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Organisational ambidexterity in IT organisations:

A study of Barriers and Strategies

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Abstract

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The purpose of this study was to explore what barriers exists in an IT organisation, to reach the state of organisational ambidexterity and what strategies can be used to overcome these barriers. Viewpoints covered in this research is focusing on how exploitation and exploration is perceived in an IT organisation and what impediments there are, mainly for exploration, as the outcome of the research showed that IT organisations are more exploitation oriented. Aspects as agility and alignment are also discussed, as these subjects were found to be interesting and the lack of them hindered exploration. The research was inspired by my own professional experience that IT organisations are being very exploitation oriented and by the question: why IT, most often, is not seen as an innovation partner by the business organisation.

The research was conducted as a qualitative case study, where the data was collected through seven interviews with six different interviewees. The findings lead to the formulation of three statements around the barriers for exploitation. Incentives focus around reducing costs, the lack of knowledge of each other’s organisations and the way the IT organisation is perceived, were identified as barriers for exploration. The findings also culminated into three statements around strategies or solutions for how to reach organisational ambidexterity. The strategy that was used, could be identified as structural ambidexterity and was chosen because of the possibility to have new solutions in form of an agile work approach, new KPI’s and a separate budget. The structural ambidexterity strategy was found to have some flaws in form of becoming too detached from the traditional IT operations.

Based on the findings it is concluded that the structural ambidexterity approach can work successfully for an IT organisation, but that it comes with its own problems and that the exploration efforts are still minimal, because of the traditional IT operations tasks will always play a big part of the IT organisations activities, which will be exploitation oriented.

Keywords: Ambidexterity, exploitation, exploration, IT organisation

Table of Contents

1. INTRODUCTION

1.1 Background

New evolving technology creates turbulent changes in the world, which leads to unpredictable business environments, where change is rather a rule than an exception (Kotter, 2007). New technology enables new emerging markets, which are more global, fast paced and competitive. This leads to internal organisational processes become more complex and different demands clash (Lewis, 2000). In an uncertain business climate, it gets harder and harder to predict the future. Planning and forecasting, what actions are needed, are becoming increasingly difficult and more inaccurate, when based on long and stable operations, which is rarely the case for most of the industries today (Ries, 2011).

Christensen (1997) argued that there are many leading organisations that have failed to adapt to the turbulent market, as they haven't been able to adjust themselves to emerging disruptive technologies. Successful companies often end up in a "success trap", where wrong decisions are made and demands are not met, which lead to eventual failure. Successful companies often strive to maintain a steady growth mainly through operational efficiency and a steady flow of innovations. Even through various efforts, executives often have a great challenge creating the required margins, in almost-none-existing-markets, which is often the case with emerging technology. This leads to companies focusing more on operational efficiency than on innovation (Christensen, 1997).

Today's large companies are expected to maintain the flexibility and the ability to innovate, as smaller companys do, but also to grow and become more profitable through operational efficiency (Gavetti & Levinthal, 2000; Miles & Snow, 1978). March (1991) argued that organisational adaption is rooted in balancing exploratory and exploitative activities. Maintaining a balance between exploration and exploitation is frequently discussed in business literature as it creates paradoxical challenges for organisations. In order to maintain balance between exploitation and exploration, companies need to achieve a state of organisational ambidexterity, a term that is used for handling paradoxical challenges in companies (March, 1991). In order to achieve sustained performance, organisations must focus on creating efficiency in the daily work as well as innovative solutions for the future (Smith & Tushman, 2005).

The problem with maintaining balance between exploration and exploitation is mainly because they require different capabilities and most often contradicts each other. Too much exploitation creates dynamical unimaginative environments, which prevents exploration (Sull, 1999; Benner & Tushman, 2002). Similarly, too much focus on exploration prevents companys to be as efficient as possible, which leads to not fully capitalising on existing services and products (He & Wong, 2004). Creating innovative solutions or products may cannibalise on already existing products (D'Aveni, 1994). Exploration and exploitation is also often competing with one and another for internal resources (March, 1991) as well as requiring different organisational capabilities (Flynn & Chatman, 2001).

The above mentioned issues culminate into a paradox, where organisations struggle with the contradictory demands in order to survive. A paradoxical tension is defined by Smith and Lewis (2011) as elements that seem logical individually, but are inconsistent when they are combined. Balancing exploitation and exploration is referred to, as the organisational ambidexterity problem (Raisch et al 2009).

The paradoxical challenges regarding exploitation and exploration has been around for a while. But as new markets and innovations are often somehow based on IT, the business organisation becomes more dependent on IT (Information Technology) and the company's IT organisation (Pavlou & El Sawy, 2010). This requires companies to think what capabilities are needed, in form of IT-dependent strategic efforts, which can address today's and tomorrow's business needs (Gregor et al. 2006; Piccoli & Ives 2005; Ross et al. 1996). In general terms, technology has provided the means for organisations to transform labour, capital, materials and information into products or services of increased value (Christensen, 1997) and in today's business climate information has become a major part of that increased value. Organisations therefore invest in IT, to improve the efficiency of their existing operations (exploitation) and to become more innovative by supporting the development of new products and processes (exploration) in order to retrieve the value out of technology (Xue et al., 2012).

If organisations can understand and overcome the barriers of disruptive technology and the need of balancing exploration and exploitation, they can succeed spectacularly when confronted with disruptive technological change (Christensen, 1997).

1.2 Research purpose and questions

According to my research, the required capabilities to balance innovation and efficiency specifically for IT organisation, is a rather unexplored area. However, research regarding alignment and agility is discussed as enablers for flexibility and ease company resource allocation between exploration and exploitation activities.

The purpose of this thesis is to increase our understanding of, how a global manufacturing organisation's IT organisation deals with exploitative and explorative initiatives. The thesis focuses on, whether the case study organisation's IT organisation is ambidextrous or not and if any strategies have been employed to achieve the state of organisational ambidexterity.

The estimated contribution of this thesis is to increase our understanding of, what capabilities an organisation must have in their IT organisation, in order to become more organisational ambidextrous. In order to find out what capabilities are needed, specifically in IT organisations, the existing strategies and problems for reaching organisational ambidexterity, will be researched.

Therefore, this thesis aims to answer the following two research questions:

1) *What barriers exists for balancing exploration and exploitation in IT organisations?*

2) *What strategies can be used for removing the barriers of balanced exploration and exploitation in IT organisations?*

1.3 Scope and limitations

In the literature, the definition of organisational ambidexterity is defined broadly. There is also a lot of research on different capabilities for reaching a balance between exploitation and exploration and achieving organisational ambidexterity. This thesis does not delve into all of the research areas, like leadership and cultural capabilities. It merely focuses on giving a holistic view of the most common capabilities and strategies for reaching organisation ambidexterity.

There is not much research available regarding organisational ambidexterity, specifically connected to IT organisations. That is why, a holistic perspective of organisational ambidexterity is used, rather than delving into details regarding which different capabilities organisations in different markets and seizes have used earlier.

2 Literature review

2.1 Organisational ambidexterity - history of concept

Ambidexterity is the state of being mutually adept in using both of your hands equally well at the same time (Oxford dictionaries). Organisational ambidexterity on the other hand, is most often referred to as an organisation's ability to be efficient in its current business environment and simultaneously cope and adapt to changing demands. In order to achieve the state of organisational ambidexterity, company's need to figure out what capabilities are needed and invest in them to achieve a balance between exploration and exploitation (March, 1991; O'Reilly & Tushman, 2011; Eriksson, 2012). One of the most central problems in organisations and in the organisational ambidexterity theory is to create a balance between exploitation and exploitation (Kuran, 1988; Raisch et al. 2009)

The term organisational ambidexterity was coined by Duncan (1976), which has been further researched and developed by several scholars, particularly by March (1991). Organisational ambidexterity is achieved by being creative and adaptable (exploration), but also being more efficient at the same time (exploitation). Exploration include variation in risk taking, experimentation, discovery and innovation. Whereas Exploitation include refinement, efficiency, implementation and execution (Duncan, 1976; March 1991).

The term organisational ambidexterity is based on the belief that organisations' long-term success depends on their ability to exploit current services and products while simultaneously exploring new ways of creating business value. However, this creates a

paradoxical challenge as exploitation and exploration are contradictory to one and another (Raisch et al. 2009). Companys that are too focused on exploration usually comes up with a lot of new business solutions but face the risk of not refining any idea and not creating anything of value. Organisations that are too focused on exploitation on the other hand may create short-term value on existing products and services, but are incapable to compete with upcoming new technologies and services (Levinthal & March 1993; March 1991). Earlier studies have concluded that there is a required trade off, when balancing these two requirements, as they compete for the same scare resources in organisations. As a result, organisations have often chosen to focus on one of the two (March 1991).

