeled synthesis of translations (Beaton et al., 2000), we discussed the deviations in the translations, and by consensus ensured that we captured the meaning of the questions, and that the grammar was correct. When one translation had been created, the final two students read through the draft. These had not been involved in the previous steps, to maintain their unbiased opinion of formulations and grammar. At the same time, the four remaining students took the survey for themselves, as a way to pretest time needed to complete the survey. The final step was to meet again, now with all members present. This step was a repetition of the first meeting, and

worked as a quality control to assess equal meaning and good grammar in both Norwegian and English.

4.3.4 Data Collection

Data from the survey was collected from an innovation assessment survey of Norwegian companies in 2015. The sample consisted of 6 Norwegian industry companies, with revenues ranging from 30 to 330 MNOK (revenues for company E is unknown), and number of employees ranging from 30 to 1772. However, for the two largest companies (E and F), the surveys were only distributed to managers within innovative units. Questionnaires were sent to a total of 203 people. The participating companies themselves distributed the survey internally, and sent out reminders until a satisfying response rate was achieved. There were 130 attempts at the survey, and after removing answers with incomplete or missing data, we received a total of 87 complete and valid responses. Statistics concerning responses and response rates are shown in table 3 below.

Company	Employees	Distribution	Responses	Complete responses	Response rate
A	30	30	21	15	50 %
B	42	42	39	24	57 %
C	42	42	16	13	31 %
D	55	55	31	22	40 %
E	1772	26	18	9	35 %
F	102	8	5	4	50 %
Total	2043	203	130	87	43 %

Table 3 - Response rates.

As we can see, the overall response rate was 43 % when we only count complete responses. It is reasonable to assume that the usable response rate corresponds to the companies' overall response rate, as these comprise the majority of the companies.

4.3.5 Measurement and Validation of Constructs

All constructs were measured with multi-item scales, and scores on these measures were means calculated across items. Using the final sample with only valid responses, we conducted several analyses to verify that the measures were reasonable.

Ambidexterity

As other researchers have done before us (Gibson & Birkinshaw, 2004; He & Wong, 2004; Jansen, Van Den Bosch, & Volberda, 2006), we conceptualize ambidexterity as a multidimensional construct comprised of the non-substitutable combination of exploration and exploitation, that is, as the multiplicative interaction of the two constructs. We applied the scales for exploration and exploitation developed by He and Wong (2004) – eight questions with five-point Likert scales – as these have shown consistently good reliability in several studies (Martini, Aloini, Dulmin, Mininno, & Neirotti, 2012).

Factor analysis

In order to combine the eight items from He and Wong (2004) into the exploration and exploitation constructs, we performed an exploratory factor analysis, or more precisely; a principal component analysis, as described by Pallant (2010). The factor loading value is a measure of the strength between items and groups of intercorrelations in a set of items, and values range from -1 to 1, where 1 is the strongest (George & Mallery, 2003; Pallant, 2010). The results of the exploratory factor analysis on the ambidexterity measures are shown in table 4 below.

Objectives for undertaking innovation projects in the last 3 years (1 = not important to 5 = very important)	Exploitation	Exploration
Cronbach's alpha (α)	0.823	0.971
Introduce new generation of products	0.323	**0.926**
Extend product range	0.193	**0.958**
Open up new markets	0.626	0.688
Enter new technoloy fields	0.819	0.289
Improve existing product quality	0.430	0.831
Improve production flexibilty	**0.664**	0.304
Reduce production cost	**0.966**	0.212
Improve yield or reduce material consumption	**0.818**	0.330

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Total variance explained: 83,77%.

Table 4 - Exploratory factor analysis for exploration and exploitation.

The four-item scale to measure exploration measures how the company moves away from existing knowledge and skills to meet the needs of emergent customers or markets (Benner & Tushman, 2003). The items ”introduce a new generation of products” and ”extend product range” loaded on one factor, but the items ”open up new markets” and ”enter new technology field” crossloaded to the other factor, actually measuring higher values for the first factor. This contradicts both expectations and previous studies (He & Wong, 2004). As this is inconsistent with previous literature, we decided to omit these two questions when designing the exploration factor. The two remaining items loaded on one single factor having an eigenvalue of 1.982, accounting for 99.1% of the variance.

Exploitation was measured by a four-item scale in the same manner as for exploration, intending to capture the extent to which companies build on existing knowledge and skills to meet the needs of existing customers or markets (Benner & Tushman, 2003). While ”improve production flexibility”, “reduce production costs”, and ”improve yield or reduce material consumption” loaded on the other factor, ”improve existing product quality” was crossloaded to the first factor,

actually measuring higher values for the first factor. Hence, this factor was removed, and the three remaining items loaded on one single factor having an eigenvalue of 2.252, accounting for 75.1% of the variance.

Cronbach's alpha, α

After performing the factor analysis above, we tested internal reliability of the constructs with Cronbach's alpha, α. This value concerns the internal consistency of the scale, i.e. whether or not the items are measuring the same underlying construct (Pallant, 2010). According to He and Wong (2004), the exploration and exploitation scales have acceptable internal consistency with Cronbach alphas of 0.807 and.0.752, respectively. In our study, the Cronbach's alpha for the two exploration items was 0.971, which according to George and Mallery (2003) is an "excellent" score for internal consistency. Note however that such high internal reliability is not always desirable because it indicates a more narrow scale (Briggs & Cheek, 1986; Clark & Watson, 1995). The three exploitation items had a Cronbach's alpha of 0.823, which is considered acceptable (George & Mallery, 2003; Pallant, 2010).

Calculating ambidexterity

The final step of developing the ambidexterity construct is to multiply the averages of the exploration and exploitation items that were found appropriate above. This multiplication reflects the arguments that these constructs are both non-substitutable and interdependent (Gibson & Birkinshaw, 2004). Further, as we are not dividing our sample into ambidextrous and non-ambidextrous companies, we do not apply any cut-off criteria to identify ambidextrous companies.

Culture for innovation

To measure the culture for innovation in companies, we use the innovation quotient survey developed by Rao and Weintraub (2013). Using a five-point Likert scale, this survey measures an overall score, the innovation quotient, and

six building blocks that each consist of three factors. The questionnaire uses three items to measure each factor, totaling 54 questions. It is, however, worth noting that the survey instrument is not meant to look for balance (Rao & Weintraub, 2013), which means that for example measures of reliability should not be given too much emphasis. The 54 elements and 18 factors are tested for statistical validity and executive acceptance as both a diagnostic and actionable tool with data "... from 1026 executives and managers in 15 companies" (Rao & Weintraub, 2013, p. 31). Despite the rigidity of this questionnaire, we tested the reliability of each factor by calculating the Cronbach's alpha for all factors. The results from this analysis for both company and individual level are shown in table 5 below.

Building block	Cronbach's alpha (α)	Factor	Cronbach's alpha (α)
Values	0.946	Entrepreneurial	0.858
		Creativity	0.763
		Learning	0.922
Behaviors	0.960	Energize	0.913
		Engage	0.885
		Enable	0.883
Climate	0.924	Collaboration	0.958
		Safety	0.837
		Simplicity	0.568
Resources	0.978	People	0.878
		Systems	0.931
		Projects	0.976
Processes	0.951	Ideate	0.964
		Shape	0.925
		Capture	0.900
Success	0.961	External	0.933
		Enterprise	0.938
		Individual	0.805

Table 5 - Cronbach's alpha for the culture of innovation questionnaire.

The Cronbach's alpha values above show that most factors and building blocks have excellent internal consistency (George & Mallery, 2003). Only two factors,

creativity and simplicity, have Cronbach's alpha below the preferred criteria of 0.8 (Pallant, 2010), but the rest of the factors demonstrate good internal reliability (George & Mallery, 2003; Pallant, 2010). Note, however, that very high internal consistency (α), i.e. values approaching 1, is not desirable, as this produces a scale that is narrow in content and if the scale is narrower than the construct, this would compromise scale validity (Briggs & Cheek, 1986; Clark & Watson, 1995). High intercorrelations might also mean that items are overly redundant and that the construct metrics are too specific (Briggs & Cheek, 1986). Hence, the fact that more than half of the factors and all building blocks measures excellent internal reliability may suggest that some of the 54 questions are unnecessary in order to measure innovative culture.

Control variables

In our empirical study, we control for possible confounding effects by including various relevant variables: Company size; number of employees; company age; employee's average age; and financial performance. Large companies may devote more resources to innovation, but may lack the necessary flexibility to explore like smaller companies. Therefore, we control for size using both number of employees and total assets. Data on company sizes are found in the companies' publicly available financial reports. Company age is another factor that we anticipate may influence exploration and exploitation, and also the age of individuals, which is known to influence explorative and exploitative behavior (Park & Kim, 2015). Further, companies with strong economic history are likely to invest more in innovation, as such; we include return on assets (ROA) as a control variable. ROA is calculated from financial data found in financial reports for the last three available years, 2011-2013. Descriptive information about the sample companies are found in table 6 below. Note that company E is a state-owned enterprise, of which financial data is not available.

Company	Employees (Log)	Total assets (Log)	Company age	Employee age	3-year average ROA
A	1.48	4.55	17	40.43	27.52 %
B	1.62	4.78	27	41.51	8.28 %
C	1.62	4.86	19	40.71	-5.73 %
D	1.74	5.10	15	44.97	3.25 %
E	3.25	-	20	42.89	-
F	2.03	5.45	18	42.80	6.82 %
Average	1.61599563	5	19.5	41.9	8.33 %

Table 6 - Characteristics of the sample companies.

4.3.6 Aggregation

For the analyses made on company-level, we take advantage of the fact that our questionnaire contains questions where individuals rate company-level characteristics, i.e. the average of individuals' assessment of the company. While this direct consensus model sounds sensible – employees, after all, are the ones who best know companies' behaviors – it is still important to statistically validate the aggregation procedure by demonstrating within-company agreement and between-company differences (Chan, 1998). We calculated the within-company agreement by measuring interrater agreement, R_{wg}, and investigated between-company differences by calculating intraclass correlations, ICC(2,1) and ICC(2,K), following the procedures of LeBreton and Senter (2008).

Mean interrater agreement, R_{wg}, was 0.873 for the overall innovation quotient, 0.777 for exploration, and 0.670 for exploitation. These values should at least exceed 0.60 to justify aggregation (Glick, 1985), and are thus acceptable.

We checked effect sizes and between-company differences by calculating intraclass correlation coefficients ICC(2,1) and ICC(2,K) respectively. We used a two-way random model testing for absolute agreement. ICC(2,1), which can be interpreted as a measure of effect size, indicates the extent to which individual rating are attributable to the group level. LeBreton and Senter (2008) suggest that values of 0.05 are considered a small effect size, while a value of 0.25 is a large

effect size. The values for ICC(2,1) were 0.175 for the Innovation quotient, 0.428 for exploration and 0.330 for exploitation.. These values indicate that, indeed, company affiliation influences ratings for participants in the survey. The ICC(2,K) values indicate the proportion of true score variance compared to total score variance. For example, a score of 0,70 indicates that 70% of the variance in the ratings are systematic, while 30% of the variance is random measurement error variance. We calculated ICC(2,K) at 0.733 for the Innovation quotient, 0.891 for exploration and 0.831 for exploitation. LeBreton and Senter (2008) suggest using a cut-off value of at least 0.70 to justify aggregation, indicating that the value for the innovation quotient is in the lower range, but most probably still acceptable concerning reliability and agreement, justifying aggregation. The ICC(2,1) and ICC(2,K) values for explore and exploit, however, are satisfactory (LeBreton & Senter, 2008).

4.3.7 Statistical Methods

In this master's thesis, we applied various statistical methods, namely correlation- and regression analyses, and structural equation modelling. This section describes these methods and assesses the appropriateness of applying these methods.

Correlation

To investigate the strength and direction of the linear relationship between our variables, we analyzed both Pearson correlation, and partial correlations with control variables included. These correlation coefficients, r, ranges from -1, perfect negative correlation, to 1, perfect correlation, and assumes continuous scales, related pairs, independence of observations, normality, linearity, and homoscedasticity (Pallant, 2010).

All of our scales, including control variables, are continuous. Further, there are no missing values in our dataset on company level, meaning that we have information on both variables from the same subjects. As questionnaires are answered independently, the respondents are independent observers. Normality was

confirmed by following the procedure of Pallant (2010). While the Kolmogorov-Smirnov value was insignificant, i.e. larger than 0.05, which indicated that normality cannot be assumed (Pallant, 2010), the shapes of the histograms, normal Q-Q plots, detrended normal Q-Q plots and boxplots indicated that normality is a plausible condition for all variables. In a similar manner, scatter plots indicated that linearity may be plausible, but we cannot confirm this due to the small sample size. Despite these obvious limitations regarding normality and linearity, we argue that normality and linearity is plausible, and hence we will conduct correlation analyses. Correlation analyses were performed using IBM SPSS software.

Regression

We use linear regression analysis, following the procedures of Pallant (2010), primarily to assess which variable in a set of variables that is the best predictor of an outcome, which is a kind of analysis best performed through standard multiple regression. However, due to the small sample size, we had to limit our analyses to simple linear regression, with only one independent variable at a time. In order to perform regression analysis, assumptions about sample size, multicollinearity and singularity, outliers and normality, linearity, homoscedasticity and independence of residuals has to be made. Pallant (2010) recommends a minimum sample of size of at least 15 per independent variable; our sample is far smaller than this, which means that the generalisability of these results is considered very low. As we only perform regression analysis with one variable at a time, multicollinearity and singularity is not an issue. Examining the normal probability plot (P-P) of the regression standardized residual, the scatterplot and the normal P-P plot indicates that the rest of assumptions are plausible (Pallant, 2010). Regression analyses were performed using IBM SPSS software.

