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Inside the Box

Cultures of Innovation in a Mature Industry

Yaqian Wang



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DOCTORAL DISSERTATION

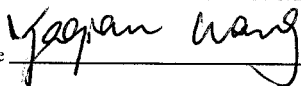
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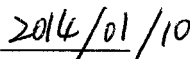
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<p>Innovation has been regarded a crucial means by which organizations adapt to the changes in the environment. Previous studies have identified organizational culture as a key factor that influences innovation, suggesting that a culture with certain characteristics can lead to superior innovation performance. This culture is referred to as "innovation culture", a notion which has recently enjoyed great popularity and drawn considerable attention from researchers and practitioners. However, seeing the concept of innovation culture as self-explanatory and therefore taking it as given, the existing literature assumes a static causal relationship between culture and innovation, whereas it has not provided explanation of how culture influences innovation.</p> <p>By means of a case study at three different subsidiaries of a Swedish multinational company in the corrugated packaging industry, this thesis aims to extend our understanding of the culture-innovation relationship by answering the question: "How does organizational culture influence innovation?". Based on culture dynamics theory and organizational adaptation theory, this thesis proposes a dynamic and interactive view on the culture-innovation relationship. Using organizational archetype theory as a theoretical lens, it suggests the notion of "innovation dynamics" to illustrate how culture shapes organizations' innovation processes into different patterns and reveals the underlying dynamic interaction between culture and innovation activities. Moreover, by drawing attention to different functional subcultures and the dynamic interaction between them, this thesis highlights the role of subcultures in organizations' innovation processes. The findings depict a spiral model of the culture-innovation relationship in which culture and innovation mutually influence each other and alternate between cause and effect. They also suggest that instead of a single unitary innovation culture, there are cultures of innovation within an organization.</p> <p>This thesis contributes to the innovation culture and the innovation management literature and theory of organizational archetypes. By offering a nuanced understanding of the role of culture in innovation, it also provides managerial implications for practitioners in the field of innovation management.</p>			
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Inside the Box

Cultures of Innovation in a Mature Industry

Yaqian Wang



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To mum and dad

Acknowledgement

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Chapter 1 Introduction

Innovation has been seen as an important means for organizations to adapt to changes in the environment (March & Simon, 1958; Thompson, 1965; Zaltman, Duncan, & Holbek, 1973; Barney, 1986; Stata, 1989; Eisenhardt & Tabrizi, 1995; Tushman & O'Reilly III, 1996) and contributes to organizations' competitive advantage and long term growth (Barney, 1986; Tushman & O'Reilly III, 1996; Dess & Picken, 2000; Tidd, Bessant, & Pavitt, 2001; Trott, 2008; Spithoven, Teirlinck, & Frantzen, 2012). Given the recognized importance of innovation, great research efforts have been made to identify the key factors that influence innovation in organizations (Van de Ven, 1986; Damanpour, 1991; Van der Panne, van Beers, & Kleinknecht, 2003). Identified as one of the most important factors that influence innovation, organizational culture has drawn considerable attention from both researchers and practitioners within the field of innovation management (Kanter, 1983; Damanpour, 1991; Tushman & O'Reilly III, 1996; Christensen, 1997; Ahmed, 1998; Claver et al., 1998; Hauser, 1998; Hurley & Hult, 1998; Tidd et al., 2001; Martins & Terblanche, 2003; Van der Panne et al., 2003; Crossan & Apaydin, 2010; Valencia, Valle, & Jiménez, 2010; Herzog, 2011). There is considerable consensus among researchers that an "innovation culture" – a culture that facilitates innovation – can contribute to organizations' innovativeness and long-term growth (Kanter, 1983; Damanpour, 1991; Tushman & O'Reilly III, 1996; Ahmed, 1998; Tidd et al., 2001; Van der Panne et al., 2003; Crossan & Apaydin, 2010). Innovation culture also appeals to practitioners working with innovation management, as it is regarded as a key to stimulate innovation and address various innovation challenges facing managers within organizations and therefore embedded in companies' business logic. The term "innovation culture" is widely used in the business environment and seems to have become a must-know in innovation management. It appears in corporate strategy, management consultancy reports, and has been referenced in a number of slogans, so much so that it almost verges on becoming a cliché. However, to what extent do we understand the concept of innovation culture?

Moreover, to what extent does it provide insights to managers on how to manage innovation? All the enthusiasm and anxiety about innovation culture shows that while jumping out of the box of the conventional, usual and obvious to becoming innovative, innovation researchers and practitioners seem to have jumped into another seemingly appealing box – innovation culture. After all that, what is inside the box of innovation culture?

1.1 Innovation in organizations

Given the rapidly changing environment, a major challenge to organizations is to respond to the changing conditions and adapt to the external environment (Kim, 1980; Damanpour, 1991; Eisenhardt & Tabrizi, 1995). Seen as a crucial means of an organization's adaptation to the changing environment (March & Simon, 1958; Thompson, 1965; Zaltman et al., 1973; Barney, 1986; Stata, 1989; Eisenhardt & Tabrizi, 1995; Tushman & O'Reilly III, 1996), innovation has triggered continuous interest among management researchers and practitioners. It has been regarded as important for the survival and long-term growth of companies (Damanpour, 1991; Utterback, 1994; Van de Ven, Polley, & Garud, 1999; Tidd et al., 2001) and a critical source of competitive advantage in an increasingly changing environment (Barney, 1986; Tushman & O'Reilly III, 1996; Dess & Picken, 2000). An organization's propensity to innovate is also considered as a type of dynamic capability that contributes to its competitive advantage (Helfat, Finkelstein, & Mitchell, 2007). As many companies' success has been attributed to their ability to innovate, innovation has also become the focus of managers within organizations. The enthusiasm for innovation is seen in the corporate strategy and value statements where it is often embedded. Among different forms of innovation, product innovation has been recognized as a primary way of organizational renewal (Dougherty, 1992a; Eisenhardt & Tabrizi, 1995; Dougherty & Hardy, 1996; Chandy & Tellis, 1998; Veryzer, 1998; Danneels, 2002) and a major means by which organizations can diversify and adapt themselves to match evolving market and technical conditions (Damanpour, 1987; Eisenhardt & Tabrizi, 1995; Dougherty & Hardy, 1996).

The recognized importance of innovation has provoked great interest among scholars. One of the key questions in innovation research and which has

resulted in a vast amount of literature on the subject is to explain how innovations occur (Fagerberg, 2004). That is: why do innovations happen in some organizations more often than in others and how can organizations become more innovative? These questions have inspired researchers to explore the factors that can influence an organization's propensity to innovate (Damanpour, 1991; Van der Panne et al., 2003). And previous studies have shown that innovation is subject to the influences of many factors including organizational structure (Burns & Stalker, 1961; Mintzberg, 1979; Kim, 1980), organizational culture (Kanter, 1983; Hurley, 1995; Amabile et al., 1996; Ahmed, 1998), strategy (Saleh & Wang, 1993; Ritter & Gemunden, 2004), and external environment (Lawrence & Lorsch, 1967; Miller & Friesen, 1984).

1.2 Organizational culture and innovation

Among all the factors identified by previous studies, organizational culture has been regarded as a crucial determinant of innovation (Kanter, 1983; Damanpour, 1991; Tushman & O'Reilly III, 1996; Ahmed, 1998; Tidd et al., 2001; Van der Panne et al., 2003; Khazanchi, Lewis, & Boyer, 2007; Crossan & Apaydin, 2010; Valencia et al., 2010). The concept of culture received considerable attention within organization theory in the 1980s when a culture perspective was applied to a wide range of management issues. Although the peak period for organizational culture studies was in the late 1980s, as a central dimension in all the aspects of organizational life, organizational culture still remains one of the key issues in management research (Alvesson, 2002). Speaking of "the way we do things around here", a cultural perspective draws people's attention to aspects of organizational life that have often received little attention or been ignored (Martin, 2002). A cultural lens helps to make sense of things that initially are "mysterious, frustrating, or seemingly stupid" (Schein, 2010: 13).

The concept of culture has emerged as a departure from the rationalist and mechanistic conception of organization. Usually defined as a shared form of norms, values and beliefs, meanings and understandings, the concept of organizational culture focuses on the "soft" side of organizational life, explaining issues and phenomena which other factors such as structure and strategy sometimes fail to explain. Culture has been seen as a useful way of

interpreting all kinds of organizational phenomena and explaining why things are done in a particular way. Besides, a cultural analysis opens up to questioning the taken-for-granted assumptions and offers a means of challenging unthinking managerialism (Palmer & Hardy, 2000).

Despite its role in understanding different aspects of organizational life, organizational culture is of particular relevance in studying innovation. Usually referred to as “how things are done around here”, culture is a learned product from organizational experience (Schein, 1994); it represents tradition, routines, stability and conformity. Thus, conforming to organizational culture is like maintaining organizational routines – doing things in the same way as they have always been done. Innovation, on the other hand, encompasses novelty, non-routine, change, and breaking the frames. Therefore, it requires reflecting on and even questioning the cultural values, beliefs, assumptions that guide organizational members’ behavior and day-to-day organizational practice. Understanding how innovation can take place or fail to take place certainly requires an understanding of the possible hindrances to change.

1.3 Critiques of previous innovation culture studies

Although the existing literature on culture and innovation is extensive and has advanced our knowledge in many aspects, there are several limitations which restrict us from acquiring a thorough understanding of the relationship between culture and innovation.

1.3.1 A self-explanatory definition and a single unitary culture

First of all, when studying culture and innovation, most researchers use the term “innovation culture” to refer to the culture-innovation relationship (Hurley, 1995; Herzog, 2011). Similar concepts also include “innovation-oriented culture” (Claver et al., 1998; Hurley & Hult, 1998; Jaskyte & Dressler, 2004; Lau & Ngo, 2004; Jaskyte & Dressler, 2005; Tienne & Mallette, 2012) and “innovation supportive culture” (Khazanachi et al., 2007). The concept of innovation culture has been defined in a self-explanatory way as an organizational culture that supports or facilitates innovation (Hurley, 1995; Herzog, 2011) and thus taken as given. Therefore, existing research has

largely focused on identifying and describing the characteristics of an innovation culture (Kanter, 1983; Judge, Fryxell, & Dooley, 1997; Ahmed, 1998; Martins & Terblanche, 2003; McLean, 2005; Davila, Epstein, & Shelton, 2007; Dobni, 2008; Herzog, 2011), developing constructs to measure and diagnose organizational culture (Martins & Martins, 2002; Dobni, 2008) and using the results to predict organizational performance (Wang & Ahmed, 2004; Khazanchi et al., 2007), while it has not explained how culture influences innovation. Moreover, the notion of innovation culture also implies a single and unitary culture within the organization. As organizational culture is defined as organizational members' shared values, beliefs and assumptions, the notion of innovation culture suggests that there is one set of values and beliefs that support innovation and are shared by all the organizational members, assuming that the organization is homogeneous and consistent, but neglecting any possible inconsistency and even conflicts between organizational members.

1.3.2 A static and linear cause-effect relationship

Secondly, taking the concept of innovation culture as given, previous studies assume a unidirectional causal relationship between culture and innovation, in which culture is the cause and innovation is the effect, portraying the culture-innovation relationship as a simple linear model. Dominated by quantitative methods, previous studies have focused on drawing correlations between certain cultural characteristics and innovation outcomes, with the attempt to identify the cultural characteristics that hinder or facilitate innovation (Valencia et al., 2010; Jaskyte & Dressler, 2005; Khanafiah & Situngkir, 2004). These results suggest that certain types of organizational culture will eventually lead to superior innovation outcomes usually measured by financial index, and yet this does not explain how these outcomes are generated. Besides, based on researcher-generated questionnaires, these studies leave open the issue of whether similar categories would be used by organizational members when describing their experiences in the organization. It is also likely that culture is measured by the espoused rather than enacted cultural themes (Martin, 2002) – what is actually valued and believed by organizational members and how the organizational practices are actually carried out. Moreover, linking cultural characteristics to certain innovation outcomes, this linear cause-effect model also views the culture-innovation relationship as static, in which culture and innovation are seen as two static

entities and are directly linked by a unidirectional arrow. Hence, this simple static linear model neglects the dynamics of culture – that culture does not only influence the organizational process but also receives feedback and reflection from it (Hatch, 1993; Schein, 2010). Moreover, it neglects the processes and practices in which the innovation outcomes are generated. As Saffold (1988) suggests, the simplistic model which directly links culture with different organizational outcomes “has insufficient theoretical sensitivity to illuminate the complex, mutually causal interactions of cultural phenomena as they affect and organizational outcomes” (p: 550).

1.3.3 Culture as a simple quick fix to innovation challenges

The existing innovation culture literature has also been dominated by a functionalist perspective and a normative bias. Results from these studies are often presented in the form of a list of cultural characteristics, suggesting that organizations with such cultures are more likely to yield better innovation outcomes (e.g., Deshpandé, Farley, & Webster Jr, 1993; Valencia et al., 2010), or provide tools for managers to measure and assess an organizational culture, diagnose the problems (Martins & Martins, 2002; Dobni, 2008) and predict and improve the organization’s innovativeness (Wang & Ahmed, 2004; Khazanchi et al., 2007) and innovation outcomes (Khanafiah & Situngkir, 2004; Jaskyte & Dressler, 2005; Valencia et al., 2010). Culture is seen as a managerial tool for improving organizations’ innovation performance, and the usefulness of culture stems from its explicative and predictive power with regard to various innovation outcomes. By identifying a list of cultural characteristics that are considered to be associated with successful innovation, previous studies seem to try to provide a universal recipe for an innovation culture which could be applied to any organization without taking different organizational contexts into consideration. These results are appealing to managers, as they seem to provide an easy way to identify the innovation obstacles by measuring the organizational culture. And the normative-sounding values, behaviors and management practices claimed to be useful to innovation also seem to provide a quick fix for the innovation challenges facing organizations by listing all the key issues which need to be addressed, suggesting that improving innovation performance through organizational culture is simply a matter of ticking all the boxes on the check list.

1.4 Aim of the study

As shown in the literature review, despite the importance of organizational culture for innovation, the current understanding of the relationship between culture and innovation is still limited. The culture-innovation relationship is often captured by the term innovation culture. Seen as self-explanatory and therefore taken as given, the notion of innovation culture assumes a unidirectional causal relationship between culture and innovation and portrays the culture-innovation relationship as a static linear model. Dominated by a functionalist and normative stance, the previous studies mainly focus on describing, measuring and assessing an organizational culture, diagnosing the problems that hinder innovation as well as predicting the organization's innovation performance, whereas they have not explained how culture influences innovation. The results of these studies provide managers with a recipe for innovation culture, leaving them with the impression that it can be achieved by simply following the recipe and getting a quick fix for various innovation challenges facing organizations.

Hence, this thesis argues that the existing literature has not offered sufficient understanding of the relationship between culture and innovation. Behind all the anxiety and enthusiasm about innovation culture among researchers and practitioners, the concept of innovation culture itself remains as a black box and we know little about how to explain it. Apart from its claimed usefulness, the notion of innovation culture does not add much to our knowledge about how culture actually influences innovation. Therefore, the aim of this thesis is *to extend our understanding of the relationship between culture and innovation*. This aim is further developed into the research question: *How does organizational culture influence innovation?*

1.5 Theoretical background

Among all the theories used in this thesis, culture dynamic theory and archetype theory provide important implications and offer theoretical lenses to help to explain how culture influences innovation. A brief introduction of these two theories is discussed as follows.