Reaching a balance between exploitation and exploration is required in order to reach the state of organisational ambidexterity. Later research has developed a different view than March (1991), and do not see that a trade-off is required. Gibson and Birkinshaw (2004) suggests that the goals of exploitation and exploration do not need to be seen as contradictory or as a hindrance for the other, rather it's a paradox where both is possible to achieve simultaneously. Gupta et Al. (2006) argue that achieving organisational ambidexterity is dependent on whether the two tasks are treated as competing or complementary aspects, which influences whether a required trade-off is needed or not.

There are several views on how to achieve ambidexterity in organisations. Scholars have not yet reached consensus regarding which one strategy or which capabilities are required to become ambidextrous. Perhaps because there is no single solution, that would fit all organisations. However, there are three strategies that are discussed intensely, how to manage the problem with balancing exploitation and exploration, in order to achieve organisational ambidexterity; structural-, sequential- and contextual ambidexterity. The strategies differ, either they are focused on splitting the exploitation and exploration efforts into two separate initiatives, or they consider how the balance between exploitation and exploration should be created, in cycles or in parallel (Gibson & Birkinshaw, 2004). Structural and contextual strategies will be discussed more thoroughly in the theoretical framing chapter 3.0.

2.2 Exploration and exploitation

Exploitation is defined by oxford dictionaries (2016), as the action of making use of, and benefiting from resources and making use of a situation, to gain unfair advantage. It can also be referred to refinement, efficiency, implementation and execution (March, 1991). The technique can also include incremental innovation, through learning from previous experience (Gupta et al., 2006).

Exploration is defined by oxford dictionary (2016), as the action of exploring an unfamiliar area, through searching and examination. This can be related to March's (1991) definition where he describes exploration as risk taking, experimentation, discovery and innovation. It is important for organisations to invest in both of these techniques; exploring new ways of creating business revenue and at the same time exploiting existing sources and knowledge (Soosay & Hyland, 2008).

Exploration and exploitation in context to organisational ambidexterity is intensely discussed and researched because of the difficulties they present in organisations.

Exploitation and exploration is most often associated and managed through totally different capabilities and prerequisites, as for example competencies, processes and architectures (Smith & Tushman, 2005). The different prerequisites create paradoxical tensions (Janset et al., 2008; He & Wong, 2004), which need to be addressed through different approaches in order to reach the state of organisational ambidexterity (Raisch et al. 2009). Exploitation build on improving and refining the organisation's current and past state, whereas exploration focuses on discovering future possibilities and researching unknown areas (March 1991; Smith & Tushman, 2005). To manage this paradox, companys must strive to use different strategies and have different capabilities, in order to achieve both exploration and exploitation at the same time (Raisch et al. 2009).

Too much exploitation risks companys to get stuck in routines, which can lead to exploitation driving out exploration (Sull 1999, Benner & Tushman, 2003). In the same way, too much exploration prohibits companys to fully return the investment of existing products and services because of not focusing on refinement on existing business solutions (He & Wong, 2004). Allocating resources also becomes a challenge, as exploration and exploitation is often competing with one and another for internal resources (March, 1991).

Gupta et al (2006) argues that both exploration and exploitation are associated with learning and innovation, but not in the same way. Exploitative learning and innovation is obtained and achieved through reuse of existing routines. Explorative learning and innovation is achieved through research and experimenting activities (Baum et al. 2000). Even though exploration and exploitation creates a paradox, as they are contradictory in many ways, both fields can still complement each other's learning and innovation, as exploration enhances existing capabilities and exploitation is often essential in order to discover new opportunities (Katila & Ahuja, 2002; Gibson & Birkinshaw, 2004). If exploitation and exploration is seen in this way, then there is actually not a required trade-off between the two, but they can be seen as complementary to each other (Gupta et al., 2006).

2.3 Paradoxical tensions between exploration and exploitation

As mentioned earlier, it has been stated in organisational science that an organisation's long-term success depends on its ability to exploit its current capabilities, while simultaneously exploring new innovative competencies and business solutions (Levinthal & March 1993, March 1991). Maintaining a balance between exploration and exploitation do present paradoxical challenges, which must be dealt with through different strategies or capabilities, in order to reach the state of organisational ambidexterity.

Understanding the tensions and choices, how to improve the balance between exploration and exploitation, is difficult due to the fact that expected and reached value is rather different, they require different capabilities, and fight for the same resources (March, 1991). The typical difference between exploration and exploitation is made between refinement of an existing service or product and invention of new ones (Winter 1971; Levinthal & March 1981). Resource allocation between the two can create difficulties. Especially motivating resource allocation and budgets for exploration can be difficult as there are rarely certain outcomes of receiving any profit or return on

investment, as exploration refers to working in the unknown (March, 1991; Christensen 1997). This makes it more distant and risky for organisations, which can hinder the balance between exploration and exploitation. An organisations' industry, product or service lifecycle and risk preferences, plays a big part in resource allocation between exploitation and exploration, why the subject of ambidexterity requires even more understanding due to today's rapidly changing environment (March, 1991; Kotter, 2007).

Different scholars have different opinions on what the definition organisational ambidexterity consist and how to achieve it. There has been a lot of research covering the tensions of organisational ambidexterity from different angles. Raisch et al. (2009) research covers four different central tensions of what can be classified as organisational ambidexterity as many of the theories have their own shortcomings. The tensions are differentiation vs. integration, individual vs. organisational, static vs. dynamic, internal vs. external.

2.3.1 Differentiation vs. integration

Differentiation and integration refers to whether organisational ambidexterity is achieved through different or individual firm units. In differential ambidexterity, exploitative and explorative activities are performed in different units, whereas integration refers to exploitation and exploration work performed in the same unit (Raisch et al. 2009).

Researchers criticises differentiation in the sense that exploration and exploitation have to be recombined in order to create value (Eisenhardt & Martin, 2000; O'Reilly & Tushman, 2008; Teece, 2007). Differentiation hinders knowledge sharing between different units as well (Gilbert, 2006). Raisch et al (2009) criticises that having differentiated units with different capabilities, do not meet the requirements of organisational ambidexterity, as they are in separate units.

On the other hand, scholars also argue that integration of exploitative and explorative initiatives do not work in practice as individuals rarely are able to do both simultaneously, which put constrains on them (Raisch et al. 2009). Adler et al. (2009) suggested that organisational ambidexterity is achieved by carrying out both exploitative and explorative initiatives in the same unit, but have individuals rotate between the activities instead of focusing on them simultaneously. However, having integration combined with internal differentiation is seen as a middle ground that does not capture the full value of neither exploitation nor exploitation (Raisch et al. 2009).

Raisch et al. (2009) believes that integration and differentiation could be seen as complementary instead of alternative mechanisms for achieving organizational effectiveness. Though it is hard to combine them as they require different capabilities, where an integration approach could bear the risk of neglecting exploratory activities. A combination of the two would require more managerial attention (Raisch et al. 2009).

2.3.2 Individual vs organisational

Individual and organisational level refers to whether organisational ambidexterity is achieved on an individual or organisational level. The notion of, whether ambidexterity manifests itself on an individual or organisational level, or requires a combination of the

two, has created some discussion. Gibson and Birkinshaw (2004) for example argues that organisational ambidexterity is dependent on the individual's ability to work both exploitatively and explorative. This notion has been challenged as there are scholars that argues that this constrains and creates yet more paradoxical challenges for individuals to choose whether they should work with innovation or efficiency (Smith & Tushman, 2005; Floyd & Lane, 2000). Gupta et al. (2006) further argues that this is a compromise, which doesn't lead to full benefits of exploration and exploitation.

Raisch et al (2009) argues that the individual and organisational approach may be closely interrelated. In order to manifest organisational ambidexterity in the whole company, it requires organisational structures. Managers who are ambidextrous often stimulate employees on an individual level to become more ambidextrous. Becoming truly organizationally ambidextrous, it is very much dependent on the individual's capabilities to work with both explorative and exploitative tasks. Though, ambidexterity on an individual level will have a cumulative effect on the organisation as such (Raisch et al 2009)

2.3.3 Static vs dynamic

The static vs. dynamic perspective refers to whether exploitation and exploration should be carried out in cycles or in parallel. Depending on the industry as well as the market, companies go through periods where they face periods of either changes or stability. There are scholars (Brown & Eisenhardt 1998; Nickerson & Zenger 2002), who have suggested that exploitation and exploration should be carried out in cycles. This is a strategy approach called sequential ambidexterity. Sequential ambidexterity refers to companies having cycles where they constantly change between using resources for exploitation or exploration in the same unit (Burgelman, 2002; Siggelkow & Levinthal, 2003; Benner & Tushman, 2003). Sequential ambidexterity is suitable for slow changing environments where there is no need to have exploratory initiatives all the time (Eriksson, 2012). In sequential ambidexterity, individuals are not pushed to be exploitative and explorative at the same time, instead they are doing it in different phases.