Structural equation modelling

In order to further validate our model and findings, we apply structural equation modeling (SEM) using IBM AMOS software. SEM analyses test a structural theory based on some phenomenon through a confirmatory approach (Byrne,

2001). According to Byrne (2001), there are four main advantages of SEM: First, the confirmatory approach is desirable when testing hypotheses, as most other methods are descriptive by nature. Second, SEM explicitly estimate error variance parameters which is ignored in for example regression analysis. Third, SEM allows to study both observed and unobserved (latent) variables. Finally, SEM allows for easy analysis of multivariate relations and estimation of indirect effects.

We apply SEM with the aim of supporting our proposed model, based on the building blocks of an innovative culture and ambidexterity. Due to our small sample size, SEM is not possible to conduct on company level. Hence, these analyses are made at an individual level. We model culture as a unobserved variable consisting of all building blocks and it's relationship to ambidexterity. For testing purposes, we model the building blocks as independent variables and ambidexterity as dependent variable. We also test different models to investigate direct effects of the building blocks to ambidexterity.

SEM analysis output is standardized regression weights (β) and R^2 which summarizes the proportion of variance in the dependent variable explained by the collective set of the predictors (Lei & Wu, 2007). In addition, SEM produces a number of measures that together enables us to assess whether or not the proposed model is a good fit. As Byrne (2001) states: "If the goodness of fit is adequate, the model argues for the plausibilty of postulated relations among variables; if it is inadequate, the tenability of such relations is rejected." Non-significant χ-test, RMSEA below 0.6, and fit indicies – NFI, CFI, and GFI – above 0.90 indicate good model fit (Lei & Wu, 2007).

CHAPTER 5
Results

5.1 Correlation Analysis

Table 7 below presents descriptive statistics and Pearson correlations for all study variables, with the exception of the 18 factors from the Rao and Weintraub (2013) framework. Correlations for these factors are included in appendix B.

Effect sizes for correlations equals the correlation coefficients, and J. Cohen (1992) argues that small, medium and large effects sizes have values of 0.10, 0.30 and 0.50 respectively. We found large effect sizes between the innovation quotient and ambidexterity (0.819, $p < 0.05$), as well as between each building block and ambidexterity. All of these correlations were within the range of 0.628 and 0.902, and all correlations except values were significant ($p < 0.05$). In addition, we found large effect sizes between all the factors and ambidexterity, except from a medium effect size between entrepreneurial and ambidexterity. The correlation between ambidexterity and 11 of the factors in the Rao and Weintraub (2013) framework were significant ($p < 0.05$), included in appendix B. These are all the factors in the building blocks resources and success, in addition to shape, capture, collaboration, energize and enable. Further, all the control variables – employees, assets, company age, employee age, and ROA – had only small to medium relationships to ambidexterity. Hence, the relationships the IQ, building blocks, and factors have to ambidexterity are stronger than the relationships the control variables have to ambidexterity.

There was also a strong correlation between exploration and exploitation of 0.517, indicating that these constructs can indeed exist simultaneously, and thus supports the concept of ambidexterity. There were significant correlations between each building block and the innovation quotient, as well as between all building blocks.

This indicates that companies that work towards an innovative culture improves their overall culture, rather than one specific part of the culture.

We also conducted partial correlation analyses to investigate the effects of our control variables, included in appendix C. Checking for any influences by control variables revealed that none of the relationships between a factor, building block, or the innovation quotient and ambidexterity was affected by the control variables. In other words, control variables did not affect the correlations.

		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Ambidexterity	13.088	4.122														
2	Exploration	3.926	0.621	.783*													
3	Exploitation	3.286	0.702	.937**	0.517												
4	Innovation Quotient	3.130	0.385	.819*	0.650	.765*											
5	Values	3.332	0.321	0.628	0.618	0.517	.917**										
6	Behaviors	3.145	0.419	.825*	0.654	.770*	.966**	.919**									
7	Climate	3.219	0.332	.756*	0.519	.756*	.962**	.804*	.895**								
8	Resources	2.959	0.528	.858*	0.551	.874*	.969**	.846*	.958**	.938**							
9	Processes	2.934	0.469	.902**	0.728	.838*	.954**	.775*	.897**	.951**	.928**						
10	Success	3.235	0.420	.866*	0.693	.801*	.926**	.814*	.844*	.868*	.910**	.927**					
11	Employees	1.957	0.660	-0.592	-.918**	-0.303	-0.545	-0.508	-0.460	-0.465	-0.384	-0.648	-0.630				
12	Assets	4.948	0.343	0.337	0.523	0.307	0.079	0.123	0.389	-0.034	0.204	0.015	-0.176	.985**			
13	Company Age	19.333	4.131	0.261	-0.005	0.352	0.546	0.619	0.467	0.480	0.583	0.367	0.625	0.025	-0.263		
14	Employee Age	42.218	1.693	0.259	-0.073	0.395	-0.240	-0.429	-0.098	-0.241	-0.039	-0.107	-0.190	0.342	0.658	-0.372	
15	ROA	8.028	12.182	0.034	-0.642	0.126	0.296	-0.026	0.082	0.556	0.203	0.484	0.186	-0.376	-0.475	-0.074	-0.311

* Correlation is significant at the 0.05 level (1-tailed)
** Correlation is significant at the 0.01 level (1-tailed)

Table 7 - Means, standard deviations, and correlations (N = 6).

5.2 Regression Analysis

We performed linear regression analyses in order to assess the working hypotheses. Results from these regression analyses are included in table 8. Note that we use significance criterion of 0.1, as J. Cohen (1992) suggests that such a value can be appropriate when less rigorous standard for rejection is necessary, for example in exploratory studies. Due to our small sample size (N = 6), we cannot explicitly say that any of the hypotheses are confirmed based on our findings, we have clear indications that the innovation quotient, all building blocks, and all factors of an innovative culture are positively related to ambidexterity, as they all have positive regression coefficients. We explain these results, starting with the overall innovation quotient, before continuing with each building block and their respective factors. Finally, we compare the different building blocks, before we summarize all our findings in the end of this section.

5.2.1 The innovation quotient

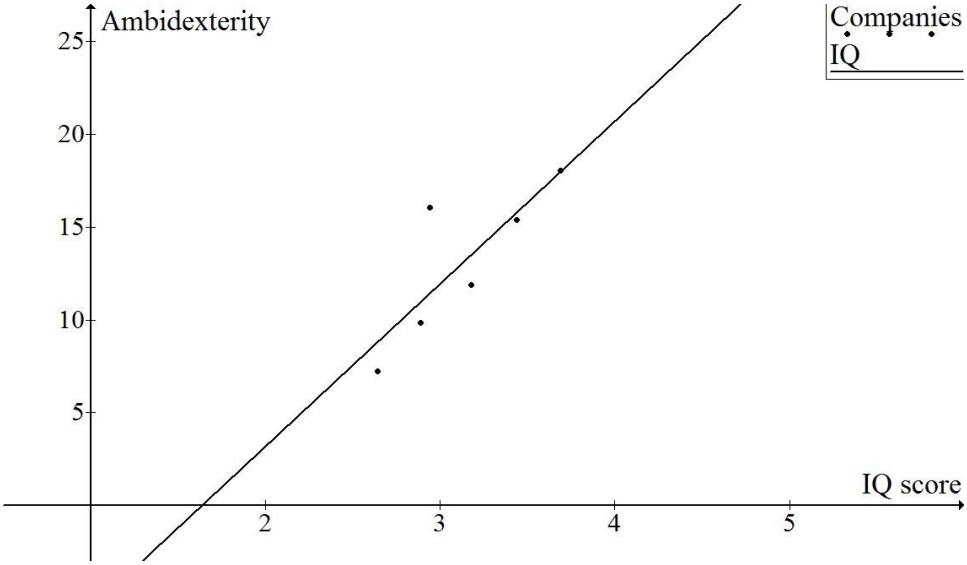

Figure 14 - IQ vs ambidexterity.

WH 1 predicts that the overall innovation quotient and ambidexterity, as the multiplicative combination of exploration and exploitation, are positively related. The hypothesis argued for ambidexterity and innovative company culture to be interconnected, as both lead to long-term viability. Further, there are empirical evidences that ambidexterity and culture are closely connected (Lin & McDonough Iii, 2011; Wang & Rafiq, 2014). From our regression analysis, the relationship was positive ($\beta = 8.759$, $p < 0.05$), indicating support for WH 1. Hence, if a company scores high on the IQ, they should also score high on ambidexterity. Please note that the ambidexterity measure ranges from 1 to 25, while the innovative culture range from 1 to 5. Thus, a beta of 5.0 indicates a perfect proportional relationship.

5.2.2 Resources

WH 2 predicts that the resource building block is positively related to ambidexterity. This is because resources ultimately enables the firm to perform better and more efficient than its competitors, as ambidextrous organizations do. Regression analysis shows that the relationship is indeed positive ($\beta = 6.703$, $p < 0.05$), indicating that WH 2 can be supported (see figure 15). Note that this is the lowest beta on a building block level, indicating that resources seems to be of particular interest.

WH 2 a)-b) predict that the people- and systems-factors of resources are positively related to ambidexterity. Regression analysis shows that these relationship are indeed positive, with $\beta = 7.191$ ($p < 0.05$) for people, and $\beta = 7.322$ ($p < 0.05$) for systems, indicating support for WH 2 a) and b). WH 2 c) predicts that the project-factor of resources is not correlated to ambidexterity, but regression analysis found a positive relationship between projects and ambidexterity ($\beta = 5.720$, $p < 0.1$), indicating that WH 2 c) is not supported. Our argument that tangible assets are less important than intangible assets regarding innovations, and thereby not being of greater importance for ambidextrous organizations, might have been inadequate. In our discussion-chapter, we use theory to give possible explanations to these results. The regression equations for people, systems, and projects are plotted in figure 16.

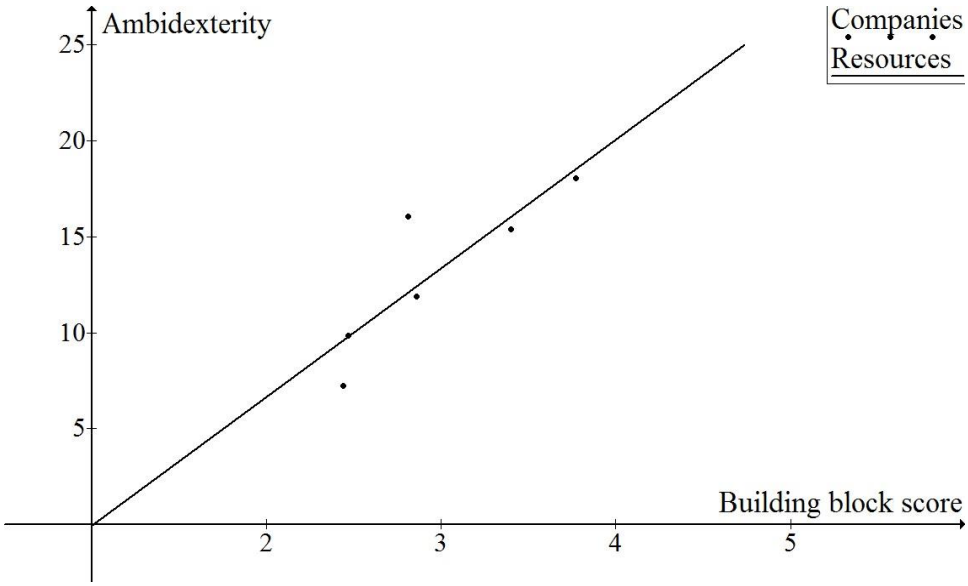

Figure 15 - Resources vs ambidexterity.

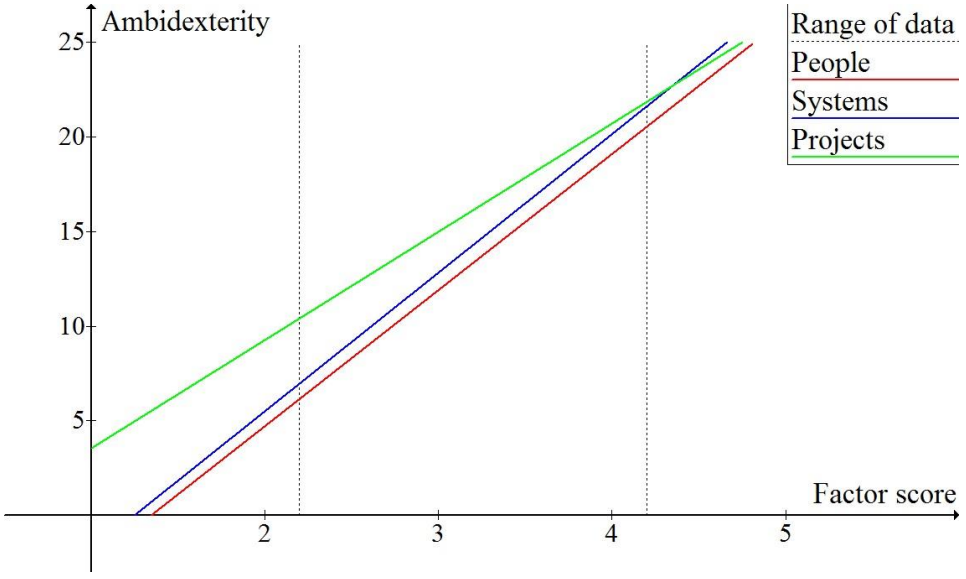

Figure 16 - People, systems and projects vs ambidexterity.