1.5.1 Culture dynamics theory

As has been argued above, previous studies on culture and innovation have portrayed the culture-innovation relationship as a static linear model. However, culture theory has suggested that culture is a dynamic and interactive rather than static phenomenon. In particular, the culture dynamics model (Hatch, 1993) depicts the dynamism and interrelation between different levels of culture, especially between the invisible levels of culture (i.e., assumptions and values) and its visible level (i.e., artifacts and symbols). According to the visibility of culture elements to observers, culture dynamics theory (ibid.) suggests that different levels of culture, i.e., assumptions, values, artifacts and symbols (Hatch, 1993; Schein, 2010), are interrelated and there are dynamic interactions between them in which they transform each other. The four levels of culture are linked by four different processes, namely symbolization, realization, manifestation and interpretation, which create a cyclical culture dynamics model. And these four processes co-occur in a continuous process of production and reproduction of culture (Hatch, 1993).

Therefore, the culture dynamics model suggests a dynamic and procedural perspective when studying culture in relation to different organizational phenomena. It draws attention to the interactive process between cultural values and assumptions and different organizational processes and practices. Hence, according to the culture dynamics theory, studying culture and innovation should also focus on culture's influence on the innovation processes and practices through which the innovation outcomes are generated. Besides, seeing that cultural values and assumptions can be influenced by artifacts and symbols, the culture dynamics theory also suggests that culture change is possible, that culture is constructed and reconstructed through different organizational processes and practices.

1.5.2 Organizational archetype theory

One difficulty in studying culture in relation to innovation is to link the invisible cultural values, beliefs and assumptions with the visible innovation processes and practices. Therefore, in order to explain how culture influences innovation, a theory which can bridge the invisible and the visible levels of an organization and explain how they interact with each other is needed. Up to this point, theory of organizational archetype (Miller & Friesen, 1980a;

1980b; Miller, Friesen, & Mintzberg, 1984; Greenwood & Hinings, 1988; 1993) is considered to be potentially helpful to address this issue.

Theory of organizational archetype has been widely used to understand strategy and organizational change (Miller & Friesen, 1980a; Miller et al., 1984; Greenwood & Hinings, 1988; 1993). Archetype theory suggests that an organizational archetype contains a set of ideas, values and beliefs which constitute an overarching and prevailing “interpretative scheme” and structure and processes in which these values and beliefs are embodied and realized (Greenwood & Hinings, 1988). In particular, theory of archetype movements (ibid.) has provided a useful tool for analyzing organizational change and inertia in change by revealing the dynamic interaction between the interpretative scheme and structural arrangements. In particular, it emphasizes the role of the interpretative scheme – a set of prevailing values and beliefs in the change process.

Therefore, archetype theory bridges the cultural values and beliefs and the organizational structure and processes, offering a theoretical lens to understand the relationship between culture and innovation. It can be used to analyze how the values and beliefs are embodied in, and interact with, the structures and processes and how these interactions cause organizational changes, and thus can be helpful in explaining the culture-innovation relationship.

1.6 A case study from the corrugated packaging industry

The empirical work of this thesis is carried out in SCA Packaging (SCAP), a Swedish multinational paper packaging company which has corrugated paper boxes as its core business. The history of SCAP goes back more than 80 years and its subsidiaries are located in 25 countries in Europe. SCAP is a typical example of large manufacturing companies operating in mature industries, which are characterized by capital intensive and mass production. In recent years, innovation at SCAP has been focusing on increasing added value in the packaging through design. And most innovations at SCAP are incremental product improvement based on specific customer requests.

Previous innovation studies have largely focused on technically advanced industries or industries in the early growth phase of development, e.g., computer industry (Eisenhardt & Tabrizi, 1995) and pharmaceutical industry (Cardinal, 2001), while companies within mature industries have received less attention (Pearson, 1988; Warren et al., 2000). In mature industries, technological diversity has decreased and given way to standardization, particular design has approached dominance, production volumes have increased, and performance criteria and processes have become more clearly specified (Clark, 1985). The market shares are well established and only change slowly (Drew, 1987). Therefore, compared with younger, faster growing and more “modern” industries, mature industries are considered as being unable or unwilling to innovate. The number of innovations decreases as industries mature and decline (Utterback, 1994).

Besides, it is also suggested that large mature organizations are configured against innovation regarding resources, processes and shared meaning (Dougherty & Hardy, 1996). In particular, as organizations grow larger and mature, the appropriate way of thinking and working decided by the previous success becomes institutionalized and it is more difficult for the organizations to change and innovate (Leonard & Barton, 1992; Dougherty & Hardy, 1996; Tushman & O’Reilly III, 1996; Christensen, 1997; Wagner et al., 2011). Nevertheless, although generally perceived as less innovative and having received less attention, innovation, to large companies within mature industries, is not less important than to emerging industries and deserves more research focus and efforts. The research context of this thesis thus provides an excellent opportunity to study innovation in large organizations within mature industries.

1.7 Disposition of the thesis

The disposition of this thesis is as follows:

Chapter 1: Introduction

This chapter first outlines the research context and introduces the key concepts of this thesis – innovation, organizational culture and innovation

culture. By problematizing the existing literature on culture and innovation, this chapter introduces the research purpose which is formulated into a research question. It then introduces the main theories which are used in this thesis and the empirical context in which this research is carried out – a multinational manufacturing company in a mature industry.

Chapter 2: Theory

This chapter provides theoretical clarification of the key concepts in this thesis and discusses relevant theories used for data analysis and discussion in the later chapters. Three bodies of literature are reviewed: innovation literature, organizational culture literature as well as literature on culture and innovation. In particular, by reviewing the previous studies on culture and innovation, this chapter further elaborates the arguments raised in Chapter 1, providing a base for the introduction of a new perspective on the culture-innovation relationship and the construction of a theoretical model in the next chapter.

Chapter 3: Towards a theoretical framework

Based on the literature review and the problematization of the previous studies on culture and innovation, this chapter first proposes a new perspective on culture-innovation relationship. From this new perspective, the chapter introduces the theory of organizational archetypes and proposes it to be a theoretical lens to understand the culture-innovation relationship. Furthermore, by presenting the research process from an explorative study to a pilot study and then the main study, the chapter describes the theoretical models used in each phase, and how the final model used for data collection and data presentation in the main study is developed step by step by going back and forth between empirical data and theories.

Chapter 4: Methodology

Chapter 4 discusses the methodological choice and research method in which the research is conducted. After introducing the research design – a single case study with embedded cases – this chapter presents the research process by discussing the case selection, data collection procedure, as well as the method of data analysis. Finally, research quality and generalization of the research findings are also discussed.

Chapters 5, 6 and 7: The cases

These chapters present the data collected from three embedded cases from a corrugated paper packaging company. The data is organized and presented according to the model (Figure 3-3) constructed in Chapter 3. And the empirical findings of each embedded case are summarized in the end of each chapter.

Chapter 8: Analysis

Here the data collected from the embedded cases is analyzed. The data from each embedded cases is compared with theories and each other for cross-case analysis. The research findings are summarized and compared with previous studies and theories.

Chapter 9: Conclusions and contributions

Chapter 9 concludes the thesis by summing up the main conclusions and contributions. The chapter first summarizes the main conclusions of the thesis as an answer to the research question. Furthermore, it discusses the theoretical and empirical contributions of the thesis in relation to previous studies by reviewing the arguments raised in previous chapters. Finally, managerial implications and future research directions are also discussed.

Chapter 2 Literature Review

This chapter reviews the literature on organizational innovation, organizational culture and the culture-innovation relationship, with the aim of outlining the key concepts and theories that are used in this thesis. First of all, the chapter clarifies the conceptualization of innovation, distinguishes between types of innovation and in particular, discusses the concept of product innovation as well as studies on innovation management in large organizations within the mature industry. Secondly, the chapter discusses the concept of organizational culture, culture dynamics and previous research on culture's link to different organizational performances. Last but not least, the chapter reviews previous literature on the culture-innovation relationship and discusses the limitation of previous studies, which serves as a base for the introduction of a new perspective on the concept of innovation culture and the construction of the theoretical framework in the next chapter.

2.1 Organizational innovation

2.1.1 The concept of organizational innovation

2.1.1.1 Definition of innovation

Innovation has long been seen as an important means of organizational renewal and adaptation in the changing environment (March & Simon, 1958; Thompson, 1965; Zaltman, Duncan, & Holbek, 1973; Stata, 1989; Eisenhardt & Tabrizi, 1995; Tushman & O'Reilly, 2002) and contributes to the organization's competitive advantage and long-term growth (Barney, 1986; Tushman & O'Reilly III, 1996; Dess & Picken, 2000; Tidd, Bessant, & Pavitt, 2001; Trott, 2008; Spithoven, Teirlinck, & Frantzen, 2012).

Today's literature on innovation is diverse and covers different research areas. Schumpeter (1934) was among the earliest pioneers in innovation research, from an economics perspective, to suggest that innovation is the driver of economic development and define it as a new combination of existing resources. He suggests that organizational changes, alongside new products or processes as well as new markets are factors of "creative destruction" (Schumpeter, 1942). In his earlier work, Schumpeter focuses on the role of individual entrepreneurs in innovation, while later he also emphasizes the importance of innovation in large firms. After innovation became a subject in management studies, even within the organizational field, the concept has been assigned various definitions according to researchers' different purposes within different fields.

In general, the term organizational innovation is defined as a new idea generated or adopted by the organization, which brings change into the organization in the form of a new product or practice (e.g., Zaltman et al., 1973; Daft & Becker, 1979; Van de Ven, 1986; Rogers, 2003). For example, Rogers (2003) defines innovation as an idea, practice, or object that is perceived as new by individual or other units of adoption. To these researchers, innovation is seen as an outcome. While others define innovation as a process which refers to the creation, adoption or implementation of new ideas (e.g., Thompson, 1965; West & Farr, 1990; Damanpour, 1991; Amabile et al., 1996; Tidd, Bessant, & Pavitt, 2005). For example, Damanpour (1991) defines innovation as the generation or adoption of an internally generated or purchased device, system, policy, program, process, product or service that is new to the adopting organization.

In these definitions, the term "adoption" is often used but in different ways. One view defines adoption as the decision to implement a new idea (Daft & Becker, 1979; Rogers, 2003), which suggests that adoption is only the acceptance of starting to make change and therefore takes place before taking action to change. The other view defines adoption as taking action to change – the implementation of the new idea (Knight, 1967; Zaltman et al., 1973). From this perspective, adoption actually refers to the process of making change; it takes place after the implementation starts. In this thesis, innovation adoption refers to the change process – it encompasses the generation, development and implementation of new ideas or behaviors (Damanpour, 1991).

Another key element of innovation is novelty. This novelty can refer to both relative and absolute novelty. To some researchers, the novelty of innovation concerns the individuals involved (Van de Ven, 1986; Rogers, 2003), suggesting that as long as this idea is perceived as new to the people involved, it is an innovation, even though it may appear to others to be an “imitation” of something that exists elsewhere (Van de Ven, 1986). Others see innovation as new to the adopting organization (Zaltman et al., 1973; Pierce & Delbecq, 1977; Damanpour & Evan, 1984; West & Farr, 1990; Damanpour, 1996) rather than as the first use ever or its newness to individuals in organizations. And a third view extends the context in which innovation represents novelty in the environment of the adopting organization (Daft & Becker, 1979, 1967; Knight, 1967). Beck and Whisler (1967) consider the environment consisting of organizations with similar goals. Knight (1967) refers to the external environment as having relevance to the organization. Daft and Becker (1979) do not indicate a specific scope of the external environment to which innovation represents something new. From this view, innovation can be something that brings novelty to the organization’s environment but is not necessarily new to the adopting organization.

2.1.1.2 Innovation, invention and creativity

The concept of invention and creativity are sometimes used interchangeably with innovation. However they are both different from innovation and therefore should be distinguished. An invention is the creation and manifestation of a new idea, while innovation refers to its development and implementation (Van de Ven, Polley, & Garud, 1999) and taking it into market (Chesbrough, 2003). Therefore, invention is only the first step in a long process of bringing a good idea to widespread and effective use (Tidd et al., 2005). Invention can be an individual activity, but turning an invention into an innovation requires a company to combine several different types of knowledge, capabilities, skills and resources (Fagerberg, 2004). Creativity can be seen as a building block of innovation (West & Farr, 1990; Flynn & Chatman, 2001; von Stamm, 2008). Amabile et al. (1996) argue that innovation begins with creative ideas, however creativity is a necessary but not sufficient condition for innovation; generation of a new idea is only the starting point of producing an innovation but does not assure its implementation. Hence, although creative individuals are important to innovation, bringing such individuals together is not sufficient for innovation. Moreover, although some researchers argue for an organizational level of creativity (e.g., Woodman, Sawyer, & Griffin, 1993), in this thesis creativity

is considered as existing at the individual level. Hence both invention and conception of creative ideas can be individual activities, while innovation including implementing and pushing creative ideas into use requires collective efforts and thus should be viewed at the organizational level.

2.1.1.3 Innovation as a means of organizational adaptation

Seeing organizations as adaptive systems, many researchers have regarded innovation as a means of organizations' adaptation to the changes in the environment (March & Simon, 1958; Thompson, 1965; Zaltman et al., 1973; Damanpour, 1987; Damanpour, 1988; Stata, 1989; Damanpour, 1991; Tushman & O'Reilly III, 1996). As environment changes, organizations need to change in order to adapt to the new conditions. Hence, innovation is a means of introducing change into the outputs, structure, or processes of an organization; it can be a response to changes in its internal and/or external environment or a preemptive action taken to influence the environment in order to facilitate the adaptation process (Damanpour, 1991). In response to environmental change, adaptation can be triggered by both problems and opportunities (Duncan & Weiss, 1979; Fiol & Lyles, 1985), and they can be both internal and external organizations (Damanpour, 1991). From this adaptation perspective, the novelty contained in innovation has the potential to produce changes by moving an organization from its initial state to a new state in which the organization has a better fit with its environment.

In this thesis, innovation is also seen as a means of organizational adaptation. It is defined as a new product, process, practice or other forms of change generated or adopted by an organization in response to the changes in the environment, and is perceived as new by the generation or adoption organizations. And the generation or adoption process is referred to as the innovation process.

2.1.1.4 Types of innovation

According to the form in which changes take place, Schumpeter (1942) distinguishes between five different types of innovation: new product, new methods of production, new source of supply, the exploitation of new markets, and new ways to organize business. Compared with innovation in one particular form, the concept of management innovation covers a wider content of practices in the organization. It refers to the invention and implementation of a new management practice, process, structure, or

technique which is intended to further organizational goals (Birkinshaw, Hamel, & Mol, 2008: 825). Management innovation is seen as a crucial support to product activity (ibid.). Moreover, recent studies also suggest the importance of innovation in business models (Chesbrough & Rosenbloom, 2002; Chesbrough, 2007; Gambardella & McGahan, 2010) – the way in which companies create and capture value. Business model innovation occurs when companies adopt a new approach to create or commercialize their underlying assets (Gambardella & McGahan, 2010), which is even more important than technology development as it mediates both technology development and economic value creation allowing organizations to capture value from their technology investment (Chesbrough & Rosenbloom, 2002; Chesbrough, 2007).