Working sequentially, with exploitation and exploration, doesn't really fit the description of ambidexterity, as exploitation and exploration isn't done simultaneously. Hence managing ambidexterity should be seen as a dynamic-, rather than static activity (Raisch & Birkinshaw, 2008; Gupta et al. 2006).

2.3.4 Internal vs external

Internal and external refers to whether ambidexterity could be achieved internally inside the organisation or by acquiring knowledge and capabilities outside the organisation, through acquisitions or outsourcing for example. This questions, whether an organisation can be classified as ambidextrous, if it is dependent on external knowledge (Raisch 2009).

Raisch et al. (2009) finds that an integration of internal and external competencies may support organisational ambidexterity, but it depends on the firm's ability to integrate these two, to receive the benefits of it. Acquisition or outsourcing for example, might harm strategic integration across different organisations (Benner & Tushman, 2008), as it would require an extensive integration effort from the organisation (Raisch et al. 2009).

Then again, it should be considered a risk to have everything in-house (Eisenhardt & Martin, 2000). Therefore, achieving ambidexterity might require both internal and external knowledge processes (Raisch et al. 2009).

2.5 IT ORGANIZATIONS

2.5.1 IT transformation

Information technology (IT) has developed rapidly during the last decade, which means that, so should the IT organisations. IT organisations should not be viewed as merely a unit that only helps organising, collecting, storing, distributing information and focusing on exploitation, contributing to make existing operation more automated and efficient. Rather, IT have made it possible to actually put the information itself in use, thanks to the new innovations in the field, which can contribute to new business models and services (Zammuto et al 2007). Peppard and Ward (1999) also argue, that the IT organisation has been seen as the unit in the company, whose primary objective is to maintain the operations of the company's technology, in order to support business initiatives. The traditional view of IT, is automating existing work practices, focused on efficiency and cost savings. However, because of the fast development of technology and the possibilities it creates, discussions regarding how to manage IT and its role in companies, has gained momentum (Peppard & Ward 1999). Even though there has been a tremendous evolution in the IT field, organisations have not yet comprehended how to exploit the new existing technologies (Zammuto et al 2007).

Our rapidly evolving world, with its immense changes, requires organisations to become high performing and flexible. To cope with the challenges, the requirements create, companies should consider IT as an important factor. IT shouldn't be seen as only increasing the efficiency in a company, but rather as an innovation enabler, which constantly can help to respond to new customer needs, with IT-enabled products and services. (Mutsaers, van der Zee, Giertz, 1998)

As the need for increasing exploration grows, due to challenges such as unpredictable markets, global competition and shortened product life cycles, business organisations should get help from the IT organisation to address these challenges (Feeny & Willcocks 1998). Rockart et al (1996) suggested that IT organisations must address a combination of organisational arrangement and target achievements. A combination of, alignment between the business organisation and the IT organisation, and a flexible technology base, is seen as crucial. By combining business scope with IT capabilities, companies can discover how IT can support the business strategy, in order to meet the future emerging challenges (Feeny & Willcocks 1998), and achieve both efficient and innovative IT organisations.

2.5.2 Organisational ambidexterity in IT organisations

The balance between innovation and efficiency, or exploration and exploitation, is often discussed as one of the biggest paradoxes in the context of organisational ambidexterity. An ambidextrous organisation would by definition, be able to be both exploitation and exploration oriented, simultaneously (Duncan 1976; March 1991; Gibson & Birkinshaw 2004). As noted before, IT organisations are better known for being focused on efficiency and less on innovation. Thus, one could argue, that IT organisations would need enhanced

capabilities for exploration, in order to create balance and achieve organisational ambidexterity. Earlier studies on organisational ambidexterity mentioned that there is a required trade-off between exploitation and exploration (March, 1991), but lately the discussion has shifted and the trade-off is no longer required, in order to reach organisational ambidexterity (Gibson & Birkinshaw 2004; Cao et al. 2009; Gupta et al. 2006; He and Wong 2004).

The notion of using IT for strategic advantage, for both exploitative and explorative activities, has become commonplace since long (King et al 1989). Though it is rather unexplored what capabilities an IT organisation need to have, or what strategies to use, in order to overcome the challenges of being exploitative and exploratory simultaneously.

3. Theoretical framework

The theoretical framework is used as a guide for what the empirical research has focused on in this study. The theoretical framework begins with discussing the lack of alignment and agility. They were added to the theoretical framework during the empirical research phase, due to the fact that they were brought up consistently. The two have been proven to be problematic when trying to be both efficient and innovative in IT organisations by previous research (Tallon & Ponsonneault, 2011). Further the theoretical framework discusses two strategies of how to achieve organisational ambidexterity, namely structural ambidexterity and contextual strategy. The two strategies where chosen as they are frequently discussed in the previous business literature, and because the case study in this thesis did use a strategy with similarities to the structural ambidexterity approach. The choice of the theoretical framework is further discussed in chapter 5.4.

3.1 Alignment

There is often an existing gap between the IT and the business organisations. IT organisations are often seen as separate units in companies due to lack of alignment (Luftman et al. 2009). One of the reasons for the existing gap between the business and IT, is that IT organisations are identified as merely responsible for keeping the company's computing systems running, whereas today IT could play a critical role in a company's' business strategy (Peppard & Ward, 1999). The gap between business and IT often creates a frustration for senior management who are continuously disappointed with the benefits and value, as they do not understand the investments and value of IT (Peppard & Ward, 1999).

In order to close the gap, business managers must realise what benefits IT can offer the companies (Boynton et al., 1992; Dutta, 1996, Earl, 1989; Keen, 1993; Ward & Griffiths, 1996), and that the traditional IT roles within a company need to get more business oriented (Bashein & Markus, 1997; Ross et al, 1996).

Already in 1994, Kettinger (1994) proposed the need of analysing competitive advantage payoffs of IT in order to capture the value of emerging technologies and put it to use in business strategies. This requires companies to establish well-planned organisational infrastructures that enables exploration. Powell and Dent-Micallef (1997) stated that IT shouldn't be seen as an individual organisation, but needs to be better integrated in

several other organisations in the company in order to get the most out of the IT investments. Mata et al. (1995) discussed that in order to achieve competitive advantage through IT, a required focus on managing IT within a company is more important than IT per se. Companies with high performing IT organisations are rarely the most technical savvy, rather they are aware how to manage their IT activities well across the whole company (Dvorak et al., 1997).

In order to get supportive initiatives for IT, understanding for both business and IT is important in executive positions. If business managers do not share the same values as IT managers, there is a fairly good chance that companies do not see IT as a strategic asset. Likewise, if the IT managers do not understand the business they are working in, they can't produce the required value of IT (Peppard & Ward, 1999). There is often little agreement as to what the IT executive's role is, in a company (Price Waterhouse, 1993). This can be identified in articles regarding new executive positions today, as for example Chief Digital Officer (Woods, 2014), where companies have not decided, should the digitalization be driven by the IT or the business executive. Even so, there is a fairly good consensus that the IT executive's ability to maintain and build relationships across the company is seen as a crucial attribute (Mata et al., 1995; Ross et al., 1996; Venkatraman, 1997) and that the role of the IT executive has shifted from managing a technical portfolio to a relationship portfolio (Venkatraman & Loh (1994).

Tallon and Pinsonneault (2011) argues that alignment is a function which enables companies to be more agile and responsive to market-based threats and opportunities. One of the challenges with aligning the IT and business functions, is that it requires understanding of both functions from both parties, in order to reach a two-way strategic alignment between business and technology. The IT organisation must constantly strive to support the business strategy with its changing focus. Likewise, the business side of the organisation must understand how to utilize IT for new ways of doing business and see it as a big part of the business strategy (Tallon & Pinsonneault, 2011). IT is being used for creating cost effective solutions with low unit costs (Pine et al., 1993), but it should also be applied as a transformation function, allowing and supporting new business opportunities (Rayport & Sviokla, 1995).

The research done on alignment between IT and business strategy has shown that it affects profit, productivity, sales growth, reputation positively (Oh & Pinsonneault 2007; Preston & Karahanna 2009; Tallon 2008). For example, operating in the same facilities, creates alignment between business and IT organisations, which makes it easier for companies to react and respond to change (Barki & Pinsonneault 2005; Lee 2004). This also enables an agile environment, with improved communication and higher increase of adaptiveness and innovation (He & Wong 2004; Lavie & Rosenkopf 2006; Zahra & George 2002).

3.2 Agility

The amount of time a company can count on having the best work methods and products is shrinking, even for the most innovative companies. In order to stay competitive, companies need to adapt a mind-set of learning-by-doing and continuously focus on identifying the next steps. Tallon and Pinsonneault (2011) argues that, the greater improbability in global markets, with its constantly changing demands, have made companies consider their ability to respond to change. Agility, is defined as the ability to

quickly and easily detect and respond to opportunities and threats and has emerged as a key capability (Tallon & Pinsonneault, 2011). Likewise, He and Wong (2004) argued that agility can in fact help companies to recognise new uses for existing IT resources or how companies can combine IT resources with non-IT resources in new innovative ways.