5.2.3 Processes

WH 3 predicts that the process building block is positively related to ambidexterity. This is because ambidextrous organizations have flexible processes to manage different innovations streams for incremental and radical innovations. Regression analysis shows that the relationship is indeed positive ($\beta = 7.928$, $p < 0.05$), indicating support for WH 3 (see figure 17).

WH 3 a)-c) predicts that the ideate-, shape-, and capture-factors of processes are all positively related to ambidexterity. Regression analysis shows that these relationship are indeed positive, with $\beta = 6.284$ ($p = 0.190$) for ideate, $\beta = 7.425$ ($p < 0.01$) for shape, and $\beta = 6.100$ ($p < 0.05$) for capture, indicating support for WH 3 a), b), and c). Note that the regression results for ideate was not significant. The regression equations for ideate, shape, and capture are plotted in figure 18.

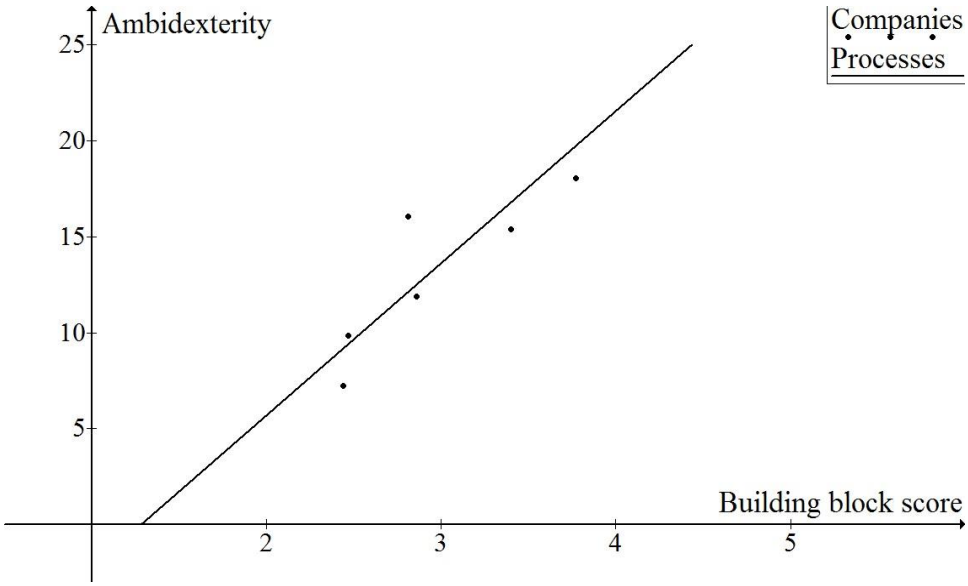

Figure 17 - Processes vs ambidexterity.

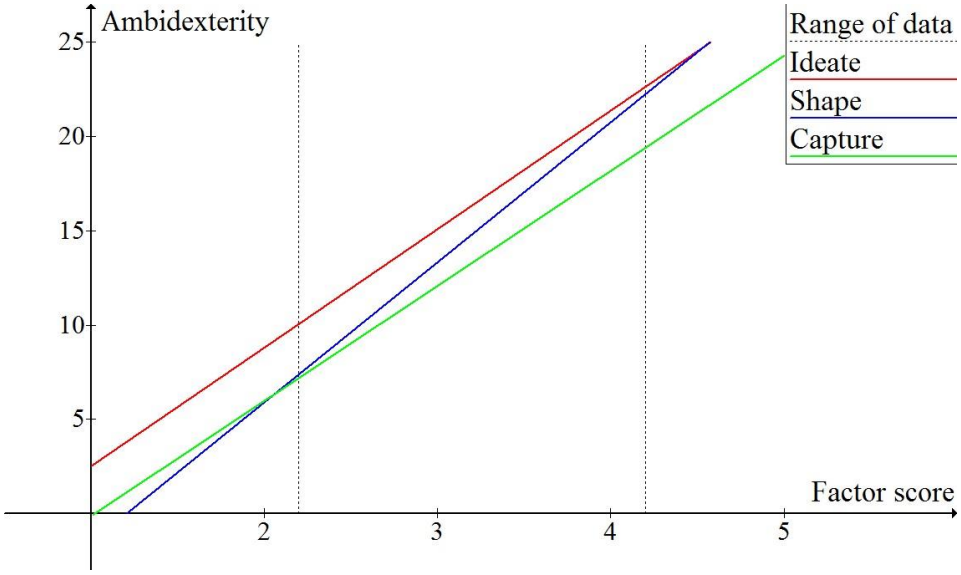

Figure 18 - Ideate, shape and capture vs ambidexterity.

5.2.4 Success

WH 4 predicts that the success building block is positively related to ambidexterity. This is because ambidextrous organizations tend to outperform non-ambidextrous organizations on innovation, and should therefore be more successful. Regression analysis shows that the relationship is indeed positive ($\beta = 8.505$, $p < 0.05$). This indicates support for WH 4 (see figure 19).

WH 4 a) predicts that the external-factor of success is not related to ambidexterity. However, regression analysis shows a positive relationship to ambidexterity ($\beta = 6.816$, $p < 0.05$), indicating that WH 4 a) is not supported. While we argued that external perception might not reflect how innovative an enterprise really is, we recognize that companies that are perceived as innovative usually are so as well. WH 4 b) and c) predicts that the enterprise- and individual-factors of success are positively correlated to ambidexterity, and regression analysis found a positive relationship, with $\beta = 8.193$ ($p < 0.05$) for enterprise, and $\beta = 8.407$ ($p < 0.1$) for individual, indicating support for WH 4 b) and c). The regression equations for external, enterprise, and individual are plotted in figure 20.

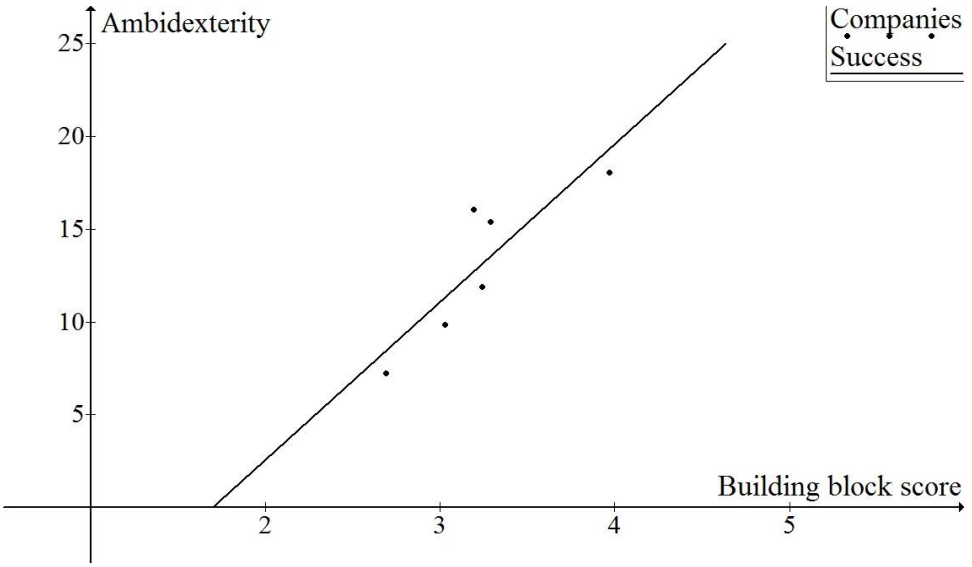

Figure 19 - Success vs ambidexterity.

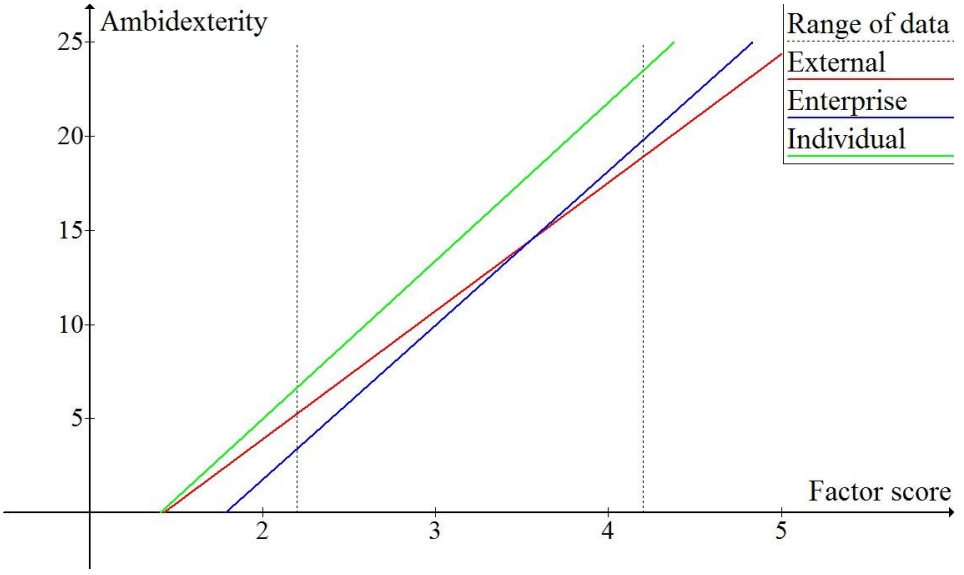

Figure 20 – External, enterprise and individual vs ambidexterity.

5.2.5 Values

WH 5 predicts that the value building block is positively related to ambidexterity. Values are especially important for initiative, creativity, and risk-taking, and therefore of particular importance for exploring activities, in which ambidextrous organizations are superior. Regression analysis shows that the relationship is indeed positive ($\beta = 8.060$), indicating support for WH 5 (see figure 21), but the result is not significant ($p = 0.182$).

WH 5 a)-c) predicts that the entrepreneurial-, creativity-, and learning-factor of values are all positively related to ambidexterity. Regression analysis shows that these relationship are indeed positive, with $\beta = 6.107$ ($p = 0.354$) for entrepreneurial, $\beta = 10.3$ ($p = 0.173$) for creativity, and $\beta = 6{,}448$ ($p = 0.13$) for learning, indicating support for WH 5 a), b), and c). Note that the regression results for the building block and all the factors were not significant. The regression equations for entrepreneurial, creativity, and learning are plotted in figure 22.

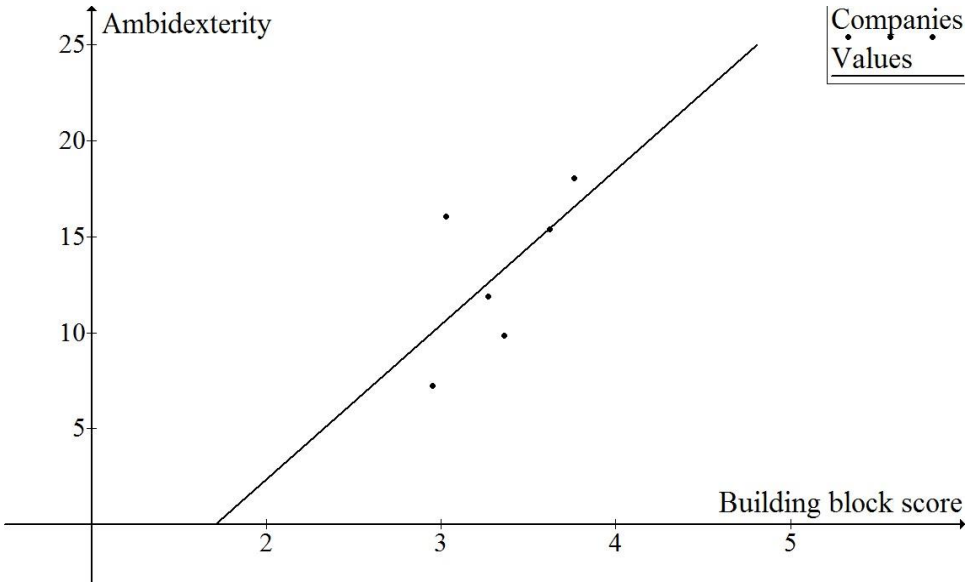

Figure 21 - Values vs ambidexterity.