According to the different degrees of novelty, innovation can be categorized as incremental or radical. Incremental innovation involves gradual, incremental and cumulative improvements (Bessant, 2003). In product innovation, incremental innovation means relatively minor changes in existing products and can be described as a derivative of existing products (Davila, Epstein, & Shelton, 2007). Built on existing knowledge (Tushman & Anderson, 1986), incremental innovation is mainly about an organization's competency-enhancing (Abernathy & Clark, 1985). It relates to normal technical progress (continuity) while radical innovation relates to the emerging of new paradigms (discontinuity) (Dosi, 1982).

In contrast, radical innovation is captured by “discontinuous” (Dosi, 1982; Tushman & Anderson, 1986; Veryzer, 1998), disruptive (Chesbrough, 2003), “breakthrough” and “revolutionary” (Pavitt, 2003). It refers to a new product, process or service that offers potential for significant improvements to the previous one in the organization (Leifer et al., 2000: 5). Schumpeter (1942) uses the term “creative destruction” to refer to radical innovation as a process in which new entrants create new things in order to pursue long-term economic growth, even as they simultaneously destroy the old rules and values of the established companies. In product innovation, radical innovation refers to products that involve considerable departure from existing products or their logical extensions. Radical innovation has been seen as important to companies' long-term growth (Bessant, 2003; Davila et al., 2007; McLaughlin, Bessant, & Smart, 2008). However, compared with incremental innovations, a radical innovation project is also often

characterized by discontinuities, gaps, critical transactions, and leverage points and is usually long-term. (Leifer et al., 2000).

As defined previously, the novelty in innovation can refer to both relative and absolute novelty. Whether an innovation can be considered as radical also depends on the perceived degree of novelty by different parties. Tushman & O'Reilly (1996) suggest that the degree of radicalness is the novelty perceived by the companies that adopt innovation. Similarly, Cusumano and Nobeoka (1998) suggest that the degree of radicalness must be based mainly on the relationship to the firm's existing capabilities and not on the potential product's newness in the market.

In this thesis, radical innovation refers to an innovation which involves great novelty or radical change to the generating or adopting organization. Given different forms of innovation, as will be further discussed in the following section, this thesis focuses on product innovation.

2.1.2 Innovation and new product development

Among different forms of innovation, product innovation has drawn a lot of attention and its importance has been recognized by many researchers (Dougherty, 1992a; Eisenhardt & Tabrizi, 1995; Chandy & Tellis, 1998; Veryzer, 1998; Danneels, 2002). Product innovation has been recognized as a primary means of organizational renewal (Dougherty, 1992a; Eisenhardt & Tabrizi, 1995; Dougherty & Hardy, 1996; Chandy & Tellis, 1998; Veryzer, 1998; Danneels, 2002). It is also seen a major means for organizations to diversify, adapt themselves to match evolving market and technical conditions (Damanpour, 1987; Damanpour, 1991; Brown & Eisenhardt, 1995; Eisenhardt & Tabrizi, 1995; Dougherty & Hardy, 1996).

The product innovation process, usually referred to as the new product development (NPD) process, is defined as a process of developing a new idea into a product which can be commercialized in the market (Cooper, 1994; Veryzer, 1998; Krishnan & Ulrich, 2001). As in many organizations innovation often takes place in the form of a new product (Dougherty & Hardy, 1996), the term "new product development" is sometimes used to refer to innovation. However, these two concepts are different as new product development only refers to product innovation. Hence the innovation process

is synonymous with the new product development process only when it refers to product innovation. As this thesis focuses on product innovation, the innovation process and the new product development process are sometimes used interchangeably.

The new product development process is often described by the stage-gate model (Cooper & Kleinschmidt, 1986; Cooper, 1988, 1990, 1994) which divides the new product development process into a predetermined set of sequential stages composed of a group of prescribed, related and often parallel activities. For example, Cooper's (1988) stage-gate model identifies three main stages: (1) pre-development activities, (2) product development and testing, and (3) commercialization. The project moves stage by stage under the responsibility of each function. The entrance to each stage is called a gate managed by "gatekeepers" who are usually managers (*ibid.*). These are checkpoints where the project is assessed whether they have met the requirements in order to move forward to the next stage. The stage-gate model sees new product development process as a relay race with one group of functional specialists passing the baton to the next group.

Many other researchers use similar linear models to describe new product development or innovation processes (Zaltman et al., 1973; Majaro, 1988; Rothwell, 1992; Wheelwright & Clark, 1992; Calantone, Schmidt, & Benedetto, 1997; Song & Montoya-Weiss, 1998; Tidd et al., 2005; Beckett & Hyland, 2009), for example, Zaltman, Duncan and Holbek's (1973) two-stage model of initiation and implementation, Song and Montoya-Weiss' (1998) five-stage model including strategic planning, idea development and screening, business and market opportunity analysis, product testing and product commercialization, and Beckett and Hyland's (2009) four-stage model consisting of identification, exploration, implementation and value generation. Although labeling each stage differently, these process models are similar. von Stamm (2008) refers to the stages as categories and concludes that although variations exist throughout different new innovation process models, these processes are similar.

Admittedly, viewing the innovation process as a linear sequence of functional activities and using stage-gates to check the project progress, these linear stage models help us to map the complex innovation processes into well-defined phases and provide organizations with some control over the processes. Nevertheless, these linear stage models have received a lot of criticism from

researchers (e.g., Takeuchi & Nonaka, 1986; Sharma, 1999; Van de Ven et al., 1999). Assuming that the innovation process is neat and linear, these linear models oversimplify the innovation processes and thus fail to capture the complexity of innovation (Van de Ven et al., 1999). In reality, the NPD process is much more informal and chaotic than the commonly recommended neatly structured process. Besides, seeing each stage as clearly separated and each function as specialized and isolated, the linear stage models also fail to reflect that the uncertain and risky nature of innovation processes especially are less systematic to realize the challenges of radical innovation, leaving various organizational events in adopting change implicit in various types of innovation unaddressed. Moreover, relying on milestone driven processes can constrain innovation development due to strict and rigorous criteria (Sharma, 1999). In addition, the linear stage models of the innovation process also take a closed view on innovation, depicting it as only taking place within the organization and relying on the internally oriented and centralized approach to R&D (Chesbrough, 2003).

Noticing the limitations of the simple stage model, researchers have attempted to develop other more complex models to describe the innovation process. For example, Rothwell (1994) summarized how new product development models had been evolving from simple linear models to increasingly complex interactive models. His fifth-generation of the innovation concept views it as a multi-actor process requiring a high level of integration at both intra- and inter-firm levels and being increasingly facilitated by IT-based networking. Wheelwright and Clark's (1992) development funnel suggests that rather than making decisions on individual projects, new product development activities should be coordinated from a company-wide perspective and start from a link to company strategy. Van de Ven and colleagues (1999) use "innovation journey" to refer to the complexity of innovation and develop an intricate looping process model to map the innovation process. Pavitt (2003) argues that there is no simple "best practice" innovation model for all companies due to the heterogeneity and contingent nature of innovation, e.g., innovation processes in large organizations are different from those in small ones. And Chesbrough's (2003) open innovation model describes the innovation process as a funnel model which includes external sources of knowledge into the development processes.

To summarize, no matter whether using simple stage models or other more complex models, these innovation processes or new product development

models describe the complex innovation processes in a way that they could be controlled and managed. Although in reality it is rare that innovation processes can be set into clearly separated stages, and innovation processes may vary in organizations of varying sizes and different types of innovations, these models add to our knowledge that innovation processes consist of various activities that need to be organized and coordinated. These activities necessary to develop or implement an innovation are referred to as innovation activities (Smith, 2005). Although various models divide stages in innovation processes differently, activities involved in an innovation process are similar across different models (Zaltman et al., 1973; Majaro, 1988; Rothwell, 1992; Wheelwright & Clark, 1992; Calantone et al., 1997; Song & Montoya-Weiss, 1998; Tidd et al., 2005). These innovation activities include:

- Collecting or generating new ideas from both inside and outside the organization
- Research and development of new products and processes
- Acquiring resources for innovation, e.g., machinery and equipment linked to product and process innovation, external technology and so on
- Industrial design, testing new products, as well as other production preparations for new products
- Training directly linked to innovations
- Introducing the innovation to market and commercializing it

Therefore, this thesis suggests that instead of trying to divide an innovation process and new product development process into clearly defined stages, focusing on the activities necessary to develop or implement a new product is more fruitful for understanding the innovation process and identifying the obstacles and difficulties facing organizations during the process.

2.1.3 Innovation in mature industries

Current innovation studies emphasize differences in how companies innovate across different phases of the industrial life cycle (Henderson & Clark, 1990; Tushman & O'Reilly, 2002). Two prevailing conclusions can be drawn from the existing literature. First, the number of innovations is high during the emergent stages of the industries but decreases over time as industries mature and decline (Utterback, 1994). It is suggested that as organizations within mature industries have disadvantages in innovation compared to those within emerging industries, the characteristics of mature industries such as saturated

market, low entry level, specialized and refined technology, routinized manufacturing process (Clark, 1985; Drew, 1987) do not provide a favorable environment for innovation to flourish. In contrast, in those emerging and technically advanced industries where the product life cycle is shorter, technology develops faster and market competition is severer, companies feel more pressure to innovate in order to adapt to the rapidly changing environment.

Secondly, it is suggested that innovation in companies within mature industries has different characteristics compared with innovation within emerging industries. As an industry matures and both its products and technologies become older and more stable, organizational innovation is more likely to center around cost saving and performance improvement, encouraging creative effort in manufacturing efficiencies, work methods, or quality control (Kanter, 1983). Therefore innovation in mature industries tends to be more process and incremental innovation while innovation in emerging industries focuses more on product and radical innovation (Kanter, 1983; Anderson & Tushman, 1990; Utterback, 1994; Cohen & Klepper, 1996; Warren et al., 2000). Besides, due to the limited market size, a company's adoption of innovation often relies on the community, i.e., an innovation is easier to be adopted by a company if other companies have tried it. Hence innovation in mature industries is more about adoption rather than generation of new products, processes and practice (Warren et al., 2000). Besides, it is also suggested that leaders in mature industries have less incentive during industry maturity than during the emerging and declining phase (Abernathy & Utterback, 1978; Cohen & Klepper, 1996)

Therefore, given the discussion on the relationship between innovation and maturity of the industry, previous literature on innovation has been focusing on those sectors engaged in developing new technology or in the early growth phase of development, e.g., the computer industry (Eisenhardt & Tabrizi, 1995) and pharmaceutical industry (Cardinal, 2001), while innovation in companies within mature industries has received less attention (Pearson, 1988; Warren et al., 2000). Nevertheless, some researchers have studied innovation in companies within mature industries and identified innovation hindrances facing companies in mature industries. For instance, Álvares and Barbieri's (2000) case study in a Brazilian steel can manufacturer suggests that innovation introduced by the company is a result of a continuous learning process. It is provided by a participatory management style which produces a

creative environment and favors people's development. Pearson and his colleagues (1988, 1989) studied innovation in the U.K. warp knitting industry. The results suggest that the most important factor related to innovation is the company's strategic focus, the characteristics of the business strategy and how well it is known and understood by members of the company. Moreover, the way in which the company is managed and individuals' freedom to use their own initiatives are also related to innovativeness. Warren and his colleagues (2000) find the lack of resources and funding for radical innovation, as well as the lack of individuals or groups that facilitate and stimulate the innovation process are the obstacles of innovation in mature industries (*ibid.*), while flexibility of thought, which refers to the extent to which people could adapt and re-direct their way of thinking to changes, as well as the experience in both the production and the industry are considered as important to innovation (*ibid.*).

Moreover, some researchers suggest that the industry-life-cycle model based on the S-curve may not comprehensively describe innovative activities in mature industries (McGahan & Silverman, 2001). McGahan and Silverman (*ibid.*), through their empirical study of patent activities in American publicly traded firms, refute the stylized assertions about innovation in mature industries. Their findings have shown that the general level of innovation is not necessarily lower in mature industries than in emerging industries and there is no evidence of a shift from product to process innovation as industry matures. Besides, the absolute amount of innovation activity among leaders is not lower in mature industries than in emerging industries. On the contrary, leaders in mature industries are significantly more diversified in their innovation activities than those in emerging industries.

Above all, although a few studies have provided evidence contradicting the stylized prevailing claims about innovation activities described by the industry-life-cycle model, the current understanding about innovation and industry maturity remains insufficient. There is lack of studies of innovation in mature industries, and especially empirical studies are scarce. Besides, although those few studies focusing on innovation within mature industries have identified some innovation hindrances in companies within mature industries, the explanation for these impediments remains unexplored. All this calls for more research effort to focus on innovation in mature industries to enhance our understanding of it.

2.1.4 Innovation management in large mature organizations

Given the importance of innovation recognized by many researchers, one of the key questions for innovation research has been to explain how innovations occur (Fagerberg, 2004). Research efforts have been made to study innovation challenges facing companies and the way they are addressed (e.g., Damanpour, 1991; Dougherty, 1992b). In particular, it is suggested that when companies grow large and mature, they face more challenges in innovation compared with those small and young companies (Leonard-Barton, 1992; Dougherty & Hardy, 1996; Tushman & O'Reilly III, 1996; Christensen, 1997; Wagner et al., 2011), and the probability of innovation decreases as companies mature (Huelgo & Jaumandreu, 2004). This section reviews selective studies of innovation management which identify and/or address the innovation difficulties in organizations. More specifically, given that the research context of this thesis is a large mature company, the focus of the literature review is on innovation challenges in large mature organizations. The literature on innovation management is indeed large and extensive. Even though the research context of a large mature organization has helped to narrow down the scope of the search, the studies selected here are those relevant to the discussion in the later chapters.

2.1.4.1 *The dilemma between exploitation and exploration*

As innovation is related to new things, it inevitably involves learning. In organizational learning literature, innovation is associated with learning activities oriented towards novelty, variation, risk taking and uncertainty, including such issues as searching, discovery, experimentation as well as adjustment to existing learning structures, which are referred to as exploration (March, 1991). Similar concepts used to capture these activities include double-loop learning (Argyris & Schön, 1978), higher level learning (Fiol & Lyles, 1985) and generative learning (Senge, 1990). At the same time, organizations also engage in other activities concerning refinement and extension of existing competences, technologies and paradigms, which can bring predictable, proximate and positive returns, including things such as refinement, choice, production, efficiency, selection, implementation and execution. These activities are referred to as exploitation (March, 1991), single loop learning (Argyris & Schön, 1978), lower level learning (Fiol & Lyles, 1985) and adaptive learning (Senge, 1990).

Accordingly, companies' exploration activities are related to their abilities to innovate, and stimulating innovation in organizations involves facilitating explorative learning activities. However, these two types of learning activities, e.g., exploitation and exploration compete for resources allocation within organizations (March, 1991), which can further cause problems in innovation. Hence, companies, especially established ones, face the dilemma between exploitation and exploration, as they are more likely to engage in exploitation rather than exploration due to the competition in resources allocation (Christensen, 1997). Established firms tend to focus on improving the performance of the current products and addressing the known customer need to reach higher performance and profit margin. Therefore they innovate within the same trajectory of performance improvement instead of adopting or developing disruptive innovation. The sustaining innovation almost always preempts resources from disruptive innovation with small markets and poorly defined customer needs, which in the end is the competition of resources allocation between exploitation and exploration (ibid.).