Feeny and Willcocks (1998) argues that it is increasingly important for IT organisations to create value, through capitalizing on the external markets. This requires a flexible and change enabled IT organisation. The business life cycle of IT organisations has changed from decades to only a few years or less. This creates a demand for IT organisations to become more flexible in order to be open to changing demands from the business side of the organisation (Feeny & Willcocks 1998).

Jarvenpaa and Ives (1994) argued that companies may downplay the need for change and fail to be agile, as they already have invested in capabilities for efficient processes and status quo. This statement collates with previous research, that IT organisations seldom have problems allocating resources for exploitation, rather it's a problem to allocate resources for exploration.

Alignment can be seen as a driver for agility (He & Wong 2004; Kraatz & Zajac 2001; Pinsonneault & Kraemer 2002). Being change-enabled requires coordination across different business units, which eliminates barriers to consensus and fosters flexibility and rapid actions (Pinsonneault & Kraemer 2002). As resource allocation is a challenge for exploitation, agility eases it. Agility promotes knowledge sharing, which creates a better understanding for executives what areas require change, and therefore resources to execute it. Having resources deployed for change, is key in order to execute changes to IT- or business strategy (Tallon & Pinsonneault, 2011).

Agility is however, not only driven or reached through alignment. Factors as flexible IT infrastructure, flexible organisational structure or extensive resource, are essential for creating an agile environment, which can be innovative and rapidly respond to the turbulent market (Meyer 1982; Nohria & Gulati 1996). Companies must also embed a mind-set where working in the unknown, with incomplete information and taking risky decisions is allowed (Fichman 2004). When working in uncertainty, agility is seen as a competitive capability to handle uncertainty and change. Agility enables companies to uncover new roles of IT (Sambamurthy et al. 2003) and help companies to survive and adapt to change through exploitative initiatives (Ross et al. 2006)

3.3 Structural ambidexterity

The most typical view for addressing the paradoxical challenges that exploitation and exploration creates, is called structural ambidexterity (Duncan 1976; Gibson & Birkinshaw 2004). Structural ambidexterity, is based on the belief that organisational ambidexterity is achieved through dividing an organisation or business unit into two separate units, one for exploitation activities and one for exploration activities (Gibson & Birkinshaw, 2004). In the case of an IT organisation, this would mean that one part of the organisation is focusing on the traditional day-to-day IT operation work, and the other one is focusing more on R&D work, concentrating on emerging technologies and new markets.

Structural ambidexterity could be divided into several units. For example, every new business development initiative could be divided into new separate units. In this way, organisations ensure that each unit is configured to focus on its own tasks and needs. This however, creates even more need for coordination and undermines alignment and integration between the different units (Gibson & Birkinshaw, 2004). In the case of an IT organisation, this could mean that new products or services that are developed by an exploration unit are hard to transfer to an operations unit, if there has not been any coordination between the two in the past.

When applying structural ambidexterity, it is easy to find the different units misaligned (Gibson & Birkinshaw, 2004). Therefore, when separating exploitative and explorative activities into different structural units, there is a need for appropriate governance and alignment in order to fully achieve the advantages from the strategy (O'Reilly & Tushman, 2011; Raisch et al., 2009; O'Reilly and Tushman, 2004). The required governance and coordination creates a need for managerial supervision, where managers need to monitor, which unit requires additional resources. This leads to additional coordination costs what contextual ambidexterity tries do address (Gibson & Birkinshaw, 2004), which is discussed in the next chapter.

3.4 Contextual ambidexterity

Another strategy for handling the paradoxical challenges, which exploitation and exploration creates, is called contextual ambidexterity. Unlike structural ambidexterity, where exploitation and exploration initiatives are divided into different units, contextual ambidexterity is achieved in the same unit on an individual level. Gibson and Birkinshaw (2004) explains Contextual ambidexterity as one business unit that is able to work simultaneously towards the same goals in an efficient way as well as being able to adapt and quickly meet the demands in a changing environment.

Gibson and Birkinshaw (2004) clarifies that contextual ambidexterity requires individuals to achieve ambidexterity through allocating their own time between exploitation and exploration, based on their own judgement. The contextual ambidexterity requires systems and processes to be in place in order to reach a certain maturity in the organisation, which can take time to achieve. Though, if this can be achieved an organisation avoids the coordination costs, which appears in structural ambidexterity. There are no given governance rules how to apply this, rather the responsibility is shifted from an organisational level to an individual level. Therefore, getting the contextual ambidexterity strategy to work, much depend on the company's culture and the organisational context the individuals work in (Gibson & Birkinshaw, 2004). Gibson and Birkinshaws (2004) base their thoughts on the definition of organisational context, developed by Ghoshal and Bartlett (1994), where key elements, such as discipline, stretch support and trust, is needed within the company to make it work. These key elements are needed in order to encourage individuals to work with both exploitative and explorative activates and reach a balance between these two, which would result in contextual ambidexterity.

The key benefit of contextual ambidexterity is that every individual in a certain business unit can deliver value to a product or service by doing the daily work more efficient, but is also constantly looking for changes that can improve the product or service, without

any coordination costs. Contextual ambidexterity could be seen as complementary to structural ambidexterity as it creates a working environment that encourages individuals to think whether exploitation or exploitation is needed (Birkinshaw & Gibson, 2004).

5. Method

This chapter focus is on explaining the research methodology chosen and how the research was conducted.

5.1 Scientific approach

This thesis tries to answer the research questions:

a) What barriers exists for balancing exploration and exploitation in an IT organisation and
b) What strategies can be used for resolving the barriers of balancing exploration and exploitation in an IT organisation.

In order to answer the questions, the study was designed as an exploratory qualitative case study. A qualitative case study involves analysing low structured data, such as through interviews (Patel & Davidson, 2011). The qualitative research approach was considered necessary in order to get a well-adjusted representation of the complexity associated with the thesis problem area. It also gives the opportunity to identify details, which generates a better understanding of the problem area, which is not as easily done in a qualitative research. To get a well-adjusted representation of the problem area the empirical material should be collected from various resources (Yin, 2003), which is done in this study. It was also considered the best possible way in order to identify nominally defined substances for the problem area. As Jacobsen (2002) states that a qualitative research approach is suitable when the interviewer needs a deeper understanding for a problem, but on the expense of generalizability.

5.2 Case study

The company used for this case study is a leading global producer of industrial equipment. The products are sold under several different brands via dealers and retailers to consumers and professionals in more than 100 countries. The company has a long history of being able to change their business model in order to stay competitive in the ever changing business landscape.

The company identifies itself as an efficient, non-bureaucratic organization with short decision-making paths that enable rapid response to changing market needs. Employees at all levels are encouraged to participate actively in the company's development.

The company is organised as a brand-driven organisation with four separate reporting business divisions. Each division has its own president, who in turn reports to the president and CEO of the group. Each of the four division presidents is responsible for the income statement and balance sheet for his/her respective division. However, all decisions made by a division are subject to the group's overall strategic goals, group policies, processes, instructions and guidelines.

The company's IT organisation is driven by the CIO, who reports to the group CFO. The IT organisation is divided into; Architecture, Business engagement for each separate business division, Performance Management and IT Operations. The organisation chart below illustrates the IT organisation, with its key responsibilities.

The IT department has changed from being a decentralized IT organization to a centralized IT organization, which has outsourced the day-to-day operation, and consists of forward-looking competence profile in development and architecture. The IT organization has been reorganized and is focusing on being recognized as a partner to the business were the CIO is driving digital business development that will contribute to the digital products and services. The IT organisation has been forced to evaluate its structure in order to keep up with a digitized, connected future with smart products related to Internet of Things and Big Data.

The idea is to transform the company from a traditional industrial company to a service company. Earlier emphasis has been on optimizing vertically, where the focus has been on efficiency and profitability. The new transformation will mean a change of focus to horizontal integrations, with the ability to work with different actors. In order to maintain momentum, the CIO has commissioned a special unit for digital development that is structured to be at the forefront and be innovative. The new unit works with an agile mind-set within Architecture to remain the driving force of innovation. However, the bulk of the IT Organisation is made up of the IT Operations, were employees work mostly towards the outsourced operation and ensures that the traditional IT works on a daily basis.