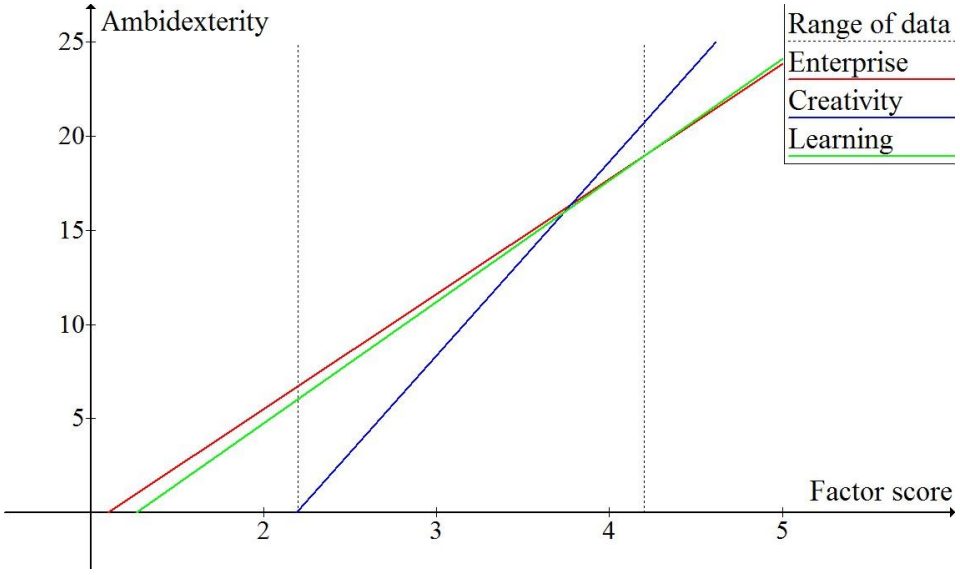

Figure 22 – Entrepreneurial, creativity and learning vs ambidexterity.

5.2.6 Behaviors

WH 6 predicts that the behavior building block is positively related to ambidexterity, as ambidextrous organizations tend to promote innovative behavior, in such a way that they can explore and exploit simultaneously. Regression analysis shows that the relationship is indeed positive ($\beta = 8.119$, $p < 0.05$) indicating support for WH 6 (see figure 23).

WH 6 a), b), and c) predict that the energize-, engage-, and enable-factors of success are all positively related to ambidexterity. Regression analysis shows that these relationship are indeed positively related to ambidexterity, with $\beta = 6.911$ ($p < 0.05$) for energize, $\beta = 6.250$ ($p = 0.191$) for engage, and $\beta = 8.207$ ($p < 0.05$) for enable, indicating support for WH 6 a), b), and c). Note that the regression results for engage were not significant. The regression equations for energize, engage, and enable are plotted in figure 24.

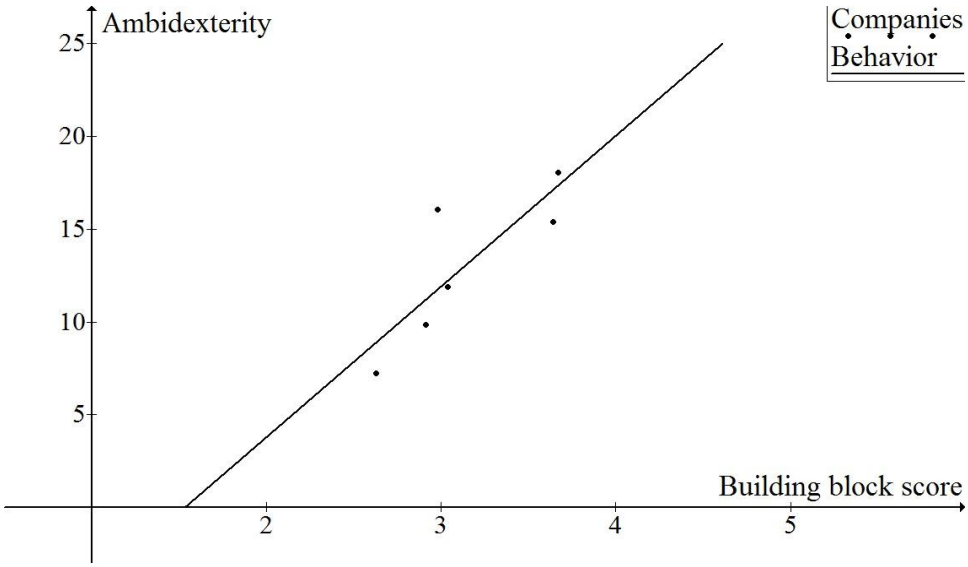

Figure 23 - Behaviors vs ambidexterity.

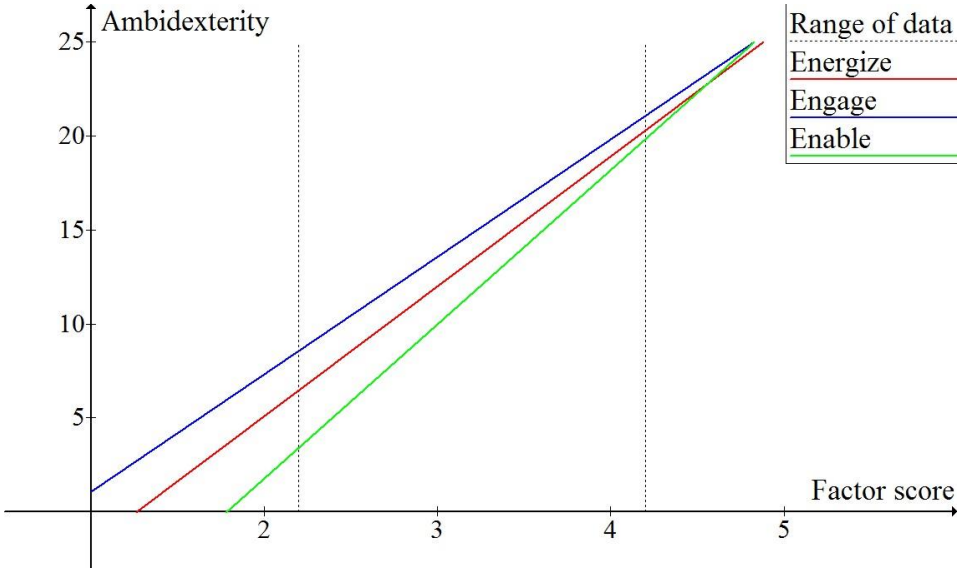

Figure 24 – Energize, engage and enable vs ambidexterity.

5.2.7 Climate

WH 7 predicts that the climate building block is positively related to ambidexterity. This is because ambidextrous organizations have a climate that nurture the exploratory sides of innovation. Regression analysis shows that the relationship is indeed positive ($\beta = 9.387$, $p < 0.1$), indicating support for WH 7 (see figure 25). Note that this is the highest beta on a building block level, indicating that climate seems to be of particular interest.

WH 7 a), b), and c) predict that the collaboration-, safety-, and simplicity-factors of climate are all positively related to ambidexterity. Regression analysis shows that these relationship are indeed positively related to ambidexterity, with $\beta = 9.066$ ($p < 0.05$) for collaboration, $\beta = 9.970$ ($p = 0.162$) for safety, and $\beta = 6.350$ ($p = 0.216$) for simplicity, indicating support for WH 7 a), b), and c). Note that the regression results for safety and simplicity were not significant. The regression equations for collaboration, safety, and simplicity are plotted in figure 26.

Regression equations for all building blocks, factors and the innovation quotient are included in table 8.

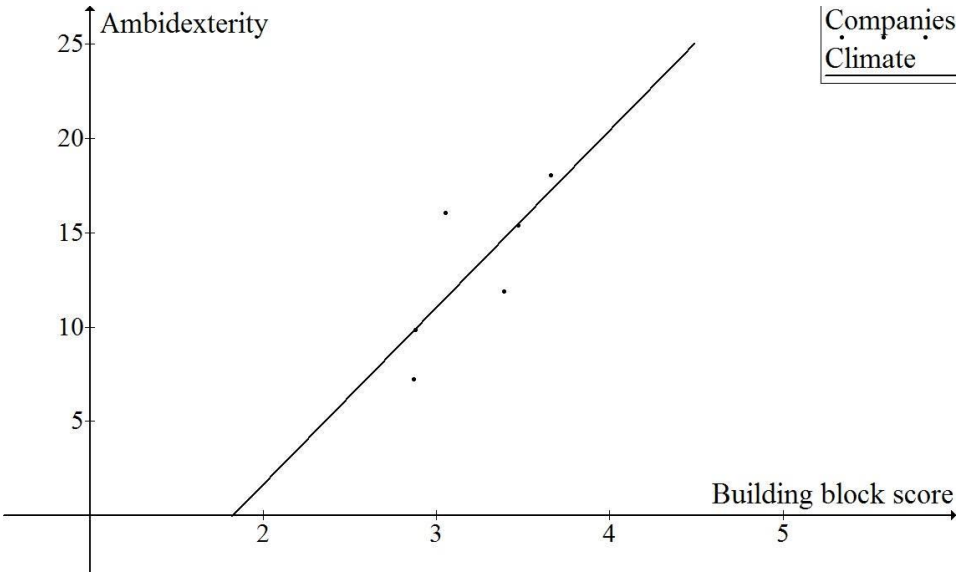

Figure 25 - Climate vs ambidexterity.

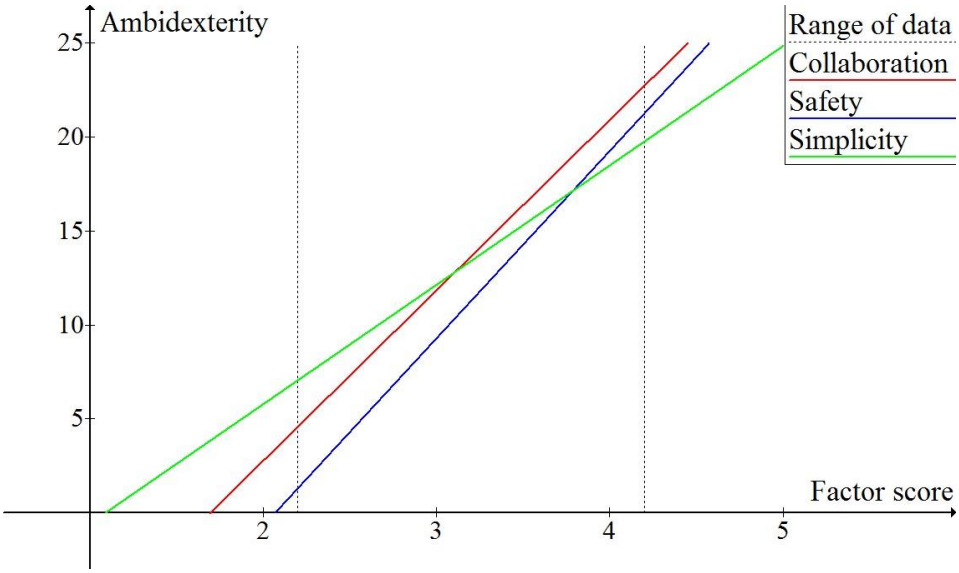

Figure 26 – Collaboration, safety and simplicity vs ambidexterity.

5.3 Regression Results for Ambidexterity

Variable	*Working hypotheses: Correlated to ambidexterity?*		*Constant*	*Beta*	R^2	*Adj.* R^2	*ANOVA F*	*Sig.*	*Support for WH*
Innovation Quotient	WH 1	Positively	-14.329	8.759	0.670	0.588	8.135	0.046	Yes
Resources	WH 2	Positively	-6.746	6.703	0.737	0.671	11.206	0.029	Yes
People	WH 2 A	Positively	-9.652	7.191	0.761	0.701	12.707	0.023	Yes
Systems	WH 2 B	Positively	-9.134	7.322	0.782	0.727	14.326	0.019	Yes
Projects	WH 2 C	No	-2.169	5.720	0.621	0.526	6.551	0.063	No
Processes	WH 3	Positively	-10.171	7.928	0.814	0.768	17.517	0.014	Yes
Ideate	WH 3 A	Positively	-3.761	6.284	0.383	0.229	2.483	0.190	Yes
Shape	WH 3 B	Positively	-8.960	7.425	0.876	0.845	28.322	0.006	Yes
Capture	WH 3 C	Positively	-6.220	6.100	0.765	0.706	13.007	0.023	Yes
Success	WH 4	Positively	-14.422	8.505	0.750	0.687	11.972	0.026	Yes
External	WH 4 A	No	-9.718	6.816	0.722	0.652	10.364	0.032	No
Enterprise	WH 4 B	Positively	-14.613	8.193	0.763	0.704	12.887	0.023	Yes
Individual	WH 4 C	Positively	-11.824	8.407	0.610	0.512	6.247	0.067	Yes
Values	WH 5	Positively	-13.772	8.061	0.394	0.242	2.600	0.182	Yes
Entrepreneurial	WH 5 A	Positively	-6.700	6.107	0.215	0.019	1.097	0.354	Yes
Creativity	WH 5 B	Positively	-22.547	10.300	0.407	0.259	2.744	0.173	Yes
Learning	WH 5 C	Positively	-8.155	6.448	0.476	0.344	3.627	0.130	Yes
Behaviors	WH 6	Positively	-12.447	8.119	0.680	0.600	8.494	0.043	Yes
Energize	WH 6 A	Positively	-8.720	6.911	0.711	0.639	9.842	0.035	Yes
Engage	WH 6 B	Positively	-5.175	6.250	0.382	0.228	2.477	0.191	Yes
Enable	WH 6 C	Positively	-14.652	8.207	0.766	0.707	13.067	0.022	Yes
Climate	WH 7	Positively	-17.131	9.387	0.572	0.465	5.349	0.082	Yes
Collaboration	WH 7 A	Positively	-15.337	9.066	0.792	0.740	15.266	0.017	Yes
Safety	WH 7 B	Positively	-20.598	9.970	0.423	0.279	2.933	0.162	Yes
Simplicity	WH 7 C	Positively	-6.927	6.350	0.351	0.188	2.161	0.216	Yes

Table 8 - Regression results.