2.1.4.2 Cultural paradox

Tushman and O'Reilly (1996) emphasize the importance of organizational culture in innovation and argue that organizations, especially large mature ones, face a culture paradox. Organizational culture associated with the earlier success of the organization can play a part in its downfall. Thus, culture can be key to both short-term success and long-term failure. They argue that a company's previous success can bring with it inertia and dynamic conservatism. As an organization becomes more mature and larger, how things should be done is institutionalized, informal norms, values, social networks in myths, stories and heroes that have evolved over time (ibid.). The more successful the organization has been, the more institutionalized or ingrained these norms, values and lessons become, and the greater the cultural inertia, which makes it difficult for organizations to recognize the need for change and even consider it as inappropriate (ibid.). For instance, Dougherty and Heller (1994) found that the activities of product innovation were illegitimate in large mature firms, either violating prevailing norms or failing into a vacuum, as no shared understanding existed to make them meaningful. And successful innovators reframed prevailing patterns of thinking and acting to incorporate their new products; however this reframing only embraced those particular products.

2.1.4.3 Path-dependency

As it involves novelty, another challenge for innovation in mature companies is the self-reinforcing effect and path-dependency (Arthur, 1994). The term “locked in” (Arthur, 1989; Liebowitz & Margolis, 1995; David, 2001) is often used to describe the process of moving into the reproduction phase of the path (David, 2001) after change has taken place. Previous literature has studied innovation in relation to path-dependency, suggesting that the process of innovation diffusion is affected by past events in the history of organizations, which can inhibit the ability of an organization to adopt new ideas and therefore be a potential barrier to innovation (Coombs & Hull, 1998). Therefore the process of implementing an innovation is firm-specific and path-dependent (Coombs & Hull, 1998; Pavitt, 2003; Fagerberg, 2004). If a firm selects a specific innovation path very early, it can enjoy the first-mover advantages, but it also risks being “locked in” to this specific path because of various self-reinforcing effects after change has taken place (Fagerberg, 2004). Accordingly, the trajectory of innovation varies based on the initial situation of the company and its previous innovation experience. For instance, Pavitt (2003) suggests that companies, especially manufacturing companies, are path-dependent due to their specialized and professionalized nature of knowledge on which they are based. What they search for in the future is heavily conditioned by what they have learned to do in the past, and therefore their innovation processes are heterogeneous and firm-specific.

One area that shows an organization’s path-dependency is organizational routines. Routines are defined as repeatable patterns of collective behaviors by which organizations accomplish work (Nelson & Winter, 1982). These established routines can inhibit change as they become ingrained and become the norms after what potentially could be years of optimization of the current situation (Andreu & Ciborra, 1996). Wagner et al.’s (2011) study shows that formal process and structures as well as learned procedures inhibit change as they clearly define the procedures within the organization and role of organizational members which become blurred during the change, hindering innovation.

2.1.4.4 Core capabilities and core rigidities

Defining capability from a knowledge-based view, Leonard-Barton (1992) argues that firms are facing the paradox of core capability and rigidity. The knowledge that served the company well in the past and can still be

appropriate for some projects will be experienced by others as inappropriate. She defines capability as including four dimensions: (1) employee knowledge and skills, (2) technical system, (3) managerial system, (4) the values and norms associated with embedded and embodied knowledge as well as with the knowledge creation processes. These four dimensions of core capability reflect accumulated behaviors and beliefs based on early successes of organizations, which are unique and not easily imitated by competitors. Core capabilities, thus, can enhance the organization's new product development which is aligned with the prominent core capability. However as the core capabilities are institutionalized (Zucker, 1977), they become a part of the taken-for-granted reality in the organization. The values, knowledge, skills and technical systems that served the company well in the past may become inappropriate for those projects that are designed not to be aligned with the core capabilities but to create new nontraditional capabilities (ibid.). In particular, Leonard-Barton (ibid.) stresses that core rigidities can inhibit innovation especially along the value dimension, that core values that support a core capability and thus enable development can also constrain it.

2.1.4.5 Sustaining innovation

The above-mentioned studies are some examples of reasons why it is difficult for innovation to take place in large mature organizations. Dougherty and Hardy (1996) on the other hand, suggest that mature companies do not necessarily lack the ability to innovate but face the problem of sustaining innovation. Focusing on product innovation, Dougherty and Hardy (ibid.) suggest that continuous innovation depends on an organization-wide commitment to innovation which is usually missing in mature organizations. In these organizations, the individual project's success depends on the efforts of the individual member, and they do not result in organizational wide commitment to innovation. Strategic support for innovation is only temporary or non-existing. There were no attempts to embed innovation into the decision premises, day-to-day web of understandings, and taken-for-granted rules that make activities meaningful - innovation had little positive, strategic meaning. Furthermore, they suggest that in order to sustain innovation, mature organizations need to (1) make resources available for new products; (2) provide collaborative structures and processes to solve problems and connect innovations with existing business; and (3) incorporate innovations as a meaningful component of the organization's strategy.

2.1.4.6 Ambidextrous organizations

Given the exploitation-exploration dilemma and culture paradox facing organizations, especially large mature organizations, previous studies have suggested that ambidextrous organizations can be a way of overcoming the inertia and implementing innovation and change (Tushman & O'Reilly III, 1996; O'Reilly III & Tushman, 2008). As has been mentioned before, Christensen (1997) was pessimistic about the ability of the established firms to simultaneously manage sustaining innovation (exploitation) and disruptive innovation (exploration). He suggests that the only way to solve this dilemma is to set up small spin-offs for disruptive innovation to succeed. Yet O'Reilly and Tushman's studies (1996; 2008) suggest that organizations do not necessarily have to spin off their parts; instead, they could have separate structural subunits within the organizations to manage both incremental and revolutionary change, maintain short-term profit and adapt to the changes to assure future long-term success.

Moreover, ambidexterity does not only refer to separate structural subunits for exploration and exploitation but also refers to different competencies, systems, incentives, processes and cultures – each internally aligned. These separate units are held together by a common strategic intent, an overarching set of values, and targeted structural linking mechanisms to leverage shared assets. By keeping units small and autonomous, ambidextrous organizations allow employees to feel a sense of ownership and are responsible for their own results. This encourages a culture of autonomy and risk taking that is difficult for large centralized organizations and allows subcultures to emerge (Tushman & O'Reilly III, 1996). However, in order to avoid conflicts and disagreement and poor coordination due to the separate organizational structures with different competence, incentives and cultures, there should also be common set of values and shared meanings that provide common identity and promote shared understanding among organizational members (O'Reilly III & Tushman, 2008).

2.1.4.7 Open innovation

Organizations' openness to external sources of knowledge and their abilities to utilize the external knowledge have been suggested as important to overcome the obstacles such as path-dependency and core rigidity (Chesbrough, 2003; Fagerberg, 2004; Herzog, 2011). From a system perspective, innovation involves a set of interlinked activities or actors

(Fagerberg, 2004). Organizations do not innovate in isolation but depend on extensive interaction with their environment (ibid.). The more open the organization is for impulses from outside, the less the chance of being “locked in” its previous paths and “locked out” from promising new paths of development that emerge outside the organization (ibid.). Hence, an organization’s innovation capability depends on its ability to utilize the knowledge from the external sources, and cultivating the capacity for absorbing external knowledge referred to as “absorptive capacity” (Cohen & Levinthal, 1990) is important for innovation. Therefore the concept of “open innovation” (Chesbrough, 2003) extends boundaries of innovation processes to assess and integrates external knowledge, e.g., universities, new start-up companies and customers to absorb new ideas. The company can leverage multiple paths to develop and market for its innovation instead of following its traditional path.

In particular, customers are seen as an important source of information outside the organization and important in open innovation (Chesbrough, 2003; Thomke & von Hippel, 2002; Ulwick, 2002; Ashford, 2009). A group of advanced and demanding users also referred as lead users (von Hippel, 1988) can contribute their knowledge and creativity in innovation processes. Therefore, open innovation companies invite the customer in to the innovation process as a partner and co-producer. This process is an iterative learning through getting feedback from the customers, to responding to the required changes and getting the requirements from customers again. Customers can use their own knowledge and combine it with the existing technology offered by the innovation company in a new way which the company could never have thought of by itself, yielding new features of requirements which may lead organizations to new paths of development.

2.1.4.8 Summary

Above all, the studies discussed above are only some examples of innovation challenges facing organizations especially large mature organizations, as well as ways of overcoming them. Nevertheless, it can be seen that organizations, especially large mature ones, tend to follow their previous development and innovation paths, relying on exploiting its core capabilities rather than exploring new capabilities. Moreover, many researchers have suggested that a key obstacle which prevents organizations from moving away from their previous development path and changing their innovation trajectories is the values, norms and shared understanding within the organizations

(Leonard-Barton, 1992; Dougherty & Hardy, 1996; Tushman & O'Reilly III, 1996). As the appropriate ways of thinking and behaving within the organization are decided by its previous success and become institutionalized as its development process, change and innovation are often regarded illegitimate and violate the existing norms and behavioral patterns in the organization. Furthermore, this can result in a lack of organization-wide commitment to innovation or shared understanding to make innovation meaningful. Therefore, reframing the prevailing patterns of thinking and acting, developing shared understanding about and commitment to innovation is not only crucial for stimulating innovation but also for allowing it to sustain and flourish. And this is even more challenging as well as crucial for large mature organizations than for small and young organizations.

2.2 Organizational culture

Culture studies stem from a long history of anthropology and sociology, and they entered organizational studies flourishing in the 1980s when cultural perspectives were applied to a wide range of organizational and management issues. Researchers in organizational studies have sought to investigate whether the concept of culture offers fresh insight for understanding and studying various organizational phenomena. Drawing attention to the “soft” side of organizational life, the concept of organizational culture has provided an alternative to organizational structure in controlling people and their behaviors (Harrison & Carroll, 1991). Cultural analysis therefore offers a way of explaining many organizational phenomena that are puzzling and that other factors fail to explain.

2.2.1 The concept of organizational culture

2.2.1.1 Definition of culture

Although researchers have proposed various definitions of culture, there has not been an agreement on one definition. A literature view on culture shows that most studies agree on the conceptualization that defines culture as a set of underlying values, beliefs and assumptions (Quinn & Rohrbaugh, 1981; Martin & Siehl, 1983; Davis, 1984; Schein, 1985; Gordon & DiTomaso,

1992; Kotter & Heskett, 1992; Deshpandé, Farley, & Webster Jr, 1993; Boisnier & Chatman, 2003; Jaskyte & Dressler, 2005; Ravasi & Schultz, 2006). Among these authors, Schein's (1985; 2010) culture theory is one of the most influential contributions to culture studies. According to Schein (1985; 2010) organizational culture is defined as "a pattern of shared basic assumptions that the group has learned as it solved its problems in external adaptation and internal integration" (Schein, 2010: 18). According to this definition, in order to survive, organizations need to adapt to their external environment and integrate their internal processes. The role of culture in this process is to solve organizational members' problems of external adaptation and internal integration as they develop and learn from values, beliefs and assumptions according to the problem solving, telling members the correct way to perceive, think and feel in relation to those problems (Schein, 2010).

More specifically, these values and assumptions about external adaptation issues include: (1) the organization's ultimate mission, strategy and goals; (2) how these means are used to achieve goals; (3) measurement of organizational performance; (4) remedial and repair strategies and correction mechanisms. The internal processes reflect the major internal issues that any organization must deal with. The values and beliefs about internal integration issues include: (1) creating a common language and common conceptual categories; (2) defining group boundaries and criteria for inclusion and exclusion; (3) distributing power, authority, and status; (4) developing norms of trust, intimacy, friendship and love; (5) defining and allocating of rewards and punishment (ibid.).

This integrated set of values and assumptions is like the "mental map" or "thought world" of the organizational members (ibid.). If these values and assumptions become strongly held in an organization, members will behave according to them and find behavior based on other premises inconceivable. This mental map concerns how people should act in different situations, involving the way they plan, implement and review their actions. In this sense, culture is similar to what Argyris and Schön (1974, 1996) identified as "theories-in-use" – the implicit assumptions that actually guide behavior and tell group members how to perceive, think and feel about things. Theory-in-use is a kind of know-how which and may take the form of procedural knowledge, such as rules of thumb or the members' grasp of various categories of situations and behavior appropriate to them or their spontaneous perception of "the right thing to do now" (Argyris & Schön, 1996: 15).

Therefore, changing these underlying values, beliefs and assumptions requires organizational members to resurrect, reexamine, and possibly change some of the more stable portions of the cognitive structure – a process of “double-loop learning” (Argyris, 1977) or “frame breaking” (Argyris, Putman, & Smith, 1985; Bartunek, 1984).

In this thesis, along with Schein (1985; 2010) and other authors (Quinn & Rohrbaugh, 1981; Martin & Siehl, 1983; Davis, 1984; Schein, 1985; Gordon & DiTomaso, 1992; Kotter & Heskett, 1992; Deshpandé et al., 1993; Boisnier & Chatman, 2003; Jaskyte & Dressler, 2005; Ravasi & Schultz, 2006), organizational culture is defined as a set of shared values, beliefs and assumptions that guide actions and interpretation in organizations. It can be seen as organizational members’ mental map or the organization’s interpretative scheme. These underlying values, beliefs and assumptions are expressed and manifested in various material artifacts as well as in the organization’s formal and informal practices, which represent the visible, tangible and audible elements of an organizational culture.

This definition also suggests shared-ness is an important character of culture, suggesting that culture tends towards integrating the whole organization. Although it has been suggested that it is unlikely that a group share an integrate set of values, beliefs and assumptions, and subgroups within the organization (e.g., functional groups) may develop their own subcultures, leading to different perspectives differentiation and fragmented approach to study culture (Martine, 2002), this thesis considers that the concept of culture draws attention to the human need for stability, consistency and meaning (Schein, 2010: 18). Therefore the cultural formation will always drive towards patterning and integration, although there may be conflicts and ambiguity.

2.2.1.2 Distinction between concepts

According to the degree to which cultural phenomena are visible to observers, culture can be studied at the visible, audible, tangible level of cultural manifestations as artifacts, behavior and practices and invisible and invisible values, beliefs and assumptions (Schein, 2010), among which the assumptions are the core of culture.

Artifacts are the most conscious, surface and visible manifestation of culture, including the most observable elements such as language, technology and

products, rituals and ceremonies, behaviors and structural elements, etc., while only significant examples of artifacts are discussed here. These visible, tangible and audible artifacts create the surface that leaves immediate impression of a culture. Schein (2010) argues that artifacts are characterized as “visible but hard to decipher”. Drawing upon the body of literature that attempts to operationalize the artifacts of culture (Schultz, 1994; Martin, 2002), some of the essential artifacts include:

- Success stories; what is success and how to achieve success
- Attitudes
- Physical manifestations: office arrangements, dress code, interior decoration
- Language (jargon, humor)
- Technology
- Traditions
- Formal and informal practices

Values are embodied in an ideology or organizational philosophy, guiding the organization’s daily practice and its way of dealing with the risk, uncertainty and other issues (Schein, 2010). Values have a normative character (Schein, 1985; Hatch, 1993; Schultz, 1994) and a “sense of what ‘ought’ to be, as distinct from beliefs which are referred as what is” (Schein, 1985: 15). Hence, compared to beliefs that represent how things are, values represent preferences for means or more ultimate ends judged as “desirable” or “undesirable”. Hatch (1993: 663) suggests that values incorporate the element of expectation, as organizational members’ “perceptions, thoughts and feelings reveal a more or less holistic expectation, not of organization as experienced, but as general expectations”, and therefore values can be understood in a normative sense of “ought to” or as general expectations. Hence values do not have to be realized. In this thesis, values are defined as organizational members’ premises about what things ought to be.