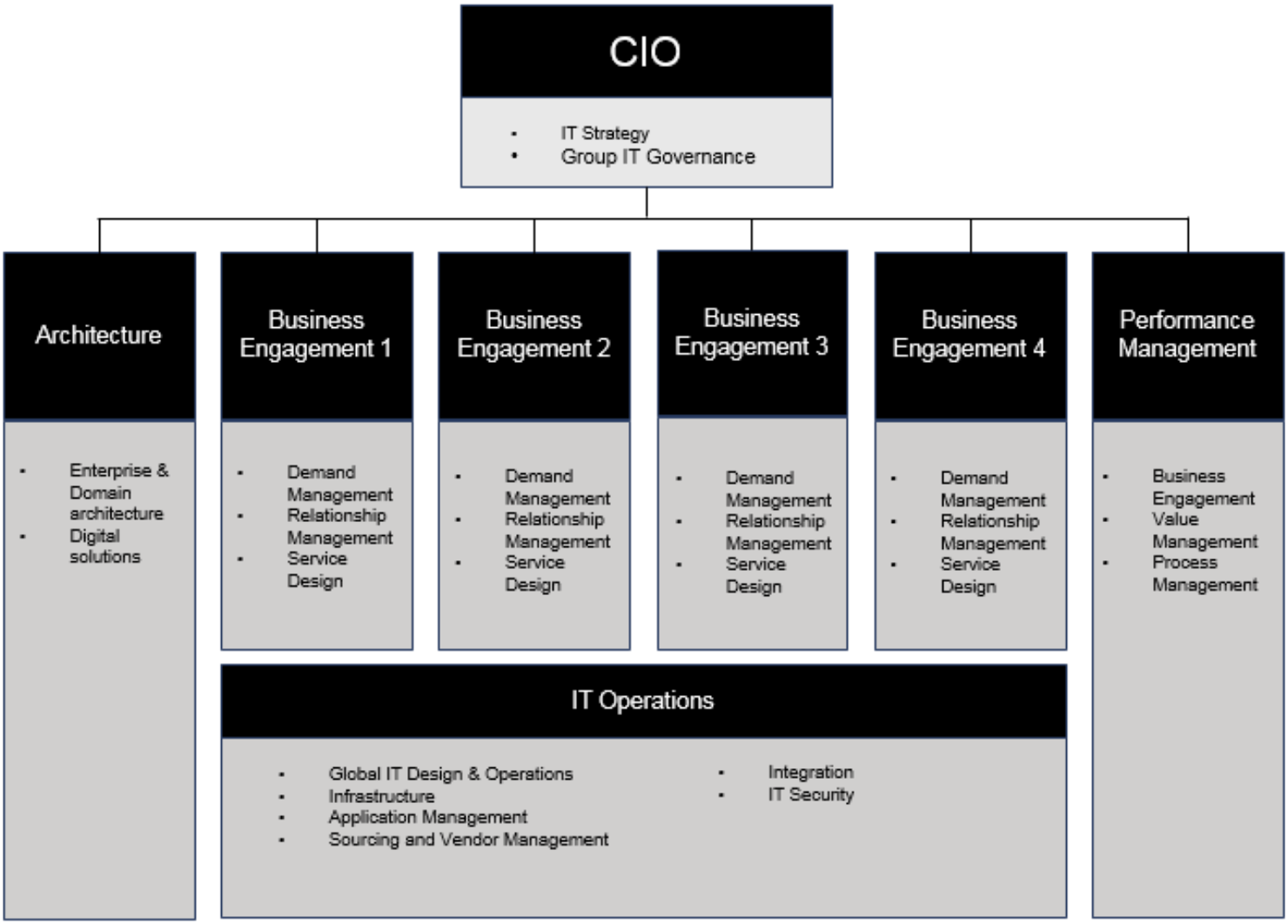

Figure 1

5.3 Selection of case study and interviewees

The case study's IT organisation was chosen based on their new initiatives around digitalisation and their efforts to become an innovation partner with the business organisation. Based on several discussions with the employees at the company, it became obvious that the company could function as good case study as many of the conversations was related to the research area.

The selection of interviewees was made through many discussions with several employees and observations of who could give the best input to the research. In a qualitative research, the interviewer should choose interviewees that are able to give a typical view of the research area (Jacobsen 2002). That is why all the chosen interviewees had had long carriers in IT or businesses related to IT, and worked closely with the CIO of the IT organisation. Jacobsen (2002) states that it is considered important to get a well nuanced picture of the problem area, why the interviewees that were chosen was from

three different units in the IT organisation. The selection of interviewees can be seen in the table 1, and the different divisions can be identified in the figure 1 in the case study chapter 5.3. Based on the discussions with different employees and observations, 'IT operations', 'business engagement' and the 'architecture division' were the most applicable interviewees to the research area, hence 'performance management' was not included in the research.

The title and division names are changed to indicative names in order to maintain the anonymity of the interviewees

Indicative title	Work description	Indicative Division
Digital Manager	Responsible for the new 'innovation division' within architecture	Architecture
Digital communicator	Responsible for the communication around the new 'innovation division', working closely with the CIO	CIO office / Architecture
Business Engager	Responsible for IT related business requirements for one of the business divisions	Business division X
Sourcing Manager	Responsible for managing different external IT suppliers	IT Operation
Service Manager	Responsible of various business related IT systems and applications	IT Operation
Service Enabler	Responsible of managing external and internal IT services	IT Operation

Table 1

5.4 Data collection methods

In order to create good interview questions, a literature study was carried out. The literature study included previous research of organisational ambidexterity, focusing on the problems and strategies regarding the balance between exploitation and exploration. This aligned with Patel and Davidson (2011) claim, that it is important to have the right knowledge before interviews are conducted. The interview questions were formed by making a distinction between exploitation and exploration by simplifying them as efficiency and innovation. This seemed necessary because of the respondents where rather unfamiliar with the two concepts.

The interviews were conducted in semi-structured fashion, which was formed through Patel and Davidsons (2011) guidelines. This gave the interviewee the opportunity to answer the questions in an open way, but based on the research area. One of the reasons for the semi-structured interviews was to get a good understanding of the research area without influencing the interviewee without any preconditions.

The interviews took as long as needed, but usually took between one and one and a half hour. The number of interviewees was six and the number of interviews was seven. There was a need to interview one of the respondents a second time, in order to get a better understanding for new empiric material that had come up during interviews with the other respondents. After the seven interviews, a lot of the empiric evidence had been repeated, which showed that there were clear patterns. The interviews had given a fairly good understanding of the barriers and strategies for achieving organisational ambidexterity in the case study company's IT organisation. Jacobsen (2002) stated that if multiple respondents describes the same thing, it's a sign of credibility for the research.

5.4 Data analysis method

All the seven interviews were recorded through a smart phone device. Recording gives the opportunity to capture the informant's perceptions and interpretations, while smoothly keeping the conversation going (Patel & Davidsson 2011). The interviews took place at the case company and were transcribed afterwards in their original languages. After every interview session, the interview questions where modified if needed in order to pinpoint new topics of interest.

In order to analyse the material, the collected raw data was thematised, using the theoretical framework. The theoretical framework was first formed around the two concepts structural and contextual ambidexterity. This framework was modified with added themes, such as alignment and agility as they were so reoccurring during the interviews. The raw data from the interviews was thoroughly investigated in order to find patterns. The found patterns were divided into the four themes of the theoretical framework. The framework provided a better structure for further analysis. Raw data that found no connection to the framework or the research questions was excluded from the results.

From the different themes, citation was handpicked, which where most interesting and analysed further. The citations based on the theoretical framework is presented in the results section and discussed further in chapter 7. The interviews were conducted in Swedish and the citations used in this thesis is freely translated to English afterwards.

6. Results

This chapter presents the empirical research results. The results are categorized based on the theoretical framework, divided into chapters connected to alignment, agility, structural- and contextual ambidexterity. The alignment and agility chapters, will present challenges regarding how an IT organisation could become more exploration oriented. The structural- and contextual ambidexterity chapters present how and whether these specific strategies work in the case firm's IT organisation. All the results are described in a current state. The challenges presented in chapter 6.1 and 6.2 are still occurring, despite the strategies discussed in chapter 6.3 and 6.4.

6.1 Alignment

All the interviewees agreed that, there is a gap between business divisions and the IT organisation, and that both organisations have a poor understanding of each other. **The Business Engager** brought up an example, where a business division had made a decision to shut down a factory before informing the IT organisation. In fact, it did not contact the IT organisation before something had already gone wrong. It is evident, that the IT organisation is often forced to build solutions that meets the business division's deadline, instead of creating good and solid solutions.

> *"We are not likely to build a solution that is optimal either from an efficiency or innovation perspective, we are forced to build a solution that meets the timing. This is very typical when making business decisions. So from this perspective, I would say that we have a business that is very ignorant when it comes to IT" –* ***Business engager***

However, the **Business Engager** continued by saying that the business divisions are not the only one to blame, the IT organisation also lacks the competence and understanding of how to proactively come up with good solutions. With the current knowledge of the different business divisions, the IT organisation cannot deliver more than standard IT support, except for in certain areas. In order to become an innovation partner, the IT organisation must create a better understanding of the business environment. The **Service Enabler** stated, that this places enormous demands on the IT staff, to have the right knowledge in the different business divisions, and would probably be hard to establish in the short term, considering the current gap between the organisations. There is not only a need to understand the business as it is now, but the IT organisation must also have an idea of what it would look like in the future.