5.4 Structural Equation Modelling

To further support our regression results, we performed structural equation modeling (SEM) at the individual level. SEM was not appropriate at company-level due to the small sample size. After removing all incomplete answers, individual level responses provided a sample of N = 59, which allowed for model fitting analyses using AMOS. We performed several analyses in AMOS, with the goal of identifying culture as a latent variable consisting of the six building blocks, as well as direct links between the building blocks and ambidexterity. The following will explain these analyses.

The basic model consisted of a latent variable, culture, that incorporated all building blocks in the Rao and Weintraub (2013) framework (see figure 27). Furthermore, culture was proposed to influence ambidexterity. All standardized loadings for the latent variable in the suggested model are larger than 0.70, indicating that they are satisfactory indicators (Lei & Wu, 2007), while the standardized coefficient value from the latent variable to ambidexterity is 0.60, indicating that an increase of 1 standard deviations in culture causes an increase of 0.60 standard deviations in ambidexterity. All regression weights were significant ($p < 0.001$). The R^2 value indicates that 36 percent of the variance in ambidexterity is accounted for by the latent culture variable. Investigating the model fit of this model, we found that chi-square test rejected the model (Lei & Wu, 2007) with values of $\chi = 28.492$ and df = 14, and with $p = 0.012$. However, other goodness of fit indexes has been constructed to compensate for the shortcoming of chi-square tests (Byrne, 2001; Lei & Wu, 2007). Our model got better results using indexes that adjust for sample size: NFI = 0.916 and CFI = 0.955. Higher values indicate greater improvement over baseline index, and these results can be considered as indication of good fit (Lei & Wu, 2007). RMSEA and GFI, two absolute fit indicia, measure the extent to which our model is able to reproduce the covariation matrix. We calculated RMSEA = 0.134 and GFI = 0.904 for our model, the RMSEA value is larger than the proposed value of 0.06 (Lei &

Wu, 2007) indicating inadequate fit, but GFI values close to 1 indicate good model fit (Byrne, 2001).

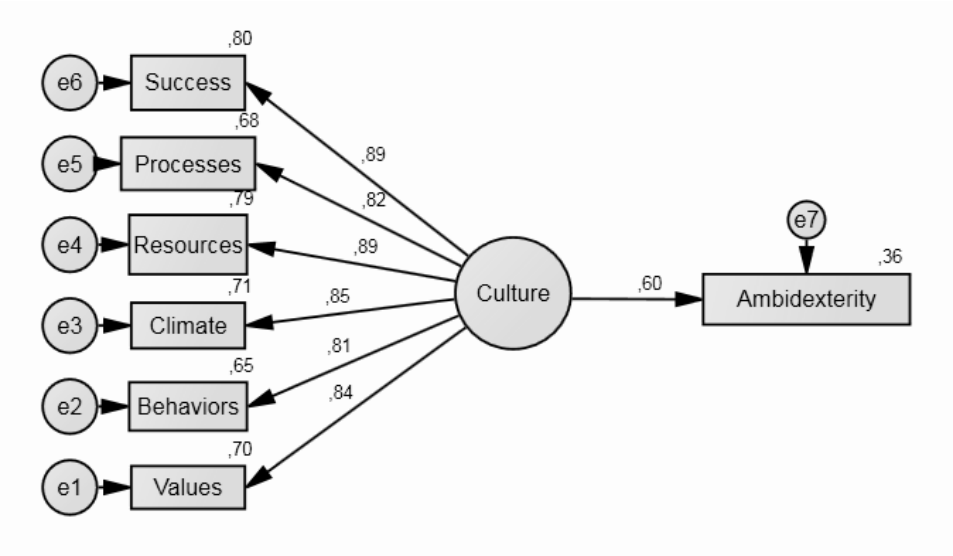

Figure 27 - Basic SEM model.

To test for direct effects of the building blocks to ambidexterity, we tested direct relations one at a time. We found that values was the factor that had the largest direct influence on ambidexterity, with explained variance of ambidexterity increasing to 0.42. This model has approximately the same, or slightly better, fit than the basic model (χ = 25.848, df = 13, p = 0.018, NFI = 0.924, CFI = 0.960, RMSEA = 0.131, and GFI = 0.910). This model is shown in figure 28 below. All relationships between the building blocks and culture, as well as between culture and ambidexterity were significant ($p < 0.001$). In this model, values has a standardized regression weight to ambidexterity of -0.355, but this relationship is not significant (p = 0.101).

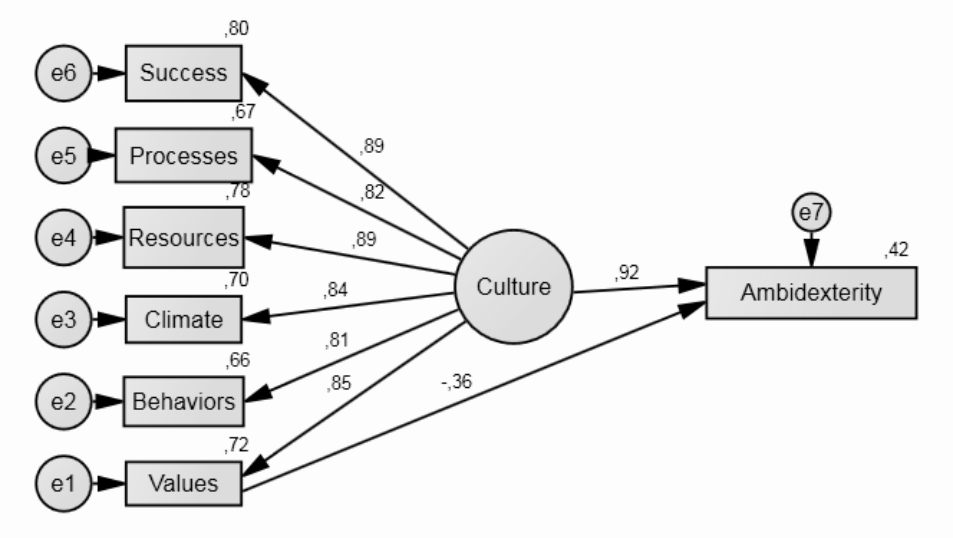

Figure 28 – SEM model with direct relationship between values and ambidexterity.

The model that accounted for most of the variance on the ambidexterity measure (0.60) was a model with direct relationships between processes, resources, climate, and values simultaneously (χ = 21.937, df = 10, p = 0.015, NFI = 0.935, CFI = 0.963, RMSEA = 0.143, and GFI = 0.925). The model fit indexes indicate a slightly better model fit than the basic model on all parameter except RMSEA. This model is illustrated in figure 29. All relationships between the building blocks and culture were significant ($p < 0.001$), as well as the relationship between culture and ambidexterity ($p < 0.01$). Of the direct relationships, only the relationship between climate and values and ambidexterity were significant ($p < 0.1$). Note that all the direct regression weights were negative. Summarizing these results, we have indications that our model is a moderately good fit when adjusting for the effect of sample size.

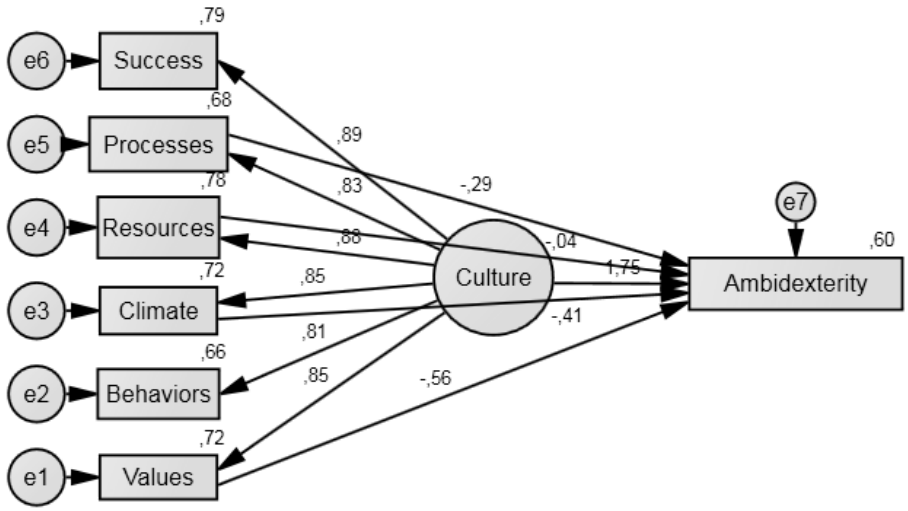

Figure 29 - SEM model with direct relationship between values, climate, resources and processes, and ambidexterity.

CHAPTER 6
Discussion

By now, it is evident that ambidexterity and innovative company cultures are closely connected. We previously proposed seven working hypotheses, which were tested on Norwegian industry-companies. The tendencies we see are supporting many of our working hypotheses. However, as promised in our working hypotheses-chapter, we first discuss the issue of causality before discussing the results. Finally, we end the discussion with implications and limitations to the study.

6.1 Causality

We previously stated that we do not claim causality to any working hypotheses in this paper. As we briefly explained, the nature of the questionnaire does not allow any claims regarding causality. Hence, we merely suggest correlations, and we do not claim that two events occurring together must have a cause-and-effect relationship. However, in the following paragraphs, we attempt to use the reviewed literature to examine possible causal effects.

One may argue that the organizational innovation culture affects the organization's ambidexterity. As seen in the theory, organizational diversity, shared visions, and strategic leadership – all of which are important parts of organizational culture – positively influences ambidexterity (Lin & McDonough Iii, 2011; Wang & Rafiq, 2014). In other words, culture is essential to allow ambidexterity to take place. Moreover, Birkinshaw and Gibson (2004) argue ambidexterity to be context-driven, in which the organizational culture will affect the level of ambidexterity. Hence, organizational culture affects the individual employees' choices regarding exploitation and exploration, in which the level of ambidexterity ought to be affected accordingly.

It may be, however, that ambidexterity affects the innovation culture of an organization. By dividing explorative and exploitative activities, an ambidextrous organizational design is effectively creating two different cultures (O'Reilly & Tushman, 2004). Further, innovation performance increases when selecting an ambidextrous design (M. Tushman et al., 2010), and the organizational culture is thus likely to become more innovative. Hence, an ambidextrous organizational design might actually be the main driver for developing an innovative company culture. Furthermore, once an ambidextrous design is chosen, the changes to the organizational culture are likely to affect the level of ambidexterity in the organization. Thus, an ambidextrous design might affect the organizational culture, which in turn may affect the level of ambidexterity in the organization.

We found that ambidextrous organizations are excelling in both exploring and exploiting activities – e.g. supporting the findings of Gibson and Birkinshaw (2004) and He and Wong (2004) – which is why they innovate better than competitors (O'Reilly & Tushman, 2004). Therefore, it is very unlikely that an ambidextrous organization does not have an innovative culture. In other words, while an organization can decide to implement an ambidextrous design, it only becomes ambidextrous once the organizational culture becomes innovative. Hence, we would argue that organizational culture is a causal mechanism behind ambidexterity. In the following discussion, we deem it plausible that this causal mechanism applies.

6.2 Framework for an Innovative Culture

The following sub-sections discuss our results for the innovation quotient, building blocks, and factors in relation to ambidexterity.

6.2.1 Innovation Quotient

By comparing scores on the innovation quotient (IQ) with the companies' score on ambidexterity, we found the two constructs to be positively correlated,

supporting WH 1. However, what does this tell us? Regarding our research question, the results imply that one of the differences between ambidextrous and non-ambidextrous companies is how innovative their company culture tends to be. Overall, the results imply that developing a more innovative company culture will cause an increase the company's ambidexterity, in line with the findings of Wang and Rafiq (2014) and Lin and McDonough Iii (2011). We therefore argue that using the framework of Rao and Weintraub (2013) to improve parts of a company's culture for innovation, will also improve a company's level of ambidexterity. Conversely, we cannot rule out the possibility that striving for ambidexterity will make a company's culture more innovative. In sum, we argue that there is a positive correlation between how innovative a company culture is, and how ambidextrous a company culture is.

6.2.2 Building Blocks

All six building blocks for an innovative company culture have a positive correlation to ambidexterity, which shows a tendency towards support for working hypotheses 2-7. Of the six building blocks, climate has the largest beta, while resources has the lowest beta. Hence, there is a steeper slope on the regression for climate than there is for resources.

However, what does this tell about the difference in ambidextrous cultures and non-ambidextrous cultures? It is perhaps preferred to use an example to explain: Let us compare a hypothetical company A to a hypothetical company B. Company A is an average company that scores 11 on ambidexterity (about the same as the lowest in our sample), while company B scores 18 on ambidexterity (about the same as the highest in our sample). As it is nearly impossible to score a perfect 25 or the lowest score of 1, we consider company A to be non-ambidextrous, and company B to be ambidextrous. Since the beta is the lowest for resources, it means that this is the building block in which the difference between company A and B tends to be the greatest. Conversely, climate has the smallest difference between

company A and B. The differences between company A and B are depicted below in figure 31.