Beliefs represent how things are; they refer to how the values are believed as being realized in the organization (Schein, 2010). The organizational members share certain significant values but can hold different beliefs about the present state of affairs (Schultz, 1994).

Compared with basic assumptions, values and beliefs are at a high level of consciousness. They can be articulated to answer “why” questions and can be made the object of discussion by organizational members (ibid.). Schultz

(*ibid.*) defines values as expressed statements made by organizational members on how things ought to be and can be derived from interviews and conversations with organizational members. However, relying completely on organizational members' statements to infer values may result in the identification of a list of espoused value rather than the actual values – organizational members' espoused theory rather than theory-in-use which actually guide their behaviors (Argyris & Schön, 1996). While these values are expressed through various artifacts and practices, certain interpretation of these cultural manifestations provides a useful way of deriving organizational members' values (Martin & Siehl, 1983).

Although the analysis of the level of “value” will result in a list of values in the organization, the list seldom leads directly to the basic assumptions. Given the richness and pervasiveness of culture, what can be identified as cultural artifacts and values can still be only a piece of culture but not grasp culture as such in hand. In order to get that deeper level of understanding, to decipher the pattern, and to explain behavior correctly, an understanding of the category of basic assumptions about what is “right” to do would be more helpful to explain behaviors.

When certain values and beliefs are repeatedly implemented and perceived to be successful, they will be reinforced and become deeply rooted assumptions and taken for granted (Schein, 2010). Assumptions lie in the deepest level of culture. They are not linked to distinct problem areas in the organizational survival. They do not follow the distinction into functional areas of external adaptation and internal integration but concern much more general assumptions of reality, time, space, human nature, and human relationships (*ibid.*). It is the deepest level of assumptions about what is “right” to do, in contrast with the “right way” to do.

At the unconscious level, assumptions are accepted as the natural reality and cannot be made the object of discussion. Thus the analysis of assumptions requires an analysis of the data through various functional areas. Schultz provides several criteria to extract basic assumptions (Schultz, 1994: 54):

- The assumptions exist behind several different relations and situations and are thereby not specified according to distinct tasks or functional areas.
- The assumptions form a shared framework for several of the espoused disagreements and conflicts which exist among the organization's

members at the more superficial cultural levels, including both values and beliefs.

- The assumptions are not coherently formulated by the members, but can appear in 'bits and pieces' in the interview or observation data.

However, given the richness of culture, the efforts made to identify different values, beliefs and assumptions would still be a piece of culture. Being aware of this, as the purpose of this thesis is to study the relationship between organizational culture and innovation, culture in this thesis refers to the cultural elements related to organizational innovation, rather than the whole organizational culture and everything under the umbrella of culture. In particular, as will be further elaborated in the following sections, culture in this thesis refers to a set of shared values, beliefs and assumptions around selected product innovation projects. And the purpose is, thus, to understand how these values, beliefs and assumptions, as organizational members' mental map, influence how people think and act in an organization's new product development processes.

2.2.1.3 Organization culture and climate

One concept sometimes used interchangeably with organizational culture is organizational climate. Climate usually refers to more overt, observable attributes of an organization (Cameron, 2008). It refers to a situation and its link to thoughts, feelings and behaviors of organizational members (Denison, 1996) and temporary attitudes, feelings and individuals' perception (Schneider, 1990). It presents the organizational environment in a relatively subjective way and therefore can change frequently as situations change (Cameron, 2008). In terms of research methodology, climate is often captured by a quantitative method. On the other hand, organizational culture, usually defined as underlying shared values, beliefs and assumptions, refers to the deep structure of organizations (Denison, 1996) and includes a more profound meaning of the manifestations (artifacts) (Schein, 1990; 2010). It refers to implicit, often indiscernible aspects of organizations and is more enduring and slow to change (Cameron, 2008). Culture studies often require qualitative research methods and appreciation for unique aspects of individual social settings (Denison, 1996).

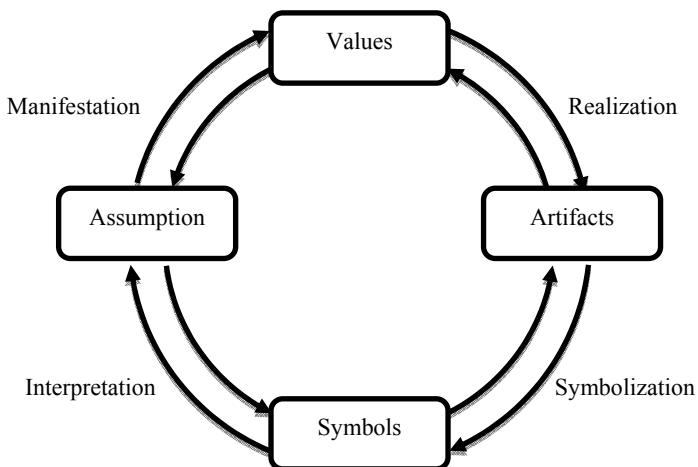
2.2.2 Culture dynamics

Culture theory has suggested that culture should be treated as a dynamic phenomenon rather than a static entity (Hatch, 1993; Schein, 2010). And the dynamic nature of culture is important part in the discussion in this thesis.

Although he does not use the term “culture dynamics” explicitly, Schein (2010), in his culture model, suggests that the values and beliefs become taken-for-granted assumptions through repetitively successful implementation in organization. However, his cultural model did not discuss further the link between artifacts, values and assumptions and how these different levels are linked and transformed to each other.

The culture dynamic model (Hatch, 1993) reveals the relationship between cultural elements at different levels, which has provided a lens for understanding culture from a static to a dynamic and procedural perspective. Apart from the three levels of culture in Schein’s model, Hatch adds a new element – symbols – and suggests all the four levels of culture, symbols, artifacts, values and assumptions, are linked by arrows and create a cyclical model (see in Figure 2-1). These four levels are linked by four processes – symbolization, realization, manifestation and interpretation – which depict the dynamism and interrelation between them.

Figure 2-1 The culture dynamics model. Source: Hatch (1993: 660)



In the culture dynamics model, assumptions are translated into more conscious values through the process of manifestation; what organizational members assume to be true shapes what they value. The unaware assumptions are manifested as expectations, thoughts and feelings about the world and the organization through the process of proactive manifestations, through which this shaping takes place. Meanwhile, the values emerging from basic assumptions also have an effect of reaffirming and buttressing on them through the process of retroactive process.

Realization is the process that links cultural value and artifacts. Cultural expectations and values are made into tangible artifacts through proactive realization. And the retroactive realization addresses the post hoc contribution of artifacts to values and expectations of “how things should be”. There are two possibilities. On the one hand, artifacts realized from values and expectations maintain or reaffirm these values and expectations. On the other hand, artifacts produced by another culture or by forces not aligned by cultural values can retroactively challenge values as culture adjusts to their presence. The realization process call for the study of how values and expectations are used and maintained and transformed in the course of constructing, reproduction, and transformation through the daily activities of an organization, which could be used to examine how values and expectations unfold (ibid.). Schultz (1994) suggests that artifacts can have both integration and conflict-creating effects in relation to values and basic assumptions within the culture.

Hatch (1993) distinguishes between symbols and artifacts, that not all the artifacts are apprehended as carrying equal cultural significance within the symbolic field. Some artifacts will acquire more significant associations across more organizational members than will other artifacts in a given moment and at a particular place. And symbolization is the process links artifacts and symbols. The prospective symbolization is a prospective response that links an artifact’s objective form and literal meaning to experiences that lie beyond the literal domain. It provides artifacts meaning that reaches beyond or surrounds it. Artifacts must be translated into symbols if they are to be apprehended as culturally significant objects, events, or discourses. Although all the artifacts can be symbolized, not all will be, at least not at all times and in all places. The retrospective symbolization enhances awareness of the literal meaning of symbolized artifacts, which provides feedback to the artifacts and may make the aspects of literal meaning of the artifacts more acute (ibid.).

Last but not least, the process that links symbols and cultural assumptions is referred to as interpretation. The interpretation involves a move from the “already known” of a culture’s basic assumptions to current symbols (retrospective interpretation). And interpretation also establishes meaning, that current symbols have a reciprocal influence on basic assumptions (prospective interpretation) (ibid.). Hence, the interpretation process contextualizes current symbolization experiences by evoking a broader cultural frame as a reference point for constructing an acceptable meaning. Meanwhile, cultural assumptions, momentarily exposed during the process of interpretation, are opened to the influence of new symbols, which makes it possible for culture to absorb newly symbolized content into its core as new assumptions. This process also suggests that culture change is possible. Two results can emerge from interpretation: altered understanding of symbolic meaning via retrospective interpretation and revision to cultural assumptions via prospective interpretation.

All the four processes “co-occur in a continuous production and reproduction of culture in both its stable and changing forms and conditions” (ibid: 66). The model can start anywhere and move in a clockwise or counterclockwise direction.

In this thesis, symbols are considered as a part of the more comprehensive category of artifacts, that all the symbols are artifacts (Schein, 1985; 2010). Not every object or behavior in the organization can be seen as artifacts which manifest culture. When an object or behavior is called an artifact, it already means that it is culturally significant and therefore can be seen as a manifestation of culture. Although the distinction between artifact and symbol is not the focus here, the cultural dynamic model has several important implications for this thesis.

First of all, it directs the focus of culture study from seeing culture as a static entity to a dynamic process, in which culture is seen as a dynamic construction and reconstruction as members take action, make meaning, constructing images, and forming identities (Hatch, 1993). Thus, studying the relationship between culture and other organizational phenomena should take this dynamics of culture into consideration, that culture should not be seen as a static variable that causes a certain phenomenon or result, as it can be constructed and reconstructed during organizational members’ daily action and practices.

Secondly, by articulating the arrow linking the visible level of artifacts as well as the underlying values and assumptions, and defining these links as processes having both forward (proactive/prospective) and backward (reactive/retrospective) temporal modes of operation, the cultural dynamic model suggests that the visible, tangible and audible artifacts are not only the manifestations and translation of the underlying values and assumptions but can also reinforce or modify them, which suggests that culture change is possible.

To summarize, Schein's (1985; 2010), Schultz' (1994) and Hatch's (1993) work has provided insights into how to understand and analyze culture at different levels and how cultural elements at different levels are related to each other. Artifacts and symbols, at a visible level, are seen as manifestations of values and assumptions. They are materialized and symbolized values and assumptions which reinforce and can even modify the cultural values and assumption. Values and beliefs, at an invisible level, constitute the core of the culture and are like an organization's theory-in-use, guiding behavior and telling its members how to perceive, think and feel about things. They can be inferred and interpreted from the visible level of artifacts and symbols. One value or assumption can be manifested in several different artifacts or symbols, and the same artifact or symbol can also be seen as being infused with a set of values and assumptions.

2.2.3 Strong culture and subculture

As has been discussed previously, in this thesis I argue the shared-ness of culture, although it can be at different levels, is an important characteristic of culture that tends towards integration and patterning. However, the cultural values, beliefs and assumptions are seldom completely shared (Sathe, 1983; Mills, 1988; Martin, 2002). Instead of being seen as a monolithic phenomenon – one culture in one organizational setting, organizational culture is composed of various interlocking, nested and sometimes conflicting subcultures; it does not only serve to integrate different functions but also express conflicts and differentiation among them (Martin & Siehl, 1983). The term culture does not always imply harmony, clarity and consistency but could also be conflicts, ambiguity and inconsistency (Martin, 2002: 3).

2.2.3.1 Strong culture

A strong culture is defined as a culture where the cultural values, beliefs and assumptions are held deeply and intensely by the organizational members (Schein, 1985; Gordon & DiTomaso, 1992). Another way of defining a strong culture is based on whether it is widely shared (e.g., Deal & Kennedy, 1982; Sathe, 1983). In this thesis, a distinction is made between these two approaches. A strong culture can be described in two dimensions: the intensity – how deeply or intensely the cultural values, beliefs and assumptions are held by organizational members, and coherence – how widely these values, beliefs and assumptions are shared.

Strong unitary cultures are usually considered as a stabilizing force in organizations by encouraging cohesion, organizational commitment, and desirable work behaviors among members (e.g., Deal & Kennedy, 1982; O'Reilly & Flatt, 1986) and therefore help with organizational control (Martin, 1992). They are usually considered to produce stability, predictability, security, rule orientation, team orientation, working in collaboration with others, and low level of conflict in this situation can be equated with conformity, which is desired and seen as diminishing organizational conflicts and divisions (Clegg, Kornberger, & Pitsis, 2005: 275).

Sathe (1983) suggests that two important factors influencing cultural strength are the number of employees and their geographical dispersion. Smaller companies with more localized operations could have a strong culture because it's easier for shared beliefs and values to become widely shared. While a large organization can also acquire a strong culture through the continuity of strong leadership which emphasizes the same values and beliefs, and a relatively stable and long-tenured workforce, which makes it easier for a consistent set of beliefs and values to be held and become widely shared among people (ibid: 13). History, leadership, organizational size, and stability of its membership all play a role in formulating a strong culture.

2.2.3.2 The emergence of subculture

Subculture suggests that an organization does not necessarily have a strong unitary culture shared by all or most of the organizational members. The department, division or professional group can evolve its own, autonomous culture as different subcultures in relation to the overall organizational culture

(Schein, 2010). Hence there is often a set of interactions of subcultures operating within the larger context of the organizational culture (Schein, 2010; Trice, 1993). Functional groups have been considered as an important source of subculture (Schein, 2010). Trice (1993) suggests that occupational groups as a distinctive source of subcultures within an organization are demarcated by the boundaries between different functional groups and therefore refer to functional subcultures.

As members of those functional groups often have similar educational backgrounds, share the tasks, have similar organizational experiences (Schein, 2010), and have also mastered and applied specialized knowledge about a set of specialized tasks (Trice, 1993), they often form “silos” (Schein, 2010) in the organization and tend to embrace and create their own subcultures. Members of functional groups are expected to perform certain tasks, exercise a degree of control over how they are done and possess a relatively distinct and unique knowledge base that they use to master and be able to put into practice. They may share many values, beliefs and assumptions of the overall organizational culture (ibid.) but also can possibly clash with the overarching organizational culture (Trice, 1993).

Furthermore, Schein (2010) highlights three generic subcultures in organizations: the operator subculture, the engineering/design subculture and the executive subculture. For instance, the operators who do the operational work such as producing and selling the organization’s products and services may develop core values and assumptions about how to get things done effectively and efficiently. And since the engineers and designers focus on problem solving and designing products that have utility, efficiency, safety and aesthetic appeal, and top management are concerned about the financial issue and survival and growth, these groups may develop values and assumptions distinct from each other and from the rest of the organization. Apart from the functional groups, subcultures can also emerge on the basis of geographical decentralization, hierarchical level and other types of subgroups in the organization (ibid.). This thesis will focus on functional subcultures.