> *"I dare to say that when it comes to most of the business divisions we simply have too little knowledge of these to earn the mandate to come up with innovative solutions. To be able to come in and say that this is something we can do better with poise and confidence, we must have a very good understanding of the business, which we sadly lack today, and that really hinders us becoming an innovation partner". –* ***Business engager***

The **Service Manager's** opinion differed from the two previous respondents above, and she stated that the IT organisation could contribute with more change initiatives, but cannot do so because the business division is not open for suggestions when they come from IT, as the IT organisation has a bad reputation within the business division. In her role, she has identified several issues and improvements from an exploitation and an exploration perspective, but the business division is not open for suggestions, as they argue that the IT organisation do not understand their business. This leads to a situation, where the IT organisation is often only part of the implementation stage of new services and solutions, but not the design stage. The **Digital Manager** agreed with the **Service Manager,** that the business divisions have an unsound view of the IT organisation, which hinders them from becoming more exploration oriented. The root cause of this behaviour is, that today the business divisions often takes things for granted and do not see the value of IT. Many of the IT related solutions that are provided today, are seen as a

commodity, e.g. internet, phones and computers. However, all these still needs to be operated and supported, something that does not show.

> *"It's like the rain sensors on your car, a few years ago most people were ready to pay several thousands of SEK for having it but today the customer becomes disappointed if the car doesn't include it from the beginning"* – ***Digital Manager***

All the respondents agreed, that the lack of time and money have become barriers to exploration and is rooted in misalignment. Today the company has outsourced most of its IT activities, which in turn has led to further misalignment between the two organisations. The **Sourcing manager** claimed that if you create an IT organisation based on a multi-sourcing environment, there is a very high risk that IT falls too far behind from the business. The **Digital Manager** stated that it is really hard to become more innovative, when the company is measuring the IT organisation based on cost savings. Furthermore, the **Service Manager** agreed and thought that the incentives to reduce cost increases, year on year, is a clear sign of the IT organisation being more cost effective-, than innovation driven.

> *"What we usually end up discussing is, how much everything will cost, not whether IT could create something new, or something innovative, or how we can improve the business. If there are expectations on us to innovate we would need time for it. Without time there is no way we can do it"* – ***Service Enabler***

In addition, the **Business engager** thought cost and budget restraints is a problem, as most of the funds given to the IT organisation is meant to be used for operational efficiency. With the current situation, no budget can be reassigned to innovative projects without it having an adverse consequence on the operational IT performance. The bigger part of IT consist of supporting the day-to-day business, why most of the budget is allocated for IT operations. This makes it harder for the IT organisation, to establish themselves as an innovation partner with the business divisions.

> *"From a group perspective, we have a turnover about "X" billion annually. Less than 10% of the turnover can be derived to innovative products or services handled by IT. This is why the focus will fall on traditional IT work because it is what supports most of the traditional sales and what the IT Organisation will get money for."* – ***Business engager***

The lack of alignment has created a view of IT, as solely a support organisation. As the **Service Manager** stated, innovation is rarely promoted in the IT organisation. The main goal for the IT organisation, is to keep the business division happy by keeping systems free from defects and up to date, which does not include innovation. The respondents all agree, that the operation and support is important but, due to the evolution of IT, the boundaries are getting blurred and IT is becoming more important, which should be acknowledged by the business divisions.

> *"From the business side we often hear questions about why the IT organisation should be involved in the product development, as their role is to manage our systems. Then again, we from IT, think of course, that we have*

*the ability to deliver these services because we also manage the operations of them" – **Digital Manager***

Regarding more innovative solutions, many of the respondents commented on the business bypassing the IT Organisation and hiring external competence, something they called "shadow IT". This is goes back to alignment, where the business division, either do not trust the IT organisation or do not know how they operate. This is described as a very controversial issue in the company, as the four different business divisions own their own product development budget, and can operate as they want. It is easy to hire external competence due to internet and connectivity. The **Service Manager** explained, that she has seen the business divisions bring in consultants, with the same knowledge as that of the IT organisation, as the business division prefer taking in external help, instead of using the internal IT organisation.

*"The business wants particular things and they then grab it from shadow IT and maybe 3 or 6 months later it is found out by the IT department. So these guys are really innovating but they are not going through the right processes and channels to make sure if it's approved. But I think the dark side of innovation is something like shadow IT. […] We are living in a time where anyone in business can be innovative because of internet and connectivity. So every person in the business, from the CIO to the janitor can have an influence on innovating in the company and that never existed 5 years ago. The question is if the company is set to handle this mass flow of innovation from everyone. Probably not." – **Digital communicator***

6.2 Agility

All the respondents mentioned that the major part of the IT organisation, the IT operations, has a very sluggish working environment. The **Digital communicator** stated, that the IT operations is struggling to meet and support the business requirements and that it would require a more flexible and agile environment. The **Sourcing manager** thought that the whole sourcing landscape, with its many suppliers, is contradictory to an exploration oriented delivery model, as it most often leads to too long lead times for the business. The traditional IT operations also lacks clear product ownership, or employees who takes ownership of the products or services. Consequently, the IT operations does not have an understanding of what should be designed into the different products and services, and the business division does not understand the costs and lead times. The **Business engager** further explained that an agile development method would allow transparency, cut lead-times and make better solutions.

*"Our traditional IT-delivery model was way too sluggish. The R&D department works with an agile mind-set consisting of 2-3 weeks' sprints, so when they needed a server put up for them, it took ages for the IT organisation to make it happen, because of the external sourcing environment we have. So the R&D sprint would probably have ended before they received what they needed from the IT organisation" – **Digital Manager***

6.3 Structural ambidexterity

The case company started a digitalisation initiative 18 months ago by establishing a new "innovation unit" within the IT organisation. This was mainly driven by the CIO who thought that the new IT unit could resolve some of the problems mentioned in the earlier chapters, which are still today typical for the IT operations. According to the **Digital Manager,** the CIO thought that IT was becoming a bigger part of the company's products and there was a need for having a group working with product related IT. The new unit was started as an incubator separately from the traditional IT operations, as the CIO believed that it needed a free pass to establish its own approach and mind-set. The **Business Engager** elaborated by stating, that the product related IT is much more customer and product focused, which required certain capabilities, which the traditional IT operations lacked, such as agility and closer connection to the business divisions. **The Digital Communicator** stated that the separate unit was an answer to the new problems and requirements the business divisions had.

> *"IT was becoming more and more part of our products and I think our CIO identified a need for having a separate group working on product* related *IT."* ***– Digital Manager***

The **Service enabler** believed that the reasoning behind starting a new separate unit had a lot to do with getting a faster response and more value from the resources that were at hand, instead of trying to change the structures in the traditional IT operations. The **Service Manager** was of the opinion that the creation of the new separate unit had to do with frustrations felt within the business divisions regarding the IT Operations. The IT Operations had created a reputation for not getting things done and were slow to execute changes. This is in alignment with the **Digital Communicators** statement, where he points out, that one of the reasons behind starting the separate unit, was to ensure the business divisions that IT could deliver good solutions. It was also considered important to minimize the bypassing of the IT organisation, which the business divisions was used to do.

> *"The CIO needed to get the different business areas to understand that there is a digital need and requirement, which the IT Organisation can deliver. We can't have silos going off and developing their own technology and things, in that case the 'case firm' will die"* ***– Digital Communicator***

The **Digital communicator** stated that the new separate 'innovation unit" has been successful by contributing with innovations from an IT perspective and has clearly added more business value. Though, the IT organisation is still far from having a balance between exploitation and exploration and the number one priority is still to have an efficient IT delivery. The **Digital manager** believed that the new structure is a way to try to change the balance between exploitation and exploration, which has proven to be successful.

> *"The effects I can see, is that the new IT unit is really innovative and start coming up with ideas as suggesting to the business divisions what we can do with products in the future which really triggers the product owners and they go like "WOW". But as an IT organisation, we have probably a good way to*

go before we have left behind the "cost efficiency brand" we have at the moment" – ***Digital manager***

The **Digital manager** continued explaining that the new IT unit has different Key Performance Indicators (KPI's) compared to IT Operations, which is a clear indication that the business sees them differently than IT Operations. The new KPI's measure the amount of service or product requirements that can be resolved in a way of continuous delivery of innovative solutions. This is contradictory to the traditional KPI's that the IT operations have, which are most often connected to cost-savings.

"If we want to have more explorative activities in the whole IT organisation it should require new KPI's as we have in the net IT unit. Our KPI's are not based on how effective we are, more on continuous delivery of innovative solutions at a faster pace" – ***Digital Manager***

The **Business engager** thought that the new unit has worked so well because it has a separate budget. He thought that having an earmarked budget for innovative IT, and a separate for traditional IT, hinders cannibalisation between the two. However, it has been a challenge to convince the business divisions to get the earmarked budget for innovative IT. The **Digital communicator** thought that the new unit has been able to resolve many of the problems that exists between the business divisions and IT operations. The new unit has taken a lot of time to better understand the requirements in the different business divisions, in order to deliver what they actually want. The close connections to the business has also allowed the new unit to make the business division aware of the value the IT organisation delivers every day. The key factors have been to engage both parties in what they are doing with daily collaboration.