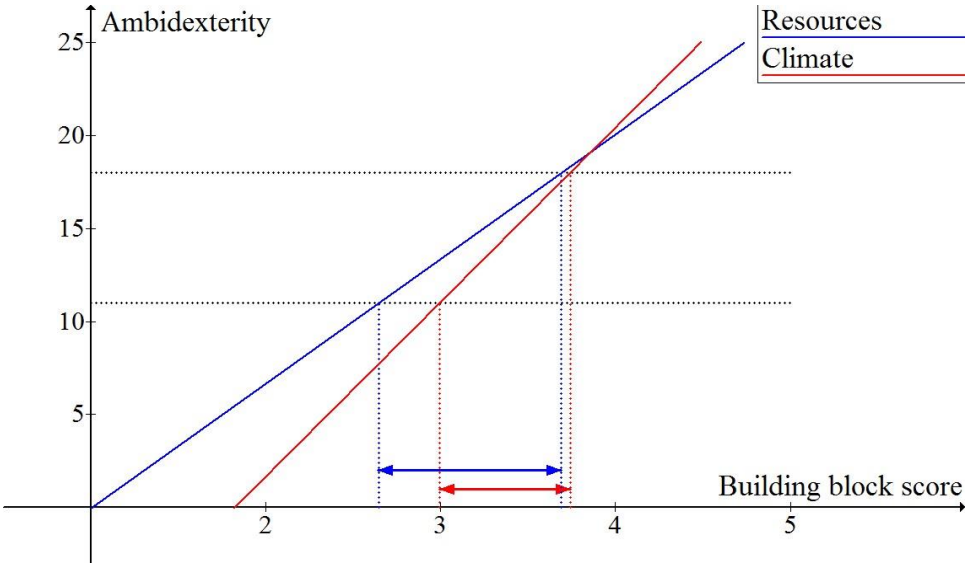

Figure 30 - Differences between company A (ambidexterity = 11) and B (ambidexterity = 18) on resources and climate.

This is not to say that ambidextrous companies are average performers at organizational climate. As the numbers show, the difference in slopes are small, and all six building blocks are substantially better for ambidextrous companies than they are for non-ambidextrous companies. There is, however, a tendency for resources being the building block in which the cultural differences are greatest between ambidextrous and non-ambidextrous organizations. In the following paragraph, we discuss possible explanations for the large differences in resources, as our research question concerns differences between ambidextrous and non-ambidextrous organizations.

The above reasoning implies that resources is among the most important building blocks for ambidextrous organizations. As we have seen, the long-term performance of ambidextrous organizations are substantially better than for non-ambidextrous organizations (e.g. Gibson & Birkinshaw, 2004; He & Wong,

2004). In the long-run, temporal myopia (Levinthal & March, 1993) could increase the gap between ambidextrous and non-ambidextrous organizations. Further, the gap in resources might increase even more due to a self-reinforcing cycle: When an ambidextrous organization financially outperforms competitors, it can afford to invest more in innovation, which yields an advantage in long-term growth (Trott, 2012). Moreover, successful companies attract talented people – the most critical resource of any organization (Rao & Weintraub, 2013) – which should further increase performance (Ready & Conger, 2007). Following these arguments, it is plausible that resources in fact is the building block with the greatest difference between ambidextrous and non-ambidextrous organizations.

Let us return to our example of company A and Company B. Using the building block regression lines, we compared the internal ranking of the scores for company A and B (see figure 31). For company A, the lowest score was on resources, followed by processes, behaviors, climate, success, and values. Company B, on the other hand, scored lowest on processes, followed by resources, climate, behaviors, success, and values. From this, some interesting observations are worth mentioning. For instance, both companies score highest on values, and both companies has success as the second-best building block. Moreover, as we found in our SEM analyses, values has the greatest direct effect in explaining variance in ambidexterity. Hence, there are tendencies for values being of particular importance for ambidextrous organizations, which is not surprising, as values determine behavior and therefore affect what the company can and cannot do (Clayton M Christensen & Overdorf, 2000). While there are some differences in internal ranking for the remaining four building blocks, the differences are small. In other words, the building blocks that were low for company A was also low for company B. However, should there be differences in internal ranking? In addition, does a preferred ranking exist? Rao and Weintraub (2013) do not suggest a preferred internal ranking, and we do not know if such a ranking even exists. Whether there are building blocks that are more important than others are, and if

a preferred ranking can be identified with a measure for ambidexterity, are both subject to further research, and not within the scope of our thesis. Because of this, we will not discuss internal ranking on a factor-level in the next section.

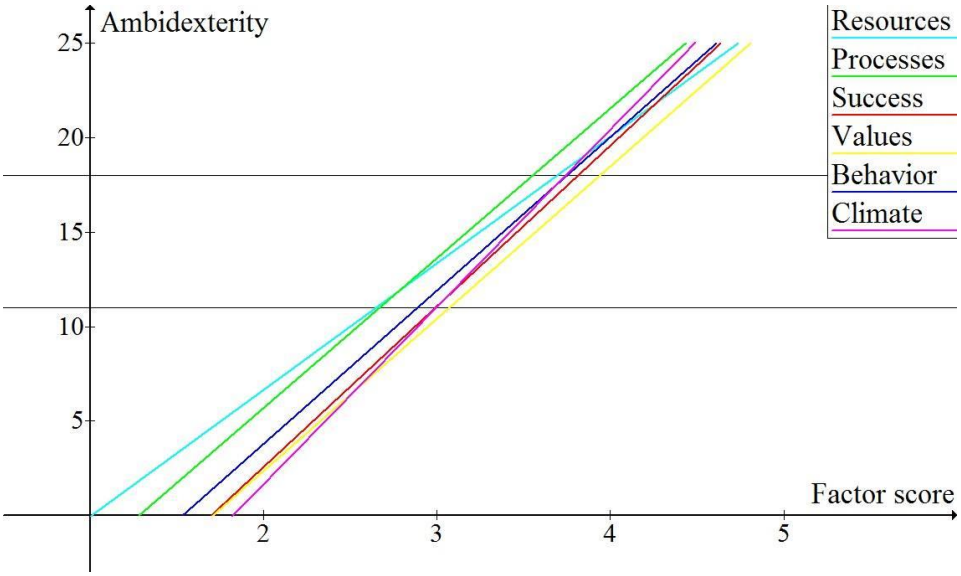

Figure 31 – Internal ranking on building blocks for company A (ambidexterity = 11) and B (ambidexterity = 18).

Our SEM analyses found that the unobserved variable culture is comprised of the six building blocks, and that culture affects ambidexterity. While the basic model does not provide any surprising results, the second model – with a direct link from values to ambidexterity – is of particular interest. While the explained variance of ambidexterity increases, the negative (but insignificant) regression coefficient from values to ambidexterity indicate that values in fact has a negative influence on ambidexterity, but a positive influence through culture. This finding might be explained by the fact that values consists of the very "innovative" factors creativity, entrepreneurial, and learning (Rao & Weintraub, 2013), which can be assumed to have strongest effect on exploration, possibly at the expense of exploitation, resulting in a decreased level of ambidexterity. Thus, it may be that values positively influences ambidexterity through the unobserved variable culture, while the direct effect from values to ambidexterity is negative because

of the effect on exploitation. This supports the argument that exploration and exploitation are substitutes, and not complementary constructs (Birkinshaw & Gupta, 2013). The same argument goes for the third SEM analysis, figure 29, where both climate and values had significant negative influence on ambidexterity. We argue that the negative direct effect from climate, particularly the simplicity-factor, can be explained with the same reasoning as values; climate is strongly associated with exploration, possibly at the expense of exploitation. As the direct regression lines from processes and resources to ambidexterity were insignificant, we do not discuss these. In sum, the SEM analyses support our previous findings, that ambidexterity is best explained through organizational culture.

6.2.3 Factors

As with the building blocks, all 18 factors has a positive correlation to ambidexterity. Thus, we see tendencies to support for all working hypotheses, except from WH 2c) and WH 4a). These WH's are the ones that suggested no correlation between the factors (projects and external) and ambidexterity.

Regarding the positive correlations, safety (from climate) and collaboration (from climate) are the factors with the highest betas. At the other end of the spectrum, projects (from resources) and capture (from processes) have the lowest betas. Using the same logic as in the example above, the latter two factors are the ones where the difference between ambidextrous and non-ambidextrous organizations are the largest. Conversely, there is a smaller difference between company A and B with the former two factors. Hence, there are tendencies for projects and capture being the two factors in which the cultural differences between ambidextrous and non-ambidextrous organizations are the largest. Projects, as a part of resources, follows the same argumentation as with resources, where ambidextrous organizations are able to counteract temporal myopia and increase the difference with a self-reinforcing cycle. Further, the large differences between ambidextrous

and non-ambidextrous companies regarding capture (composed of the elements flexibility, launch, and scale) can be explained by the differences in radical and incremental innovation, where radical innovations demand more flexibility and more tolerance for ambiguity (Brun et al., 2009; Kanter, 2006). Ambidextrous organizations have the flexibility to excel with exploration, and are nine times more likely to succeed with radical innovations (O'Reilly & Tushman, 2004). Hence, ambidextrous organizations should be substantially better than non-ambidextrous organizations at capturing radical innovations.

The differences in betas at a factor-level are larger than they are with the building blocks, and it is therefore a tendency towards larger cultural differences on a factor-level than on a building block-level. While we found that ambidextrous organizations tend to be much better at all building blocks, there might be factors with small differences in scores. For instance, as the slope for safety is very steep, there can be great differences in ambidexterity without great differences in the factor. It may therefore be likely for two companies to have little difference in scores on a factor, but a large difference in ambidexterity, indicating limited effect of this factor on ambidexterity.

6.3 Unsupported Working Hypotheses

Out of our working hypotheses, two stand out from the rest, as they were not supported. According to Davis (1971), theories that deny assumptions are interesting, while theories that affirm assumptions are non-interesting. Hence, we will elaborate on the unsupported working hypotheses below. The two working hypotheses that were not supported are:

WH 2 c): *The projects-factor of resources and ambidexterity are not correlated.*
WH 4 a): *The external-factor of success and ambidexterity are not correlated.*

6.3.1 The Projects-Factor of Resources and Ambidexterity

Regarding WH 2c), we were wrong in our prediction. While the theory did not directly imply that projects are particularly better for ambidextrous organizations, it is still possible to explain these results from a theoretical perspective. First, T. M. Amabile (1998) argues that a lack of financial assets results in people channeling creativity towards finding more resources. As the project-factor tells whether people have enough money, time, and space to innovate, this factor is considered important to achieve successful innovation, which we know that ambidextrous organizations are better than other companies at (O'Reilly & Tushman, 2004).

Second, we also know that tangible assets can be viewed as inputs, with intangible assets working as throughputs to achieve successful innovation (J. F. Christensen, 1995; David J. Collis, 1994). Even if intangible assets are more important for innovation, it is difficult to innovate at all without enough tangible assets. Thus, as ambidextrous organizations innovate better than others, it is likely that they have better access to tangible assets.

Finally, projects may have a symbolic effect in organizations, which again affects the corporate culture (Claver et al., 1998). For instance, if a company states that they allocate a large sum dedicated for innovation each year, or build a room with a sole purpose for innovation, it tells people something about the company's goals. Those that invest in innovation will ultimately have people who know that creativity and good ideas are valued, which can have a powerful effect on the company's ability to innovate. In sum, while we initially stated that projects ought to be quite similar for ambidextrous and non-ambidextrous organizations, we believe our findings to be reasonable, and that it is very likely that ambidextrous organizations excel at projects.

6.3.2 The External-Factor of Success and Ambidexterity

We predicted external success not to be correlated to ambidexterity, which was rejected by our results. In line with ambidextrous companies outperforming others on innovation (O'Reilly & Tushman, 2004), it is likely that these companies are perceived to have an innovative brand. Returning to the theory, we stated that having an innovative brand can reduce the negative effects newness have on customers (Stock & Zacharias, 2013). Hence, an innovative brand improves customers' perception of radical innovations, which should be reflected in financial returns on exploring activities. Companies that have an innovative brand, then, are more likely to be successful with radical innovations. Moreover, it is likely that there is a self-reinforcing cycle between ability to explore and having an innovative brand. By obtaining an innovative brand, organizations are more likely to be successful on exploring activities. This will most likely increase innovative performance, which further increases the innovative brand, and so on. Ambidextrous organizations are considered more innovative than their competitors, and their external recognition might take part in explaining their exploratory behavior. In sum, while our original hypothesis argued against a correlation between external recognition and ambidexterity, it is likely that the arguments above explains the positive relationship implied by our data.

6.4 Implications and Future Research

From a practical perspective, our research has some implications. The innovation culture framework is quite extensive, and having employees take the questionnaire displays both strengths and weaknesses in the culture, and makes it easier to identify areas of improvement. Hence, managers that want an innovative company culture are likely to benefit from using the framework of Rao and Weintraub (2013), and may even become ambidextrous in the process. We therefore believe that an organization can become ambidextrous without explicitly trying to achieve just that. Moreover, it seems that values is the building block of greatest

importance when striving to become ambidextrous, and it is the building block that is found to contribute the most in explaining ambidexterity. Thus, managers may benefit from a particular focus on values. Finally, the literature review in this paper is to our knowledge the most extensive coverage of the innovative company culture framework by Rao and Weintraub (2013), and it can be used to gain deeper insight to each building block, factor, and element. Thus, our literature review can explain why some parts of the culture are working well while others are not, and guide managers in improving the building blocks, factors, and elements of interest.