Although their importance to culture studies has been articulated, these functional subcultures are often overlooked within the study of organizational culture (Trice, 1993). As a strong unitary culture is usually seen as a means of maintaining the organization’s stability and exerting normative control, the subcultures are usually seen as a distraction from the overall organizational

culture, which brings conflicts and dissent (e.g., Martin, 1992). However, researchers holding different opinions argue that subcultures have certain properties that can even strengthen the overall organizational culture (Boisnier & Chatman, 2003). They often emerge in response to changing demands and can be a way of expressing conflict and dissent. Moreover, organizations can even utilize subcultures as a source of change. Especially those with strong cultures can promote innovation by stimulating subcultures in which creativity is the central value (ibid.). Subcultures can provide space where creative ideas can be formulated relatively independent of the constraints or influences of the strong culture. The subculture and innovation will be further discussed in the following section.

2.2.3.3 Subcultures and the dominant culture

Schein (2010) suggests that different functional groups can develop their own subcultures and at the same time share some of the values and assumptions of the overall organizational culture. On the other hand, Trice (1993) suggests the possibility that the functional subcultures clash with the overall organizational culture. Martin and Siehl (1983) developed a typology of organizational subcultures according to their relation to the dominant organizational culture, including enhancing, orthogonal, and counter subcultures, each type exemplifying a different level of congruence with the values of the dominant culture.

An enhancing subculture would exist in a subgroup in which members adhere to the core values of the dominant culture even more enthusiastically than members of the rest of the organization. They agree and care about both their own values and the overarching organizational values, and their core values are consistent with the larger organization's core values. In an orthogonal subculture, the members would simultaneously embrace the core values of the dominant culture and a separate, unconflicting set of values particular to themselves. For example, different functional groups may endorse the dominant organizational values while retaining separate sets of values related to their occupational identities, such as "financial numbers" for accounting and "innovation" in the R&D department. The counter subcultures contain some core values that can present a direct challenge to the core values of a dominant culture. A dominant culture and a counterculture exist in uneasy symbiosis, taking opposite positions on value issues that are critically important.

Boisnier and Chatman (2003) refer to the values contained within the subcultures as peripheral, while those contained within the core culture as pivotal. And they further argue that peripheral values are easier to change than pivotal values. In this sense, orthogonal subcultures primarily differ from the larger organization by having certain own peripheral values.

2.2.3.4 The dynamics between subcultures

Within organizations, the functional subcultures do not only interact with the dominant organizational culture but can also be in conflict and alignment with each other. As dynamic entities, subcultures also adapt to one another as they coexist within the same organization (Trice, 1993). Trice (ibid.) suggests three prominent modes of adaption between subcultures: accommodation, assimilation and chronic clash. These three types of adaption model are the ideal types. The adaptation is also a dynamic process that might approximate one of the ideal types but can be pushed and pulled towards another types over time.

Accommodation refers to the situation where subcultures negotiate with one another with respect to their boundaries so that functions can practice side by side without causing major changes in each other. Accommodative subcultures compromise their own principles by balancing (accommodating) their cultures against others so that none of the subcultures dominates via competition and conflict. Mutual toleration and agreed-upon working arrangements enable subcultures to keep their own values, beliefs and assumptions intact. Within organizations, as different functions work closely together, members of different functions often make minor adjustments to accommodate each other.

Assimilation refers to a situation where the dominant subculture within the organization absorbs other subcultures. As functional subcultures inside organizations come into contact, competition for task control emerges and one culture comes to dominate over one other or more. The subordinate culture or cultures tend to take on many of the values, beliefs and assumptions of the more dominant culture – they become assimilated.

Chronic clashes refer to intermittent conflicts that occur between subcultures when they encounter each other in a particular organizational setting. In the short-term these conflicts result in continued clashes with little, if any, change in the cultures involved. Over time, driven by environmental forces, they may

lead to accommodation or even assimilation. The clashes are fueled by what should be done according to the respective values, beliefs and assumptions of different functions, and the functions involved are strong enough to exert control of at least some aspects of their assigned tasks, especially during their interaction within organizations.

In innovation studies, the conflicts between subcultures of different functional groups have been used to explain why teamwork within the cross-functional project teams is difficult – members bring their own functional subcultures to the team, making it difficult for them to communicate with each other, reach consensus, and implement decisions in an effective manner. For instance, Dougherty's (1992a) study on product innovation suggests that different departments have different "thought worlds". They focus on different aspects of technology-market knowledge and interpret the technology-market issues differently, which causes interpretative barriers in product innovation projects and keeps innovators from synthesizing their expertise.

To summarize, the studies on functional subcultures have two key implications for this thesis. First, they have switched the focus from the study of a single unified overall organizational culture to the interrelationships and adaptation of the multiplicity of subcultures that reside within an organization's boundaries. Secondly, subcultures can be enhancing, conflicting or orthogonal in relation to the overall organizational culture. Adaptation between subcultures also takes place over time, as they constantly interact with each other in organizational practices where different functional groups meet. Therefore, as dynamic entities, subcultures are constructed and reconstructed in their interactions and ongoing negotiations with the dominant organizational culture as well as the adaptation to each other. All of these draw attention to the dynamics and inconsistency of organizational culture, which should be taken into consideration when studying the relationship between culture and other organizational phenomenon.

From this perspective, the existence of subcultures as well as the dynamic interaction between subcultures, and between subcultures and the overall organizational culture indicate a more dynamic view on the culture-innovation relationship. This will be further discussed in the following discussion and the case analysis. As members of different functional groups may hold different even conflicting values, beliefs, and assumptions, the

challenge and also the key in managing innovation thus becomes how to connect these different mental-maps and make people with different thought worlds work together towards a common goal.

2.2.4 Organizational culture and performance

The enthusiasm for culture in organizational studies was triggered by its influence on organizational performance reported by many several studies in the 1980s (e.g., Peters & Waterman, 1982; Kilmann, 1985). Later on researchers in organizational studies have studied culture in relation to various organizational functions and analyzed how culture contributes to organizational performance. These studies view culture as a key factor that can enhance organizational performance especially financial performance. Research attempts have been made to seek for the “right” culture that can improve the organization’s financial performance. And there are two main approaches to the culture-performance link: the trait-strength approach that seeks for the “right” culture that stimulates superior performance, and a contingent approach, which argues that the “right” culture is contingent to different organizational situations (Wilkins & Ouchi, 1983; Kilmann, 1985; Barney, 1986; Kotter & Heskett, 1992).

2.2.4.1 Trait-strength approach

This body of literature on the culture-performance relationship suggests that the key to financial performance is having the appropriate type of “strong culture”. Some researchers argue that certain types of culture are associated with superior financial performance. Starting from Peters and Waterman (1982) who outlined eight cultural characteristics of sixty-two financially successful firms, this approach has drawn a lot of attention from researchers and has dominated in studies on culture and organizational performance (e.g., Denison, 1984; Deshpandé et al., 1993), although Peter and Waterman’s (1982) study has received criticism as many of the high-performing companies experienced declined performance afterwards (Saffold, 1988).

Other researchers focus on cultural strength, arguing that a “strong” culture where organizational members’ values are widely shared within the organization and consistent with their behaviors has a positive effect on the organization’s financial performance (Deal & Kennedy, 1982; Gordon & DiTomaso, 1992). A strong culture is supposed to be able to create high

moral, strong commitment to the company and its objectives, clarify the behaviors expectations to employees, and increase their productivity, and hence will eventually lead to superior financial performance (e.g., Ouchi, 1981; Denison, 1984; Baker, 1980; Martin et al., 1983).

This body of literature is based on an implicit model in which cultural traits impact an organization in proportion to the culture “strength” ultimately influence on performance, which Saffold (1988) refers as the “trait-strength-performance” model. Often using quantitative methods, these studies have been criticized for oversimplifying the relationship between culture and organizational performance by drawing direct correlation between them, the lack of theoretical sensitivity to illuminate the complex and mutual interaction between culture and organizational phenomena, and their methodological shortcomings in sampling and measuring both culture and financial performance (Saffold, 1988; Siehl & Martin, 1990). Later researchers (e.g., Saffold, 1988) also argue that the relationship between culture and performance is active rather than monotonic, that a particular cultural trait or feature may not affect all performance-related organizational behavior and processes in the same direction.

2.2.4.2 Contingent approach

The second body of literature on the culture-performance link, from a contingency perspective, suggests that there is not one culture that fits every condition. Under certain conditions a particular type of culture is appropriate, even necessary, and can contribute to efficiency.

For example, Wilkins and Ouchi (1983) argue that organizational culture is a more important regulatory mechanism in organizational settings which are too complex to be controlled by traditional means (e.g., bureaucracy and the market), while in an organizational context where the formal control functions well, culture has a less significant influence. Barney (1986) argues that organizational culture will be a source of competitive advantage only when the culture is valuable, rare and imperfectly imitable. He further asserts that high performing organizations might share many common traits, but each of them benefits from these traits in a different manner. Similarly, Miller and Mintzberg (1983) suggest the possibility that a sample of low-performing organizations might share many of the same traits with a sample of high performing organizations, but they might not possess these traits in performance-boosting configurations. Kotter and Heskett (1992) and

Kilmann (1985) suggest that an “adaptive culture” that is able to anticipate and adapt to the environmental changes is key to superior performance.

This contingency approach has also been criticized for adopting an integration view of culture and allowing no room for internal inconsistency within an organization or the influence of wider industry and societal culture (Palmer & Hardy, 2000). In addition to the limitations in definition and measurement of culture, these predictions about the contingent nature of the relationships between culture and performance, despite having provided some provocative variant to the culture-performance studies, have yet to be examined empirically. Moreover, the adaptive culture claim which links adaptive culture to superior performance falls into the tautology that “adaptive” is implying successful adaptation and this is per definition good for business (Alvesson, 2002).

Above all, these studies on the culture-performance link, regardless of the approaches they have taken, have been criticized for their functionalist interests and methodological shortcomings (i.e., sampling procedure, sample size, research timescale and operationalization of culture and performance) and failing to provide definitive empirical evidence either supporting or refuting the direct link between culture and financial performance (Siehl & Martin, 1990; Palmer & Hardy, 2000). The critique also concerns the direction of causality – whether it is the culture that leads to high level of performance, or the high level of performance that makes it possible for the organization to espouse (and enact) certain types of values.

Although these attempts on establishing a culture-performance relationship have received much criticism, I consider that the effort to study culture and organizational performance still has its value. As a learned product from an organization’s previous experience, culture does play a role in various aspects of organizational life. As the mental map of organizational members, culture informs them how things should be done and how problems are solved, eventually contributing to organizational performance. It is thus too arbitrary to reject or ignore culture’s influence on an organization’s performance. The research endeavor in culture-performance relationship has its value, whereas it has to be realized that the culture-performance link is much less straightforward than many of the above-discussed studies have implied. A more fruitful research agenda would be to pay thoughtful attention to the processes that link culture with organizational outcomes (Saffold, 1988).

With carefully defined concepts, the focus should be on exploring how the cultural characteristics interact with specific performance creating processes, rather than claiming a direct causality between certain types of culture and financial performance.

2.3 Organizational culture and innovation

Literature on innovation management has suggested that a variety of factors can affect innovation in organizations, for example, Damanpour's (1991) meta analysis analyzed 13 organizational determinants of innovation grouped into structural, process, resource and cultural factors. Researchers have studied different factors that are associated with innovation, including organizational structure (Burns & Stalker, 1961; Mintzberg, 1979), strategy (Saleh & Wang, 1993; Ritter & Gemunden, 2004), as well as external environment (Burns & Stalker, 1961; Mintzberg, 1979; Lawrence & Lorsch, 1967; Miller & Friesen, 1984). Among all these factors, organizational culture has been seen a key influencing factor of innovation (Kanter, 1983; Damanpour, 1991; Tushman & O'Reilly III, 1996; Christensen, 1997; Tidd, 2001; Crossan & Apaydin, 2010). As the focus of this thesis is the culture-innovation relationship, the following sections will review relevant studies on organizational culture and innovation.

2.3.1 Strong culture and innovation

The literature has suggested that a strong culture in which the values, beliefs and assumptions are widely shared and deeply held by the organizational members has a positive effect on organizational control. It can exert stabilizing force on organizations by encouraging cohesion, organizational commitment and desirable work behavior among members, but at the same time may also create conformism and restrict organizations from initiating or responding to environmental changes (e.g., Benner & Tushman, 2002). For example, Nemeth (1997) suggests that a "cult-like" culture may inadvertently stifle the creativity and innovativeness of their employees through blind commitment to a set of ideas, which makes employees more susceptible to groupthink and less ready to accept different ideas or new modes of thinking. This, may help organizations achieve productivity and high morale but at the

same time can thwart creativity, innovation, and an ability to respond readily to change.

While other researchers also argue that the content of strong cultures is important to whether it is valuable to organizations. For example, Lee and Yu (2004) suggest that strong cultures are only valuable if they exhibit adaptive and learning qualities; otherwise they become a liability during periods of accelerated change. They also argue that although a strong culture may help the implementation of creative ideas, it may not help to generate them.

One way for organizations with strong cultures to gain flexibility and responsiveness is to cultivate subcultures. Boisnier and Chatman (2003) suggest that an organization with a strong culture can become agile without losing its strength by allowing certain types of subcultures to emerge. Subcultures can permit an organization to generate varied responses to the environment without necessarily destroying its internal coherence and therefore may provide the flexibility and responsiveness that a unitary culture may lack. Martin and Siehl (1983) suggest that within the organization, subcultures that counter the dominant culture could facilitate new ideas, as they can “articulate the boundaries between appropriate and inappropriate behavior and provide a safe haven for the development of innovative ideas” (ibid: 63). Boisnier and Chatman (2003) argue that subcultures do not necessarily conflict with or undermine the dominant culture but can provide an additional advantage to managing innovation; they are still a part of an organization but separated enough to allow creativity to flourish.

Hauser (1998) focuses on the relationship between subcultures, suggesting that the interaction between subcultures can have different influence on different stages of innovation processes, depending on the possibility that the functions with opposing subcultures are able to communicate with one another. Dialectic subcultures, which means subcultures in one unit are opposed to that in another organizational unit, can have a positive effect on innovation. At the early stage of innovation, it is an advantage to have diversity in subcultures in order to stimulate new ideas and creativity with different subcultures willing to listen and talk to each other; while at the later stage of innovation, complementary subcultures are better for acceptance of the problem definition and solution as well as its implementation and realization. Besides, Hauser (ibid.) also suggests that the influence of the cultural strength on innovation depends on the content of culture.

However, allowing different subcultures can also increase the risk of conflict, disagreement and poor coordination (Tushman & O'Reilly III, 1996). Some researchers suggest that organizations should also have a common set of values that hold the whole organization together and provide a common goal for different functions. For example, senior managers need to convey the shared vision and strategy to employees. Although Tushman and O'Reilly (ibid.) suggest that ambidextrous organizations is a way of fostering innovation in organizations by having two separate organizational structures, competencies, incentives and cultures to allow creativity to grow, they also argue that the culture of ambidextrous organization should be simultaneously tight and loose. It is tight in that an overall culture is broadly shared within the organization and emphasizes norms critical for innovation such as openness, autonomy, initiative and risk taking. The culture is also loose in the manner that these common values are expressed variously according to the type of innovation required. This tight-loose aspect of culture is supported by a common vision and by supportive leaders who both encourage a shared vision and allow appropriate variation to occur across business units.