"The IT organisation need to stop licking their own asses every day, you need to really look at the business and see what the hell it is they actually want and acknowledge that. And when we get these two talking to each other, business can communicate to IT which certain projects are really important for them and where they are along the whole lifecycle project and IT can explain changes that are coming up, things that will be down which will hinder business, which allows both parties to prep for their work." - ***Digital communicator***

The new unit has presented many new solutions to the traditional problems derived from misalignment and lack of agility, but it also does have its flaws. The empirical research showed that the new unit is not seen as an IT department and it is rather disconnected from the traditional IT Operations. The **Digital Manager** exemplified that when he is at meetings with the business divisions they see him more as a new R&D unit than IT. The new unit also works as any other business division, placing orders for their services, as integrations to old legacy systems. The **Service Enabler** argued that there is no change at all, between the balance of exploitation and exploration, when looking at the big picture. It is more like a "*financial re-classification"*. The **Service Manager** believed that the new unit has enabled synergies where each organisation is more open to suggestions from both sides but cannot say for sure, as she does not know much about the new initiative. The **Service enabler's** and **Service Manager's** arguments can be seen as a sign of lack of

alignment between the traditional IT operations and the new separate 'innovation unit. Both of them also think that the efforts that has been made are very limited to a small and specific part of the whole IT organisation.

> *"It's not really an IT unit. It is currently under the umbrella of IT but it could definitely within months become its own department which works across the whole organisation. So basically IT Operations will in the future, have another organisation within it, to deal with."* – ***Digital communicator***

Most of the interviewees agrees that creating a new separate unit for exploration activities was the right decision. However, they are unsure how it will work in the future and what challenges it might bring. The **Digital manager** thought that the separate unit works well for now, but as the new unit grows, it might present [new] challenges. There is a clear consensus, that both exploitation and exploration requires different capabilities which means they must operate differently. This requires them to be divided into separate entities as the respondents do not see any other way of doing it. The **Sourcing manager** added, that he believes a lot of the innovation would have been lost if both daily operations and forecasting future solutions would have been carried out in the same unit.

> *"I don't see innovation and efficiency living side by side due to the fact that the capabilities today are so different."* – ***Digital communicator***

The **Business engager** believed that splitting the two into separate entities was a good idea, but they should not be split into two different departments, it is enough to have two separate budgets. The reason for this is that the two departments should not be competing organisations but instead work together towards the same overall objectives.

6.4 Contextual ambidexterity

When the respondents were asked, whether exploitation and exploration could be done in the same unit, they did not see it as a possibility, mainly due to lack of time and resources. It is seen as impossible to focus on exploration with the current immense workload. The **Service Enabler** believed that is was critical to have the exploration done in another unit, if you want to see any real value. If it is expected to do both exploitation and exploration simultaneously, the exploitation part would always be prioritized and exploration undermined. The **Service manager** elaborated by saying that in their company, they are way too focused on "*firefighting*" which indicates resolving problems with the current IT systems. The result of this is, that the created value in their daily work often becomes unseen. A separation of the entities has provided the conditions to work with innovation, as they] do not have to focus on cost savings, firefighting and have the time to work proactively, which is quite the opposite to the IT operations according to the **Service Enabler**.

> *"I mean the problem really is that traditional IT is working as hard as they can with the resources they have but business doesn't see it because nothing works. I mean business wants different things and IT doesn't have the time to give input because of all the firefighting. But in the 'innovative unit' we have really solved many of these problems."* - ***Digital communicator***

The ability to work proactively with innovations, or new business solutions, is seen hard because of the traditional IT operations work is always about cost-savings. Innovation is not promoted or expected according to the **Service Manager.** The IT Operations are meant to be exploitation oriented and making sure that the business works on day-to-day basis. The **Digital Manager** believed that the reasoning behind this is, that IT operations is where the company bleeds money and it is more important to the business divisions to have an efficient IT delivery, than having an innovative IT, organisation. The **Sourcing Manager** added that budget constraints is a clear hinder, which has led to IT minimizing their staff through outsourcing. This often leads to talented individuals leaving the company after a while "*which then again means that you need to prioritize firefighting before you can even think of innovating*." When the newly hired employees have learned the daily operations, they might already be leaving because of the fast staff turn-over the outsourcing companies have.

> *"Innovation plays second to efficiency as efficiency is where you bleed money."* – ***Digital Manager***

The **Service manager** concluded the discussions, whether a contextual ambidexterity approach would be possible, by stating that in theory it could be possible, to both exploit and explore simultaneously, but in practice it is impossible as the daily work and firefighting, requires too much attention. The innovation remains on a very incremental level as adding a new button to an application for example.

7. Discussion

The purpose with this chapter is to discuss the empirical results in light of the literature presented in the theoretical framework and the literature review. The discussion is structured, based on the research questions, and interwoven with six different hypotheses, which are used to answer the research questions and are discussed one at a time.

7.1 Barriers for driving innovation

The empirical research showed a number of barriers hindering innovation within the IT organisation. The discovered barriers will be discussed one at a time based on the outcome of the empirical evidence.

One could argue, that based on the empirical evidence and the previous business literature, IT organisations are much more exploitation oriented than exploration oriented. The empirical data revealed that the case firm measures the value of its IT organisation based on how cost-efficient they are. This correlates with the literature studies where scholars (Peppard and Ward 1999; Zammuto et al 2007; Mutsaers, van der Zee, Giertz, 1998) argued that IT organisations' primary target is seen as maintaining the operations of the company's technology. The same authors also suggested that IT organisations in general, are focused on efficiency and cost savings. This is in alignment with this empirical research, where the respondents argue that many of the challenges related to exploration are derived from cost initiatives. For example, IT is seen as

expensive, and often the discussions are about reducing costs, and not about how IT could be encouraged to come up with new innovative business supporting solutions. A reoccurring comment found in the empirical evidence, was "*firefighting*" or "*putting out fires*", which indicates that IT organisations cannot choose to be proactively engaged in innovation, as the traditional IT requires so much effort, with a minimized IT staff. The Sourcing Manager stated that the "*firefighting*" occurs mostly because of budget constraints, which has led to outsourcing. This can be collated with Jarvenpaa's and Ives' (1994) argument, that once a company has invested in capabilities for efficient process management, they might tone down the need for change. This also refers to the tensions mentioned in the literature review, where scholars (Smith & Tushman, 2005; Floyd & Lane, 2000) argued that working with exploitation and exploration simultaneously could constrain the individuals and is a compromise, which doesn't lead to full benefits of neither exploration nor exploitation. IT organisations in general, seem to be a support organisations for business initiatives, as it is stated by Peppard and Ward (1999), where companies have not yet comprehended how to exploit the existing and new technologies (Zammuto et al 2007). The case study also indicated, that most of the company's revenue comes from traditional products or services, which need to be supported from an efficiency perspective. The conclusion of this is, that IT budgets will focus on the current services and products that make up most of the business revenue in companies. If IT organisations would start to use a greater part of their budget on innovation, companies might experience loss of revenue because a major part of the services and products are dependent on traditional IT. This is why innovation, most often comes second to efficiency, in IT organisations. Therefore, there is a required trade-off between exploitation and exploration, as stated by March (1991).

Based on the above reasoning the study's first hypothesis is:

1. IT organisations are exploitation-oriented, where incentives to reduce cost and heavy work-load are barriers for exploration.

It seems that business organisations and IT organisations are often misaligned, and in most cases, are uninformed of each other's organisations. For example, the field studies revealed, that the business organisation is often taking decisions without prior discussion with IT, which often leads to poor solutions, and sub optimal from an efficiency or from an innovation perspective. The research also showed that the business doesn't always see the value the IT organisation creates, and takes things for granted, and don't understand the costs this behaviour creates. This correlates with Luftman et al. (2009) argument that there is an existing gap between IT and the business organisation, and that the IT organisation is often seen as a separate distant unit in the company due to lack of alignment. However, the empirical research indicates that the IT organisation also lack the competence and the understanding of, how different business division's work, and that the business organisation is not the only one to blaim. The literature review, also brought up the insight, that in order to close the gap of alignment between the two organisations, both business and IT managers must create a better understanding of each other's work areas (Boynton et al., 1992; Dutta, 1996, Earl, 1989; Keen, 1993; Ward & Griffiths, 1996; Bashein & Markus, 1997; Ross et al, 1996). This indicates that both organisations have misaligned and lack competence of each other, which can result in a

barrier for IT organisations becoming an innovation partner. Peppard and Ward (1999) also argued, that in order to get supportive initiatives for IT, both the business and IT organisation must share the same values and understand each other, in order to create new value. Tallon and Pinsonneault (2011) also stated that the challenges with aligning the business and IT organisations, is that it requires understanding from both parties.