The theory on ambidexterity's relationship to organizational culture is scarce, and our study is the first – as far as we know - to investigate such a comprehensive framework for innovation culture in relation to ambidexterity. Of the theoretical implications we have found, the closeness between our two concepts is perhaps most interesting. The tendencies imply that ambidextrous organizations have much more innovative company cultures than non-ambidextrous organizations. Further, the different parts of the cultural framework all have positive correlations to ambidexterity; so much so, that it is possible that ambidextrous cultures and innovative cultures cannot exist without the other present. Alternatively, perhaps ambidexterity is in fact one form of innovative culture. Whether ambidexterity and culture must coexist, or if they are one and the same, it is evident that ambidexterity should be considered in the context of culture.

Future research is needed to better understand the relationship between company cultures and ambidexterity. First, it may shed light on the direction of the relationship, as it is impossible for us to address the issue of causality. Second, future research might give more information regarding the internal ranking of building blocks and factors, and possibly reveal a preferred internal ranking, which can be a substantial contribution to the research on ambidexterity. Finally, future research might reveal if culture and ambidexterity are coexisting concepts, or if ambidexterity is one particular form of innovative company culture.

6.5 Limitations

This master's thesis is subject to several limitations. The most severe, by far, is the size of our sample. With only six companies in the sample, we can point to tendencies at best, and all observed relationships might very well be false-negative or false-positive results (Schulz & Grimes, 2005). Moreover, all companies in our sample are ambidextrous to some degree, and we therefore had to consider companies as more ambidextrous or less ambidextrous. There are two interconnected main reasons for the sample being small. One reason is SISVI having fewer partnering companies than expected. As a result, we attempted to find new companies to take the survey. However, partly because this issue became known late in the process, we were not able to increase the sample to a sufficient size. Hence, while the observed tendencies are likely to occur, we cannot claim any hypotheses to be confirmed.

Another possible limitation, as with all self-reported surveys, is social desirability bias (Bryman, 2012). If people in the organization believe that they are innovative, they may tend to report positive results on all questions. Conversely, if people do not view the organization as particularly innovative, they might have a bias towards all questions. The result would be an inflation in the results, which makes the good companies seem better than they are, and the bad companies seem worse than they are. Moreover, we risk classifying an organization as ambidextrous or non-ambidextrous simply because people have a bias towards positive or negative answers in the survey.

As for the translation of the used survey, we did not use a back-translation strategy, which is recommended by Beaton et al. (2000). Hence, there is a risk that people put different meanings to one question, which may result in us not actually measuring what we want to measure. Moreover, poor wording in the questionnaire may be a source of misunderstanding for the respondents. For example, the element influence (from behaviors) is described as follows: "Our leaders use

appropriate influence strategies to help us navigate around organizational obstacles" (Rao & Weintraub, 2013, p. 34), which may be difficult to understand for the respondents. If employees' understanding of the question is inadequate, they are likely to put different meanings to the question, and therefore answer it with great variation.

The literature search we have conducted is a prominent area of limitations. As we cover many complex topics, and are limited by time and resources, we are restricted to only review a few articles on each topic. We started this master's thesis with a quite thorough approach in our literature search, but later this approach became more ad hoc when we needed articles that specifically addressed a particular topic. However, by this time, we had gotten a more in-depth understanding of the framework, and we therefore believe that we were able to judge the quality of the articles quite well based on our knowledge. Despite performing countless keyword searches, the diversity of topics makes it difficult to identify all relevant articles, and we therefore do acknowledge that we might have missed out on important articles with content of great relevance.

Rao and Weintraub (2013) present all the elements in the framework as if they are merely positive for innovation, and disregard the possibility of too much, or the context they are affected by. Thus, if an organization experience excessiveness of an element, it would seem like it is good for the company's culture according to the assessment tool. Further, they have chosen what they consider to be the most important dimensions of an innovative company culture. However, how can one know for certain that these are the most important and appropriate dimensions to consider? Moreover, are the different factors equally important for an innovation culture? Should this not be context specific?

One of the general arguments for critique towards quantitative research could also be aimed at Rao & Weintraub's (2013) framework; namely that the connection between the measures developed by social scientists and the concepts they are

supposed to be revealing are assumed and not necessarily real (Bryman, 2012). Moreover, as we argued in the methodology, the framework of Rao and Weintraub (2013) may have some redundant elements, implying that an innovative company culture might be captured with less than 54 questions. Moreover, if elements from different factors (or even different building blocks) are overlapping, we risk using the same measure to explain different cultural aspects. However, analyzing and cross-checking each element for potential overlap is beyond the scope of our research, as this in essence means developing a new framework for an innovative company culture.

As a concept, ambidexterity is quite versatile and makes a suitable concept for explaining organizational dualities - such as efficiency and flexibility - and this could be the reason why the number of articles about this theme has grown exponentially the last couple of years. However, it seems that the pursuit of versatility – explaining several dualities with ambidexterity – have made the concept of ambidexterity lose its clarity, and if the academic construct of ambidexterity "… is everything, then perhaps it is also nothing" (Birkinshaw & Gupta, 2013, p. 291). It is therefore possible that we accidentally have assessed other dualities than exploration and exploitation. Further, the intuitive way of thinking of a firm as ambidextrous is that the firm has a balance between the dimensions exploration and exploitation. However, Birkinshaw and Gupta (2013) suggests that ambidexterity could be viewed as a trade-off, and not as a balance. In other words, the combination of exploration and exploitation decides whether a firm is ambidextrous or not. Hence, viewing ambidexterity as a balance of exploration and exploitation might give different results from viewing it as a combination of the two.

Conclusion

In this master's thesis, we set out to investigate the relationships between innovative company cultures and ambidexterity. A comprehensive literature review outlined ambidexterity and the different parts of an innovative company culture, creating a solid theoretical foundation for our study, which can also be used as a reference for others. Most importantly, our findings indicate a close relationship between cultures for innovation and ambidexterity. Improvement to an innovation culture is therefore likely to strengthen the level of ambidexterity. Thus, the ability to simultaneously explore and exploit may therefore be rooted in the organizational culture, where an ambidextrous organization is a company with a more innovative culture than its competitors. Moreover, our findings suggest that resources is the building block in the framework of Rao and Weintraub (2013) where the difference between ambidextrous and non-ambidextrous organizations is the greatest, but that values tends to have the greatest effect on ambidexterity.

The research on ambidexterity's relationship to organizational culture is scarce, and our study is the first – as far as we know - to investigate such a comprehensive framework for innovation culture in relation to ambidexterity. While our master's thesis provides tendencies for explanation on some questions, further research is required to increase understanding of the intersection between these concepts. In particular, we recommend investigating the causality issue, the relative importance of the building blocks, and whether ambidexterity and innovative culture are one and the same.

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Appendix A: Survey

Our survey was part of a larger survey created for the SISVI project. The questions relevant for our Mater thesis consisted of three blocks; background questions, the Rao and Weintraub (2013) framework, and He and Wong's (2004) scale for ambidexterity. The questions are presented below in Norwegian, the language of the distributed survey.

Background Questions

Hva er navnet på din bedrift eller organisasjon?
Hva er din alder?
Kjønn?
Utdanningsnivå?
Hvor mange års arbeidserfaring har du tilsammen?
I hvor mange år har du jobbet i din nåværende bedrift eller organisasjon?
Hva er din nåværende stilling?
I hvilken enhet eller avdeling jobber du nå?
I hvor mange år har du vært medlem av den enheten eller avdelingen?
Hvor mange ansatte jobber i din enhet?

Rao and Weintraub's (2013) Framework

Vennligst angi i hvilken grad du føler at hver av følgende påstander er en god beskrivelse av din bedrift:

Element	**Question**
Sulten	Vi brenner for å utforske muligheter og for å skape nye ting.
Vaghet	Vi har en stor appetitt og toleranse for tvetydighet/vaghet når vi søker nye muligheter.
Handling	Ved å fokusere på handling unngår vi å overanalysere muligheter som dukker opp.
Fantasi	Vi oppfordrer til å tenke nytt og se etter løsninger fra ulike perspektiver.
Frihet	Arbeidsplassen vår gir oss frihet til å forfølge nye muligheter.
Leken	Vi liker å være spontane, og er ikke redde for å le av oss selv.
Nysgjerrig	Vi er flinke til å stille spørsmål i jakten på det ukjente.
Eksperimentering	Vi eksperimenterer ofte i vårt innovasjonsarbeid.
OK å mislykkes	Vi er ikke redde for å mislykkes, og vi ser på feilslåtte prosjekter som en kilde til læring.

Inspirere	Lederne våre inspirerer oss med en visjon for fremtiden og mulighetene for bedriften.
Utfordre	Lederne våre utfordrer oss ofte til å tenke og handle nyskapende.
Forbilde	Lederne våre er gode forbilder i sitt innovasjonsarbeid, til etterfølgelse for andre.
Trener	Lederne våre setter av tid til å veilede og gi tilbakemeldinger i vårt innovasjonsarbeid.
Initiativ	I vår bedrift tar ansatte på alle nivåer aktivt initiativ til innovasjon.
Støtte	Lederne våre støtter ansatte som deltar i innovasjonsprosjekter, uavhengig av resultat.
Innflytelse	Våre ledere bruker sin innflytelse for å hjelpe oss med å komme rundt organisatoriske hindringer.
Tilpasse	Lederne våre er i stand til å gjøre endringer og skifte kurs når det trengs.
Ståpåvilje	Våre ledere fortsetter å forfølge muligheter, selv i motgang.
Felleskap	Hele bedriften snakker samme språk når det kommer til innovasjon.
Forskjeller	Vi setter pris på, respekter og utnytter forskjellene som eksisterer i vårt fellesskap.

Teamwork	Vi arbeider godt sammen i team for å fange opp muligheter.
Tillit	Det vi gjør er hele tiden i samsvar med det vi sier at vi verdsetter.
Integritet	Vi stiller spørsmål ved beslutninger og handlinger som er i strid med våre verdier.
Åpenhet	Vi kan fritt gi uttrykk for egne meninger, selv om idéene er ukonvensjonelle eller kontroversielle.
Ikke-byråkratisk	Vi minimerer regler, retningslinjer og byråkrati for å forenkle vår arbeidsplass.
Ansvarlig	Ansatte tar ansvar for sine egne handlinger og unngår å skylde på andre.
Besluttsom	Våre ansatte vet nøyaktig hvordan de skal komme i gang med, og drive et prosjekt gjennom organisasjonen.
Forkjempere	Vi har engasjerte ledere som er villige til å være forkjempere for innovasjon.
Eksperter	Vi har tilgang til innovasjonseksperter som kan støtte våre prosjekter.
Talenter	Vi har de talentene som kreves for å lykkes med våre innovasjonsprosjekter.

Ansettelse	Vi har de riktige rekrutterings- og ansettelsesrutinene på plass for å støtte en god innovasjonskultur.
Kommunikasjon	Vi har gode samarbeidsverktøy for å støtte innovasjonsarbeidet.
Ecosystem	Vi er flinke til å utnytte våre relasjoner med leverandører for å fremme innovasjon.
Tid	Vi gir ansatte øremerket tid til å satse på nye muligheter.
Penger	Vi har øremerkede penger til å satse på nye muligheter.
Rom	Vi har egne fysiske og /eller virtuelle områder dedikert til å satse på nye muligheter.
Generering	Vi genererer systematisk idéer fra mange forskjellige kilder.
Sile	Vi siler og foredler ideer metodisk for å identifisere de mest lovende mulighetene.
Prioritere	Vi velger muligheter basert på en klart formulert risikoportefølje.
Prototype	Lovende muligheter sendes raskt til prototyping.
Iterasjon	Vi har effektive kommunikasjon og tilbakemelding mellom vår bedrift og våre kunder.

Feile smart	Vi stopper raskt feilslåtte prosjekter basert på forhåndsbestemte kriterier.
Fleksibel	Våre prosesser er laget for å være fleksible og tilpassede i motsetning til byråkratiske og kontrollbaserte.
Lansere	Vi går raskt til markedet med de mest lovende mulighetene.
Skalere	Vi bevilger raskt ressurser til å skalere prosjekter som ser lovende ut i markedet.
Kunder	Våre kunder ser på oss som en innovativ bedrift.
Konkurrenter	Vi er mye mer innovative enn andre bedrifter i vår bransje.
Finansielt	Vårt innovasjonsarbeid har ført til bedre økonomiske resultater enn andre i vår bransje.
Langsiktig	Vi ser på innovasjon som en langsiktig strategi snarere enn en kortsiktig løsning.
Disiplin	Vi har en bevisst, omfattende og systematisk tilnærming til innovasjon.
Ferdigheter	Våre innovasjonsprosjekter har bidratt til at organisasjonen har utviklet nye ferdigheter som vi ikke hadde for tre år siden

Fornøyd	Jeg er fornøyd med min deltakelse i våre innovasjonsprosjekter.
Vekst	Ved deltakelse i nye satsinger, strekker og bygger vi bevisst våre ansattes kompetanse.
Belønning	Vi belønner folk for å delta i potensielt risikofylte prosjekter, uavhengig av resultat.

Survey respondents rated their organization on each element on scale from 1 to 5, using the following scale: *1 = Ikke i det hele tatt; 2 = I liten grad; 3 = Til en viss grad; 4 = I stor grad; 5 = I veldig stor grad*

He and Wong's (2004) Scale for Ambidexterity

I løpet av de siste 3 årene, hvor viktig har følgende formål vært for igangsetting av innovasjonsprosjekter.