2.3.2 Problematizing the innovation culture literature

The consensus of culture as a crucial determinant of the organization's innovation further results in an rich body of literature specifically addressing the relationship between culture and innovation (Hurley, 1995; Kitchell, 1995; Ahmed, 1998; Claver et al., 1998; Hauser, 1998; Martins & Terblanche, 2003; McLean, 2005; Khazanchi, Lewis, & Boyer, 2007; Dobni, 2008; McLaughlin et al., 2008; Valencia, Valle, & Jiménez, 2010; Herzog, 2011; Edwards, Kumar, & Ranjan, 2002). Despite the considerable research interests, a review of this stream of literature suggests that the existing innovation culture literature has not provided sufficient understanding of the culture-innovation relationship. Taking the concept of innovation culture as given, the existing literature has been largely dominated by quantitative research that seeks to establish correlation between culture and innovation, assuming a unidirectional causal relation between them. However, how culture's influence on innovation actually takes place has not been explored. This argument will be further illustrated in the following sections.

2.3.2.1 The notion of an innovation culture

In studies on organizational culture and innovation, the culture-innovation relationship is usually referred as an “innovation culture” (Hurley, 1995; Dobni, 2008; Herzog, 2011), “innovation-oriented culture” (Claver et al., 1998; Hurley & Hult, 1998; Jaskyte & Dressler, 2004; Lau & Ngo, 2004; Tienne & Mallette, 2012) or “innovation-supportive culture” (Khazanchi et al., 2007). Although these concepts are widely used in studies on culture and innovation, researchers have not provided clear definitions of them (Ernst, 2001). A few authors have provided self-explanatory definitions, suggesting that an innovation culture is a culture that supports the organization’s innovation. For instance, Hurley (1995: 60) defines an innovation culture as “the cultural values that value innovation”, and Herzog (2011: 69) defines innovation as “organizational-wide shared values that support innovation, organizational-wide norms for innovation, and perceptible innovation-oriented practice”. Whereas most researchers take this concept as given, using it directly without defining it (Khazanchi et al., 2007; Dobni, 2008). In addition, when defining an innovation culture, the existing literature has focused on different aspects of innovation. For example, Claver et al. (1998), focusing on the earlier stage of the innovation process, define an innovation-oriented culture as “the need for maximum number of innovative ideas to appear within a certain period” (p. 61). Khazanchi et al. (2007) refer to an innovation-supportive culture when studying how culture facilitates or hinders innovation implementation, focusing on the later stage of the innovation process. These different focuses further obscure the conceptualization of innovation culture.

Besides, by referring to an innovation culture, these studies also assume that there is a single unitary culture within the organization, whereas different subcultures as well as the possibly existing conflict and inconsistency within organizations are ignored.

2.3.2.2 A linear model of the culture-innovation relationship

Despite the unclear and self-explanatory definitions, the existing innovation culture literature has been extensive which shows considerable interest in this topic. However, the research purposes have been focusing on describing, measuring and diagnosing an organizational culture rather than explaining how culture’s influence on innovation takes place.

(1) Describing an innovation culture

Based on the assumption that an organization with certain types of culture can achieve better innovation performance, the first group of innovation culture literature focuses on describing the culture of an innovative organization in order to identify the characteristics of an innovation culture (Kanter, 1983; Judge, Fryxell, & Dooley, 1997; Ahmed, 1998; Martins & Terblanche, 2003; McLean, 2005; Davila et al., 2007; Dobni, 2008; Herzog, 2011).

For example, Martins and Terblanch's (2003) conceptual work reviews various studies and provides a model for studying the influence of organizational culture on creativity and innovation. In their model, they identify a set of organizational culture determinants that influence creativity and innovation, including strategy, structure, support mechanisms, behaviors that encourage innovation and open communications. Accordingly, an innovation-supportive company is the one which has an innovation-emphasized strategy reflecting its vision and mission and purposefulness, a structure with flexibility and freedom, rewards and recognition for innovation and availability of resources, as well as open communication in the organization.

McLean (2005) reviews several major studies on organizational culture and innovation and summarizes the cultural elements that support innovation to include: (1) organizational encouragement, including risk taking and idea generation, participative decision making and management; (2) supervisory support, including clarity of team goals, support of the team's work and ideas and open interactions; (3) work group encouragement and the focus on the diversity of the group; (4) freedom and autonomy, allowing individuals to devise means to achieve the goals; (5) resources, including both time and money. And control, on the other hand, is seen as an impediment for innovation.

Apart from the conceptual studies, a few empirical investigations have also sought to identify organizational values, beliefs and assumptions characterizing innovative companies. Using a case study, Kanter's (1983) empirical study on innovation and organizational culture has shown that the highest proportion of entrepreneurial accomplishment is found in companies with integrative structure rather than being segmental. The cultures of these companies emphasize pride and faith in people's talents, diversity,

commitment, collaboration and teamwork. They also have multiple structural linkages inside and outside the organization and intersection territories. To summarize, the identified characteristics of an innovation culture include:

Autonomy

An innovation culture encourages organizations to grant autonomy to employees (Kanter, 1988; Ahmed, 1998; Martins & Terblanche, 2003). Providing freedom to people, giving individuals latitudes in defining and executing their own work is a core value in stimulating creativity and innovation (Kanter, 1983; Ahmed, 1998; Martins & Terblanche, 2003). It includes less formalized jobs (Kanter, 1983), the freedom to set one's own agenda and determine the means by which to achieve a goal, and freedom to experiment, challenge the status quo and try new things and fail (Ahmed, 1998). Kanter (1983) suggests that an organizational culture allowing freedom and autonomy promotes creativity and innovation through stimulating people's intrinsic motivation.

Rewarding innovation

Rewarding individuals for their contribution to innovation is also considered as a way of facilitating innovation (Kanter, 1988; Ahmed, 1998; Martins & Terblanche, 2003). Rewarded behaviors reflect the value of the organization and it is important to reward organizational members for risk taking, experimenting and generating new ideas (Martins & Terblanche, 2003). Rewards also include the celebration of success and failure of innovation (Ahmed, 1998) and rely on personalized intrinsic rewards instead of extrinsic rewards, as individuals are motivated more by intrinsic than extrinsic desires when there are greater creative thoughts and actions (Kanter, 1983).

Open communication

An organization culture supporting open communication also supports innovation (Kanter, 1983; Ahmed, 1998; Hauser, 1998; Martins & Terblanche, 2003). Communication refers to both horizontal communication with other departments on whom they depend for information (Kanter, 1983) and vertical communication with people from different levels. And open communication means that disagreement in the organization is allowed and acceptable, which gives the opportunity for different ideas to emerge from the organization (ibid.), for example, having open-door policies that all levels can have access to any level to ask questions, sharing organization's successes and discussing problems, having an open office arrangement (Kanter, 1988),

feeling free to debate issues, minority views being expressed and listened to (Ahmed, 1998), and encouraging conflicts and different opinions (Hauser, 1998).

Providing resource slack

Resource slack is need for innovation since it is the cushion of the resources, which allows an organization to adapt to internal and external pressures, including time, budget, tools as well as infrastructure (e.g., rooms, equipment, tools, etc.) (Ahmed, 1998). Organizations need to provide people with resources for creative actions (Hauser, 1998). Judge, Fryxell and Dooley (1997) suggest that it is not just the existence of slack but the existence of slack over time that appears to have positive impact upon innovation. They find that less innovative firms have slack but these firms appear to have experienced significant disruptions or discontinuities of slack in their past or are expecting disruptions in the future.

Willingness to take risk and change and tolerating mistakes

An innovation culture is also characterized by the values encouraging risk-taking and experimentation (Ahmed, 1998; Martins & Terblanche, 2003; McLean, 2005; Davila et al., 2007) and tolerance of mistakes (Tushman & O'Reilly, 1997) – under an innovation culture that innovative companies not only reward success in innovation but also are open to discuss and learn from mistakes. Cultural values that encourage changes are also suggested to facilitate innovation (Kanter, 1983).

Market orientation

Another identified characteristic of an innovation culture is market orientation which refers to the organization culture that creates the necessary behaviors for creation value for customer (Narver & Slater, 1990). Slater and Narver's (1995) definition of market orientation refers to a culture that (1) places the highest priority on the profitable creation and maintenance of superior customer value while considering the interests of other stakeholders, and (2) provides norms for behavior regarding the organizational development and responsiveness to market information. They suggest that a market orientation provides strong norms for learning from customers and competitors. Combined with entrepreneurship and appropriate organizational structure and processes, it makes for higher level of organizational learning, e.g., double-loop learning (Argyris, 1977) and generative learning (Senge, 1990), which are requirements for innovation. Ahmed (1998) uses "external

orientation” to refer to the degree to which the organization is sensitive to customers and external environment and suggests it is a very important characteristic of an innovation culture.

Encouraging cross-functional collaboration

An innovation culture is also characterized by encouragement for teamwork and cross-functional interaction (e.g., multidisciplinary projects teams) (Kanter, 1983; Ahmed, 1998; Martins & Terblanche, 2003). Creative performance is increased when diversity is allowed such as having people with different personalities in the team group and allowing people with dissimilar frames of references to exchange ideas and increase creative performance (McLean, 2005). Therefore culture values that encourage this diversity can be supportive for innovation.

Pride-in-organization and sense of belonging

Kanter (1983) suggests that an innovation culture is also characterized by pride, feeling proud of being in the organization, belonging and sense of family, as well as confidence in themselves, each other and the organization, as pride in the capacities and ability of others makes teamwork possible. It includes emotional and values commitment between person and organization, people’s feeling of belonging to a meaningful entity and being cherished for their contributions, sense of pride, willingness to share credits with others, feeling the ownership of the organization, a “family” atmosphere and job satisfaction of employees. The whole organization has a shared vision and direction. That organization possesses a type of identification and unity (Ahmed, 1998).

Focusing on innovation

An innovation culture also includes values emphasizing innovation (Kanter, 1983). It means that innovation is the mainstream realm in the organization rather than counter culture. Knowing this can provide an incentive for initiative of innovation. This is related with a feeling that innovation is supported by the leaders (ibid.).

Technology orientation

Technology orientation refers to a firm’s ability and will to acquire new technological knowledge that can be used to build new technological solutions in order to satisfy customers’ new and latent needs (Gatignon & Xuereb, 1997). Seeing information technology as a supportive mechanism

and an important resource for successful innovation (Shattow, 1996), an organization culture encouraging the use of information technology to communicate and exchange ideas can improve the chances for creativity and innovation. Hauser (1998) suggests that technology orientation is especially required by technological innovation and radical innovation.

(2) Drawing correlation

Given these conceptual papers arguing culture as a key determinant of the organization's innovation and focusing on identifying the key constructs of an innovation culture, very few empirical studies have been done to support these findings (Oldham & Cummings, 1996). The second group of literature on culture and innovation has been focusing on testing the relationship between culture and innovation relationship and drawing correlation between them. Both qualitative (Edwards et al., 2002) and quantitative (Hurley, 1995; Valencia et al., 2010) methods have been used to associate cultural characteristics or certain types of culture with the organization's innovativeness.

For example, based on the organizational competing value framework (Quinn, 1988; Cameron & Freeman, 1991) which categorizes culture into four types – clan, market, adhocracy and hierarchy cultures, Valencia, Valle and Jimenez (2010) test the correlation between these different types of culture and innovation. Their results suggest that innovation is positively related to adhocracy culture that has an external and flexible focus and emphasizes on entrepreneurship and creativity while being negatively related to mechanic culture that is based on rules and order conformity and focuses on stability predictability and smooth operations. And innovativeness in these studies is usually measured by innovation outcomes such as the number of innovations an organization adopted (Jaskyte & Dressler, 2005), new technologies used by the firm (Kitchell, 1995), the number of science and technical awards (Hurley, 1995), financial performance, e.g., profitability level, sales, opportunity window (Dwyer & Mellor, 1991), product quality, on-time delivery and so on (Khazanchi et al., 2007).

(3) Measuring and diagnosing an organizational culture

Based on these factors identified as constituting an innovation culture, another body of literature on innovation culture focuses on developing instruments and using quantitative methods to measure an organizational culture and assess its innovativeness (e.g., Dobni, 2008). These studies

seemed to have provided a practical way to measure an organization's innovative culture and "could initially be used to establish a baseline level of innovation culture", and further "could be used as a metric to chart the organization's efforts as it moves to engender innovation" (ibid: 539). For example, Dobni (ibid.) identified the key constructs of an innovation culture by factor analysis and further developed a measurement of innovation culture in the organization by using these constructs.

Regardless of the different purposes mentioned above, one observation from these studies on innovation culture is that they all portray the culture-innovation relationship as a simple linear model, suggesting that there is a casual relationship between culture and innovation, in which culture is the cause and innovation the effect. This model is based on the assumption that organizations with certain types of culture (i.e., those possessing the above-mentioned characteristics) can be more innovative than others.

2.3.2.3 Summary of the problematization

To summarize, although the existing innovation culture literature has indeed advanced our understanding of the culture-innovation relationship in many ways, a literature review suggests that the current understanding of innovation culture is still limited by an unclear conceptualization and a bias towards a simplified static model. Hence there is a need to expand our knowledge and enhance our understanding of the relationship between culture and innovation.

First of all, I argue that the existing literature views the concept of innovation culture as self-explanatory and therefore takes it as given, whereas it does not offer any explanation for how culture influences innovation. Referring to an innovation culture, the existing literature is based on the assumption that there is single unitary culture within the organization, while it neglects the possibly existing subcultures which represent conflicts and inconsistency as well as their interaction with each other within organizations. Secondly, the existing innovation culture literature portrays the culture-innovation relationship as a linear model, suggesting a unidirectional causal relationship from culture to innovation. Moreover, instead of explaining how culture influences innovation, the research purposes have been focusing on (1) describing an innovation culture by identifying its characteristics, (2) drawing correlation between culture and innovation and using the results to predict an organization's innovation performance and diagnose the problems, and (3)

measuring an organizational culture, assessing its innovativeness. Last, but not least, existing innovation culture literature views the culture-innovation relationship as static, neglecting the dynamic nature of culture and innovation. And all of the above-mentioned aspects lead to an insufficient understanding of the relationship between culture and innovation.

Therefore, based on these arguments, this thesis aims to extend our understanding of the concept of innovation culture by explaining how culture influences innovation. In the next chapter, I will propose an alternative view on the culture-innovation relationship in response to the arguments raised above. The new view further leads to the search for a new theoretical lens which helps to open the black box of innovation culture and explain the mechanism of culture-innovation relationship. Moreover, by going back and forth between the empirical data and theory, an analytical framework is constructed to help to achieve this goal.