Based on the above reasoning the study's second hypothesis is:

2. The lack of knowledge about each other cause misalignment between Business and IT organisations, which in turn hinders IT organisations to become a trustworthy innovation partner.

It was repeatedly brought up in the empirical research, that the way IT is perceived from the business side, hinders innovation and change initiatives. The IT organisation doesn't get any promotion for innovating, rather they are seen as an organisation who should keep the systems running and free from defects. The theoretical studies agree with this statement, where the IT organisations is seen as a cost-efficiency organisation (Peppard and Ward 1999; Zammuto et al 2007; Mutsaers, van der Zee, Giertz, 1998). The Digital Manager explained in the empirical research, that the boundaries between the different organisations are becoming blurred, which creates a debate on who should do what. This relates to Zammuto et als. (2007) argument, where IT is seen to get a new different role than before. This indicates, that IT organisations still have a strong brand of being an exploitation oriented organisation and is perhaps the reason for why business divisions hire external IT for more innovation requiring projects, which shows up as "*shadow IT"* in the empirical research. Shadow IT creates even more frustration between the two organisations, as the IT organisation is not aware, what kind of IT solutions the business organisation is using, because they've previously by-passed them. This can be connected to the theoretical research where Peppard and Ward (1999) thinks that the existing gap between business and IT creates frustration for senior management who are continuously disappointed with the received value of IT and do not understand the investments in it. As the business doesn't see IT as a value adding organisation, one could argue that this is the reason why they go behind their back, and buy whatever they need from external suppliers.

Based on the above reasoning the study's third hypothesis is:

3. The way IT organisations are perceived, and the low threshold of hiring external competence, leads to an exploration barrier for IT organisations.

7.2 Strategies and solutions for resolving the barriers for innovation:

The empirical research showed, that IT organisations can successfully use the structural ambidexterity approach in order to counter the challenges with balancing exploitation and exploration. The case company had started a new IT unit for exploration activities under the IT umbrella but separated from the traditional IT operations, which is a clear indication of a structural ambidexterity approach. It has been proven successful, as the new unit was much more customer focused and able to give input to the business development organisation. The approach is in alignment with the theoretical research where scholars (Mutsaers, van der Zee, Giertz, 1998; Zammuto et al 2007) argued that IT

organisations shouldn't be viewed as units that are merely focused on exploitation. Rather, thanks to existing technology, IT can contribute by actually make use of the information itself instead of just collecting and storing it. However, this is rather odd, as Peppard and ward (1999) already stated this in 1999, which could indicate that IT organisations are struggling with adding value in other forms than just support.

According to the respondents in the empirical research, the new IT unit was established separated from IT operations as they required different capabilities. IT Operations are very much focused on refinement, efficiency and implementation whereas the new IT unit is focused on experimentation, discovery and innovation, according to the empirical research. This is also how March (1991) defined these two concepts. It also shows that the IT organisation is investing in both, which is stated as crucial by Soosay and Hyland (2008). As found in the theoretical research, scholars (Janset et al., 2008; He & Wong, 2004; Smith & Tushman, 2005) believed that exploitation and exploration needs different prerequisites, just as the empirical research showed, which need to be handled using different approaches in order to reach the state of organisational ambidexterity (Raisch et al. 2009). Concluding on both empirical and theoretical research, one could argue that in order to balance exploitation and exploration in IT organisations, a structural ambidexterity approach could be used where the state of organisational ambidexterity is achieved through dividing an organisation into two separate units, one for exploitation and one for exploration. The structural ambidexterity approach is seen as necessary because of exploitation and exploration need different capabilities, which are hard be obtain in the same unit.

Based on the above reasoning the study's fourth hypothesis is:

4. Because IT organisations need different kinds of capabilities for exploitation and exploration, the structural ambidexterity approach is a viable approach.

The empirical research showed, that the new IT unit has been successful, and was able to both enable business requirements and come up with new ideas, which have also successfully been presented to the business organisation. One of the success enablers was the new set of KPI's, that had been established which measured new value adding ideas instead of focusing on costs. This indicates that new KPI's, measuring exploration instead of exploitation is needed in IT organisations to enable exploration. Zammuto et al. (2007) argued, that companies have not yet fully understood, how to exploit the new technologies, and it can be argued, that companies are not fully aware of how to define new KPI's for IT organisations. Another contributing factor for exploration could be agile IT organisations. An agile work approach enables the business and IT to work and interact more closely. (He & Wong 2004; Kraatz & Zajac 2001; Pinsonneault & Kraemer 2002). Agility can create more alignment between IT and business organisations, which in turn can lead to a better understanding of each other's organisations. It can also create synergies where both organisations are more open for each other's suggestions. The empirical research suggested, that a separate budget for exploration and exploitation in IT organisations is also seen as a crucial factor. March (1991) pointed out that allocation of resources becomes a challenge, as exploration is often competing for internal resources. This could be a challenge, as efficiency is seen as number one priority in IT

organisations, but then again earmarking the budget for exploration, respectively exploitation makes it easier to know what to focus on.

Based on the above reasoning the study's fifth hypothesis is:

5. A structural ambidexterity approach enables exploration in IT organisations, due to exploration-promoting factors such as, new KPI's, agile work methods and earmarked budgets

The empirical material also shows flaws in the structural ambidexterity approach. The Digital Manager for example, thinks that the new IT unit is becoming rather detached of the rest of the IT organisation, where the unit place orders to the IT operations as any other business division. Gibson and Birkinshaw (2004) also stated that structural ambidexterity has its flaws, which undermines alignment and integration between the different units. Based on this you could argue that if an IT organisation uses the structural ambidexterity approach, the exploration unit would become another burden for the exploitation unit. Also this implies that a separation of exploration and exploitation could lead to, not seeing the two units as one IT organisation. It was also brought up in the empirical research, that the growth of the new unit might present challenges in the future. The new innovative solutions will probably need to be transferred to IT operations at some point, when they get too extensive for the new 'innovative unit' to operate them alone. Scholars have also brought up this tension before, and believes that exploration and exploitation have to be recombined in order to create value (Eisenhardt & Martin, 2000; O'Reilly & Tushman, 2008; Teece, 2007). A structural ambidexterity approach might also create constraints in IT organisations, as there might occur competitive relationships between the two separate units.

Based on the empirical research, structural ambidexterity would still be preferable for IT organisations instead of the contextual ambidexterity. There was a consensus, that no other way would have been better, even if it might create problems in the future. In theory, IT organisations could work simultaneously with exploitation and exploration in the same unit, if they would get the time and money for it, but in practice it's impossible with the existing barriers.

Based on the above reasoning the study's sixth hypothesis is:

6. Structural ambidexterity outperforms contextual ambidexterity in IT organisations but may cause detachment between exploration-oriented units and traditional IT operations.

8. Conclusion

The purpose of this study was to explore what barriers exists in IT organisations in order to achieve the state of ambidexterity and what strategies can be used to overcome them. As markets are changing in an even faster pace than before, it is crucial for companies to be both exploitation and exploration oriented. As many of the new innovations are somehow connected to IT, the IT organisations participation regarding innovation is seen as becoming more important. However, IT organisations do face barriers for becoming

more innovative and are mostly seen as efficiency oriented, which is why IT organisations require strategies and capabilities to become more exploration oriented. The research in this thesis looked at, how the case study company's IT organisation has tried to become more exploration oriented, and at their experience regarding the barriers and ways of working in the current IT environment. The findings should not be seen as universal as the empirical research was based on a single IT organisation.

The two research questions used for this study was:

1) What barriers exists for balancing exploration and exploitation in IT organisations?

2) What strategies can be used for resolving the barriers of balancing exploration and exploitation in IT organisations?

The findings from the empiric research showed three main barriers for balancing exploration and exploitation in an IT organisation. The barriers where in fact all applicable to exploration, as it was stated that the IT organisation is very exploitation focused, and that the problem with the balance was to become more exploration oriented. The identified barriers that can be concluded from the three first statements were;

- The incentives to reduce costs in the IT organisation
- The lack of knowledge of each other's organisations and
- The way the IT organisation is perceived

The analysis found that all these barriers are in fact born out of lack of alignment between the business and IT organisation.

Regarding the strategy and solutions for overcoming the barriers, and reaching the state of organisational ambidexterity, resulted in three statements. The strategy that was identified was structural ambidexterity, as the case study company's IT organisation had been divided into an exploration and exploitation focused unit. The approach was chosen because it was identified that exploration would require new KPI's, an agile work environment and an earmarked budget, which could not have been established in IT operations.

Even though the structural ambidexterity approach seemed as the best choice, it did present its flaws as it has become detached from the IT operations, which can lead to future problems. It was also concluded that exploration in the IT organisation as a whole, is very limited as the exploration is limited to a very small part of the IT organisation.

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