Introdusere en ny generasjon produkter
Utvide produktsortimentet
Åpne nye markeder
Gå inn i nye teknologiske fagfelt
Forbedre kvalitet på eksisterende produkter
Forbedre fleksibilitet i produksjonen
Redusere produksjonskostnader
Forbedre ytelse eller redusere materialforbruk

Survey respondents rated their organization on each element on scale from 1 to 5, using the following scale: *1 = Ikke i det hele tatt; 2 = I liten grad; 3 = Til en viss grad; 4 = I stor grad; 5 = I veldig stor grad*

Appendix B: Pearson correlations on factor level

Values and behaviors

Pearson Correlations (N = 6)

	Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Entrepreneurial	Creativity	Learning	Energize	Engage	Enable	Employees	Assets	Company age	Employee age	ROA
Ambidexterity	1																
Explore	.783*	1															
Exploit	.937**	.517	1														
Innovation Quotient	.819*	.650	.765*	1													
Values	.628	.618	.517	.917**	1												
Behaviors	.825*	.654	.770*	.966**	.919**	1											
Entrepreneurial	.464	.584	.311	.829*	.953**	.776*	1										
Creativity	.638	.499	.595	.903**	.957**	.878*	.903**	1									
Learning	.690	.663	.579	.909**	.965**	.963**	.861*	.880*	1								
Energize	.843*	.623	.812*	.969**	.913**	.990**	.769*	.912**	.935**	1							
Engage	.618	.447	.609	.842*	.796*	.912**	.639	.694	.896**	.864*	1						
Enable	.875*	.775*	.771*	.945**	.913**	.979**	.782*	.869*	.952**	.974**	.831*	1					
Employees	-.592	-.918**	-.303	-.545	-.508	-.460	-.588	-.391	-.483	-.427	-.252	-.578	1				
Assets	.337	.523	.307	.079	.123	.389	-.202	.010	.411	.321	.499	.417	.985**	1			
Company age	.261	-.005	.352	.546	.619	.467	.624	.804*	.445	.561	.256	.436	.025	-.263	1		
Employee age	.259	-.073	.395	-.240	-.429	-.098	-.668	-.370	-.253	-.075	-.088	-.075	.342	.658	-.372	1	
ROA	.034	-.642	.126	.296	-.026	.082	.067	-.047	-.060	.045	.249	-.075	-.376	-.475	-.074	-.311	1

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

Climate and resources

Pearson Correlations (N = 6)

	Ambidexterity	Explore	Exploit	Innovation Quotient	Climate	Resources	Collaboration	Safety	Simplicity	People	Systems	Projects	Employees	Assets	Company age	Employee age	ROA
Ambidexterity	1																
Explore	.783*	1															
Exploit	.937**	.517	1														
Innovation Quotient	.819*	.650	.765*	1													
Climate	.756*	.519	.756*	.962**	1												
Resources	.858*	.551	.874*	.969**	.938**	1											
Collaboration	.890**	.752*	.808*	.967**	.935**	.937**	1										
Safety	.650	.294	.734*	.905**	.958**	.922**	.821*	1									
Simplicity	.592	.361	.621	.873*	.965**	.831*	.819*	.951**	1								
People	.872*	.581	.875*	.968**	.930**	.992**	.926**	.915**	.829*	1							
Systems	.884**	.625	.869*	.980**	.967**	.985**	.968**	.918**	.875*	.985**	1						
Projects	.788*	.458	.829*	.920**	.876*	.972**	.889**	.877*	.748*	.939**	.927**	1					
Employees	-.592	-.918**	-.303	-.545	-.465	-.384	-.618	-.241	-.400	-.441	-.502	-.229	1				
Assets	.337	.523	.307	.079	-.034	.204	.262	-.074	-.250	.097	.108	.396	.985**	1			
Company age	.261	-.005	.352	.546	.480	.583	.326	.653	.483	.624	.505	.555	.025	-.263	1		
Employee age	.259	-.073	.395	-.240	-.241	-.039	-.090	-.233	-.377	-.074	-.083	.033	.342	.658	-.372	1	
ROA	.034	-.642	.126	.296	.556	.203	.346	.487	.717	.197	.340	.085	-.376	-.475	-.074	-.311	1

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).

Processes and success

Pearson Correlations (N = 6)

	Ambidexterity	Explore	Exploit	Innovation Quotient	Processes	Success	Ideate	Shape	Capture	External	Enterprise	Individual	Employees	Assets	Company age	Employee age	ROA
Ambidexterity	1																
Explore	.783*	1															
Exploit	.937**	.517	1														
Innovation Quotient	.819*	.650	.765*	1													
Processes	.902**	.728	.838*	.954**	1												
Success	.866*	.693	.801*	.926**	.927**	1											
Ideate	.619	.367	.646	.796*	.808*	.883**	1										
Shape	.936**	.760*	.868*	.888**	.979**	.860*	.707	1									
Capture	.875*	.841*	.737*	.923**	.936**	.827*	.580	.935**	1								
External	.849*	.700	.774*	.897**	.907**	.997**	.890**	.839*	.798*	1							
Enterprise	.874*	.647	.837*	.807*	.873*	.961**	.880*	.833*	.715	.971**	1						
Individual	.781*	.667	.702	.987**	.907**	.920**	.757*	.825*	.905**	.893**	.780*	1					
Employees	-.592	-.918**	-.303	-.545	-.648	-.630	-.449	-.652	-.697	-.661	-.606	-.555	1				
Assets	.337	.523	.307	.079	.015	-.176	-.502	.164	.415	-.260	-.262	.086	.985**	1			
Company age	.261	-.005	.352	.546	.367	.625	.686	.197	.216	.621	.553	.602	.025	-.263	1		
Employee age	.259	-.073	.395	-.240	-.107	-.190	-.358	.053	-.093	-.210	-.036	-.302	.342	.658	-.372	1	
ROA	.034	-.642	.126	.296	.484	.186	.522	.485	.246	.184	.205	.143	-.376	-.475	-.074	-.311	1

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).

Appendix C: Partial correlations

Controlling for Employees

Correlations (N = 6)

Control Variables		Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Climate	Resources	Processes	Success	Employees
-none-[a]	Ambidexterity	1.000										
	Explore	.783	1.000									
	Exploit	.937	.517	1.000								
	Innovation Quotient	.819	.650	.765	1.000							
	Values	.628	.618	.517	.917	1.000						
	Behaviors	.825	.654	.770	.966	.919	1.000					
	Climate	.756	.519	.756	.962	.804	.895	1.000				
	Resources	.858	.551	.874	.969	.846	.958	.938	1.000			
	Processes	.902	.728	.838	.954	.775	.897	.951	.928	1.000		
	Success	.866	.693	.801	.926	.814	.844	.868	.910	.927	1.000	
	Employees	-.592	-.918	-.303	-.545	-.508	-.460	-.465	-.384	-.648	-.630	1.000
Employees	Ambidexterity	1.000										
	Explore	.747	1.000									
	Exploit	.987	.631	1.000								
	Innovation Quotient	.734	.452	.751	1.000							
	Values	.471	.445	.443	.886	1.000						
	Behaviors	.772	.659	.746	.961	.896	1.000					
	Climate	.674	.262	.729	.955	.745	.866	1.000				
	Resources	.848	.541	.861	.981	.818	.953	.929	1.000			
	Processes	.845	.439	.884	.941	.679	.886	.964	.966	1.000		
	Success	.787	.371	.825	.896	.739	.805	.836	.932	.877	1.000	

a. Cells contain zero-order (Pearson) correlations.

Controlling for Assets

Correlations (N = 6)

Control Variables		Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Climate	Resources	Processes	Success	Employees
-none-[a]	Ambidexterity	1.000										
	Explore	.783	1.000									
	Exploit	.937	.517	1.000								
	Innovation Quotient	.819	.650	.765	1.000							
	Values	.628	.618	.517	.917	1.000						
	Behaviors	.825	.654	.770	.966	.919	1.000					
	Climate	.756	.519	.756	.962	.804	.895	1.000				
	Resources	.858	.551	.874	.969	.846	.958	.938	1.000			
	Processes	.902	.728	.838	.954	.775	.897	.951	.928	1.000		
	Success	.866	.693	.801	.926	.814	.844	.868	.910	.927	1.000	
	Employees	.337	.523	.307	.079	.123	.389	-.034	.204	.015	-.176	1.000
Assets	Ambidexterity	1.000										
	Explore	.756	1.000									
	Exploit	.931	.440	1.000								
	Innovation Quotient	.844	.717	.781	1.000							
	Values	.627	.655	.508	.917	1.000						
	Behaviors	.799	.574	.743	1.000	.953	1.000					
	Climate	.816	.630	.806	.968	.815	.986	1.000				
	Resources	.857	.532	.871	.976	.845	.974	.966	1.000			
	Processes	.953	.845	.876	.956	.779	.967	.952	.945	1.000		
	Success	.998	.935	.912	.958	.855	1.000	.876	.981	.944	1.000	

a. Cells contain zero-order (Pearson) correlations.

Controlling for Company Age

Correlations (N = 6)

Control Variables		Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Climate	Resources	Processes	Success	Employees
-none-[a]	Ambidexterity	1.000										
	Explore	.783	1.000									
	Exploit	.937	.517	1.000								
	Innovation Quotient	.819	.650	.765	1.000							
	Values	.628	.618	.517	.917	1.000						
	Behaviors	.825	.654	.770	.966	.919	1.000					
	Climate	.756	.519	.756	.962	.804	.895	1.000				
	Resources	.858	.551	.874	.969	.846	.958	.938	1.000			
	Processes	.902	.728	.838	.954	.775	.897	.951	.928	1.000		
	Success	.866	.693	.801	.926	.814	.844	.868	.910	.927	1.000	
	Employees	.261	-.005	.352	.546	.619	.467	.480	.583	.367	.625	1.000
Company age	Ambidexterity	1.000										
	Explore	.812	1.000									
	Exploit	.936	.554	1.000								
	Innovation Quotient	.836	.779	.730	1.000							
	Values	.615	.791	.407	.880	1.000						
	Behaviors	.823	.743	.732	.960	.907	1.000					
	Climate	.745	.594	.715	.953	.736	.864	1.000				
	Resources	.900	.681	.879	.956	.760	.954	.923	1.000			
	Processes	.898	.784	.814	.967	.750	.882	.950	.945	1.000		
	Success	.932	.891	.795	.895	.697	.800	.829	.860	.961	1.000	

a. Cells contain zero-order (Pearson) correlations.

Controlling for Employee Age

Correlations (N = 6)

Control Variables		Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Climate	Resources	Processes	Success	Employees
-none-[a]	Ambidexterity	1.000										
	Explore	.783	1.000									
	Exploit	.937	.517	1.000								
	Innovation Quotient	.819	.650	.765	1.000							
	Values	.628	.618	.517	.917	1.000						
	Behaviors	.825	.654	.770	.966	.919	1.000					
	Climate	.756	.519	.756	.962	.804	.895	1.000				
	Resources	.858	.551	.874	.969	.846	.958	.938	1.000			
	Processes	.902	.728	.838	.954	.775	.897	.951	.928	1.000		
	Success	.866	.693	.801	.926	.814	.844	.868	.910	.927	1.000	
	Employees	.259	-.073	.395	-.240	-.429	-.098	-.241	-.039	-.107	-.190	1.000
Employee age	Ambidexterity	1.000										
	Explore	.832	1.000									
	Exploit	.941	.596	1.000								
	Innovation Quotient	.940	.654	.964	1.000							
	Values	.847	.652	.827	.928	1.000						
	Behaviors	.884	.652	.885	.976	.975	1.000					
	Climate	.873	.518	.954	.960	.800	.902	1.000				
	Resources	.900	.550	.969	.989	.918	.959	.957	1.000			
	Processes	.968	.726	.964	.962	.811	.896	.959	.930	1.000		
	Success	.965	.694	.971	.924	.826	.845	.863	.920	.929	1.000	

a. Cells contain zero-order (Pearson) correlations.

Controlling for Return on Assets

Correlations (N = 6)

Control Variables		Ambidexterity	Explore	Exploit	Innovation Quotient	Values	Behaviors	Climate	Resources	Processes	Success	Employees
-none-[a]	Ambidexterity	1.000										
	Explore	.783	1.000									
	Exploit	.937	.517	1.000								
	Innovation Quotient	.819	.650	.765	1.000							
	Values	.628	.618	.517	.917	1.000						
	Behaviors	.825	.654	.770	.966	.919	1.000					
	Climate	.756	.519	.756	.962	.804	.895	1.000				
	Resources	.858	.551	.874	.969	.846	.958	.938	1.000			
	Processes	.902	.728	.838	.954	.775	.897	.951	.928	1.000		
	Success	.866	.693	.801	.926	.814	.844	.868	.910	.927	1.000	
	Employees	.034	-.642	.126	.296	-.026	.082	.556	.203	.484	.186	1.000
ROA	Ambidexterity	1.000										
	Explore	1.000	1.000									
	Exploit	.941	.786	1.000								
	Innovation Quotient	.847	1.000	.768	1.000							
	Values	.629	.785	.525	.968	1.000						
	Behaviors	.825	.926	.769	.989	.925	1.000					
	Climate	.888	1.000	.832	1.000	.986	1.000	1.000				
	Resources	.870	.907	.873	.972	.869	.964	1.000	1.000			
	Processes	1.000	1.000	.895	.970	.900	.983	.938	.968	1.000		
	Success	.875	1.000	.798	.928	.834	.847	.936	.906	.973	1.000	

a. Cells contain zero-order (Pearson) correlations.