Chapter 3 Theoretical Framework

This chapter develops the theoretical framework of the thesis. The literature review in the previous chapter has suggested that the existing literature has not provided sufficient understanding of the culture-innovation relationship and there is a need to extend our understanding of the concept of innovation culture. Hence, drawing from culture theory and innovation theory, this chapter first proposes an alternative perspective on innovation culture based on the arguments raised in the previous chapter. This new perspective then leads to the introduction of theory of organizational archetypes (Miller & Friesen, 1980a; 1980b; Miller, Friesen, & Mintzberg, 1984; Greenwood & Hinings, 1988; 1993) which could potentially be a theoretical lens through which the culture-innovation relationship can be better explained and understood. The chapter then proceeds by outlining the theoretical models that guided the fieldwork of a pilot study and the data collection of the main study. Finally, an account is given of how a cyclical model of the culture-innovation relationship has been developed along the data analysis process.

3.1 An alternative view on innovation culture

As recalled from the previous chapter, the problematization of the existing literature on innovation culture shows that previous researchers have viewed the concept of innovation culture as self-explanatory and assumed a single unitary culture within the organization and a unidirectional causal relationship between culture and innovation. Innovation culture is treated as a static entity and the culture-innovation relationship is portrayed as a static linear model. Drawing from culture and innovation theories, an alternative view on innovation culture which can be more fruitful for understanding the culture-innovation relationship is proposed as follows.

3.1.1 The paradox of innovation culture

The review of literature on culture and innovation in the previous chapter shows that researchers seem to agree on a self-explanatory definition of innovation culture – that an innovation culture refers to an organizational culture that facilitates innovation (Claver et al., 1998; Hurley & Hult, 1998; Jaskyte & Dressler, 2004; Lau & Ngo, 2004) and therefore takes this as given, assuming a causal relationship between culture and innovation. On the other hand, critical reflection on the concept of innovation culture suggests that this seemingly self-explanatory concept can be paradoxical.

According to culture theory, culture is a learned product from organizational experience (Schein, 1985) and seen as “how things are done around here”; it informs people of the appropriate behaviors based on what has been done in the past. Innovation can be seen as a means for an organization to adapt in response to the changes in the internal and/or external environment (March & Simon, 1958; Thompson, 1965; Zaltman, Duncan, & Holbek, 1973; Stata, 1989; Damanpour, 1991); it is therefore future-oriented. Culture represents tradition, routines, stability and conformity. Conforming to organizational culture is like maintaining organizational routines – doing things in the same way as they have always been done. Innovation, on the other hand, encompasses novelty, non-routine, experimentation, and changing the way in which things are usually done. Where the routines consistently prevail, novel responses to familiar circumstances become increasingly unlikely to happen over time (Ford & Ogilvie, 1996).

In this sense, the concept of innovation culture seems in itself to be paradoxical. Jucevicus (2010) has discussed this and suggested that this paradox of innovation culture links to the inherent dilemma of stability and change, and relies on the assumption that the productive change (i.e., innovation) is enabled by a set of relatively stable cultural values as well as routines that have evolved over a period of time.

Hence, this critical reflection on the concept of innovation culture questions its taken-for-grantedness and the assumed causation between culture and innovation. Instead of entailing a taken-for-granted causation between culture and innovation, the notion of innovation culture embraces a continuous questioning of the traditions, routines and accepted behavior patterns; and at a deeper level, challenging and reflecting the shared values, beliefs and

assumptions in the organization – the organizational members’ mental map (Schein, 1985) and “theory-in-use” (Argyris & Schön, 1974). It requires “double-loop learning” to continuously question and modify the existing norms, procedures, policies and objectives (Argyris, 1977), “frame breaking” (Argyris, Putnam, & Smith, 1985) as well as exploration (March, 1991) to search for new opportunities and test new ideas.

3.1.2 The dynamics of innovation culture

As recalled from the previous chapter, the self-explanatory definition of the concept of innovation culture entails a unidirectional linear relationship from culture to innovation. In this linear model, different cultural elements or types of culture as causes are directly associated with innovation outcomes as effects, whereas how these outcomes are generated during the process is unrevealed, resulting in a lack of explanation of how culture’s influence on innovation actually takes place. As Saffold (1988) suggests, a simplistic model of culture and organizational outcomes “has insufficient theoretical sensitivity to illuminate the complex, mutually causal interactions of cultural phenomena as they affect an organization’s outcomes” (p. 55). Drawing a direct link between culture and innovation outcomes, such as number of new products and financial indexes, does not offer an explanation for the mechanisms of the culture-innovation relationship. Saffold (ibid.) further argues that as culture’s link to performance is considerably less straightforward than many studies have implied, instead of studying outcomes (usually measured by financial outcomes), drawing attention to the processes that link culture to organizational outcomes is more beneficial. Hence, innovation processes and practices that bridge culture and innovation outcomes deserve more attention. Studies focusing more on assessing how culture interacts with specific performance creation processes will carry more weight in enhancing the understanding of the concept of innovation culture.

Furthermore, the existing literature has emphasized the dynamic and procedural nature of culture (Hatch, 1993; Schein, 2010), which suggests that culture does not only influence organizational processes and practices but also receives feedback from them, which further suggests that adjustment to the cultural values and assumptions is possible. This is reflected through the interaction and mutual influence of cultural assumptions, values, artifacts and symbols. The visible level of culture as artifacts and symbols does not only

embody and manifest the invisible level of culture as values and assumptions but also confirms and enhances them (Hatch, 1993). Therefore, different processes and practices within an organization can be seen as cultural artifacts and symbols when they embody the cultural values and assumptions. Moreover, they can also confirm and enhance or contradict those cultural assumptions and values (ibid.). In this way, culture's contribution to organizational outcome is a consequence of this ever-evolving interaction (Saffold, 1988).

Hence, the static, linear model of the culture-innovation relationship that suggests a unidirectional causality between culture and innovation needs to be revisited with a more dynamic and interactive view. Instead of making a direct link between culture and innovation outcomes, focusing on the innovation processes and practices through which the innovation outcomes are generated will be more fruitful in reflecting the dynamic nature of culture and capturing the dynamic interaction between culture and innovation to acquire a more comprehensive understanding of innovation culture.

3.1.3 The inconsistency and conflict within innovation culture

Besides the notion of innovation culture also implies a single and unitary culture within the organization. Defined as an organizational culture that facilitates innovation (Hurley, 1995; Herzog, 2011), the term innovation culture assumes that there is one set of values, beliefs and assumptions shared among all the organizational members representing consistency and harmony. Yet, it neglects those possibly existing subcultures which represent the inconsistency and even conflict within the organization. In particular, due to the different education backgrounds, working experience and job responsibilities, members from different functional groups within the organization can form their own subcultures (Trice, 1993; Schein, 2010), which can be enhancing, countering and independent of the dominant organizational culture (Martin & Siehl, 1983). These subcultures, as dynamic entities, also adapt to one another as they coexist within the same organization (Trice, 1993). They can accommodate, assimilate or even collide when different functional groups encounter each other in organizational practice (ibid.).

Previous innovation studies have suggested that functional subcultures like functional members' different interpretative schemes can be a barrier to innovation (Dougherty, 1992a). Different functional groups in new product development projects have different "thought worlds" which cause interpretative barriers between members (ibid.). These interpretative barriers inhibit the development of a shared knowledge about the market-technology link and therefore keep innovators from synthesizing their expertise, resulting in problems in cross-functional collaboration in innovation (ibid.).

Accordingly, the concept of innovation culture should be extended to take into consideration the inconsistency and heterogeneity in organizations rather than excluding them and assuming the whole organization is consistent and homogeneous. In particular, instead of assuming a single and unitary culture consisting of a set of coherent values, beliefs and assumptions shared by all the organizational members, drawing attention to the subcultures, the dynamic interaction between subcultures as well as between subculture and the dominant culture can provide more insightful understanding of the culture-innovation relationship. Therefore, compared with the term "innovation culture", "cultures of innovation" might be more appropriate in describing the situations when studying the culture-innovation relationship.

3.2 Organizational design archetype

Given that the research purpose of this thesis is to extend our understanding of innovation culture, the new perspective on innovation culture proposed in the previous section requires a theory which allows us to understand the concept of innovation culture from a dynamic and interactive perspective. Besides, it should be able to bridge the invisible values, beliefs and assumptions shared by members of the organization and the visible innovation practices and processes as well as capture the dynamic interaction between them. Up to this point, the theory of organizational archetypes enters the scene and is considered to be potentially able to meet the above-mentioned requirements and fulfill the research purpose.

3.2.1 The concept of archetype

The idea of archetype stems from the need to understand organizational diversity through typologies (Weber, 1947; Lammers, 1978). The essential ideas of archetype can be found in Miller and Friesen's studies (1980a; 1980b) where the authors suggest that the structural attributes and processes of an organization frequently have a coherence or common orientation, forming an archetype. For Miller and Friesen (1980a), understanding which archetype an organization is in, is crucial to understand the organization's structural change and its difficulties.

Miller and Friesen (1980b) argue that most organizations are always changing, but they appear to be biased in their direction of evolution so that they generally extrapolate past trends. Any emerging organizational tendency, whatever its direction, will tend to have momentum associated with it. Momentum refers to continuity in the direction or organizational evolution in line with operative goals, power structure, programs and expectations (*ibid.*). According to these authors (*ibid.*), organizational evolution tends to be towards one direction and reversal in the direction of change is really rare. Other studies have also provided evidence for their assertion. For example, Burns and Stalkers (1961) show that mechanistic organizations tend to work within the existing archetype instead of developing new strategies and practices and thus become more mechanistic over time; similarly, the organic organizations will become more organic later.

Miller and Friesen (1980a) then use the concept of archetype to study organizational transition, in which they suggest that organizational transition follows a number of common patterns under the influence of environmental, structural and strategic-making variables. They argue that organizational adaption is a dynamic process which takes place over time rather than a static snapshot. The organizational transition tends to follow certain patterns. The transitional path of organizations linking one stable state to another would occur as a recurrent or common package. Over time, a set of organizational transition patterns can be identified, which these authors Miller and Friesen (*ibid.*) refer to as transition archetypes. Their study identifies and describes nine archetypes of transition.

Greenwood and Hinings (1988), based on Miller and Friesen's earlier work (1980a; 1980b; 1984), further develop the idea of organizational design archetype. They define a design archetype as a set of underlying ideas, values and beliefs – the interpretative scheme coupled with associated structural arrangements (Greenwood & Hinings, 1988). In a design archetype, these structural arrangements are consistent with a single, underlying interpretative scheme in the organization and thus the archetype exhibits coherence. Their research also explores the dynamics of archetype change, both within and between archetypes, identifying the positions through which an archetype moves when changes take place and the archetypal coherence is disturbed and regained.

More specifically, the first component of a design archetype – the interpretative scheme – is defined as a set of ideas, beliefs and values that shapes the prevailing conceptions of what an organization should do, how to do it and how the outcome should be judged (*ibid.*). More specifically, Hinings and Greenwood (1987) suggest that interpretative schemes contain values and beliefs about three principles and activities: (1) the appropriate domain of operations, *i.e.*, the broad nature of an organization's reason for existence; (2) appropriate principle of organizing; (3) appropriate criteria that should be used for evaluating organizational performance.

The second component of a design archetype is the structure and system. They are seen as embodiments of ideas, beliefs and values which constitute an overarching and prevailing “province of meaning” or “interpretative scheme” (Ranson, Hinings, & Greenwood, 1980). These structures and systems are not only embodiments of values and beliefs but also “reflexive expressions” of intentions, aspirations and purposes; moreover, they serve to implement and reinforce those values and beliefs (Greenwood & Hinings, 1993). They allocate scarce and valuable resources and indirectly legitimate and perpetuate distributive inequalities by the consistency of the cues and messages transmitted (*ibid.*). An organization's “dominant coalition” (Miles & Snow, 2003) will seek to remove discordant structures because of the risk of challenging the legitimacy of the status quo. Organizations will thus evolve towards archetypal coherence as advantaged groups seek consolidation of political position and control over the distribution of resources (Greenwood & Hinings, 1993).

Greenwood and Hinings (1988) suggest several key issues in understanding an organizational archetype. First, the values and beliefs referred to as the interpretative scheme play an important role in an archetype. They determine the structural arrangement in the archetype and are also reinforced by them. The coherence between the structural arrangements and the underlying shared values and beliefs is the key to the stability of an archetype. Second, organizations will eventually discard those practices and structural arrangements inconsistent with the values and beliefs in order to maintain the archetypal coherence. Therefore, organizations tend to stay within one archetype rather than moving between archetypes, that is, archetypes appear inert. And this is also the reason why organizations tend to move in one direction and it's difficult for reversals to happen. By identifying prototypical patterns, the archetype approach helps to explain the failure of organizational change in the face of contextual pressures (Greenwood & Hinings, 1988).

3.2.2 Archetype movements and the concept of track

Although archetypes tend to stay stable, changes can happen both within an archetype and between archetypes (Miller & Friesen, 1980a; Miller et al., 1984; Greenwood & Hinings, 1988). Miller and Friesen (1980b; 1984) suggest that archetypes mostly exhibit momentum and inertia, both of which involve changes, but it is the adjustment of structures and processes that is required to secure the internal consistency and coherence within an archetype (1988). Momentum is the process whereby an organization exhibits change which is an extension of its current archetype (Greenwood & Hinings, 1993: 295). It is a dominant condition of organizations which suggests a continuity in the direction or organizational evolution in line with the operative goals, power structure, programs and expectations (Miller & Friesen, 1980b). In contrast, inertia refers to the situation where organizations are caught within one archetype and do not change (*ibid.*). And quantum change (Miller et al., 1984) refers to major change or transformation which only occurs when organizations face important and unmistakable problems.

Greenwood and Hinings (1988) study both intra-archetypal and inter-archetypal changes. The movements between archetypes or the absence of the movements are called “tracks” (*ibid.*). The concept of track provides a language to describe and explain different movements ranging from radical transformation, abortive shifts between archetypes to the absence of change.

And the interpretative scheme (a set of underlying values and beliefs) is important in deciding which track an organization moves along, as it “enables the identification of the directions of change and explanation of why organizations confronting similar contextual ‘crises’ may respond by moving along different tracks” (ibid: 303).

Within an archetype, the interpretative scheme and the structural arrangement stay coherent. The archetype movements suggest the breaking of the coherence: the design arrangements become de-coupled from the prevailing interpretative scheme and attached to suffusing ideas and values. Therefore, tracks are “configurations of interpretative de-coupling and re-coupling” (ibid: 303). Greenwood and Hinings (ibid.) further identify four prototypical types of track, namely inertia, aborted excursion, reorientation (transformation) and unresolved excursion.

Track A – inertia

In this track, most organizations focus towards a design archetype and remain there for lengthy periods. Changes that challenge prevailing meanings are suppressed. Organizational actors demonstrate consistency and sustain attachment to one interpretive scheme.

Track B – aborted excursion

This track involves temporary disruption of an initial structural coherence. Selective parts of the structural arrangements may become de-coupled from the assumptions of the prevailing interpretive scheme. However, weakened structural coherence may lead to poor performance which could push management to abort the experiment and reinstate the previous arrangement. Thus aborted excursion is about retention of an existing archetype.

Track C – reorientation

This is where organizational actors leave one archetype design and embrace another one. A new design archetype is established and becomes legitimate.

Track D – unresolved excursion

Organizational actors could become locked between competing interpretive schemes if both are articulated within the organization itself. Failure to obtain coherence or unresolved excursions involves sustained movement from a coherent archetype without attaining a reorientation. There is an incomplete

de-coupling without a completed re-coupling. This track exemplifies resisted attempts at reorientation.

3.2.3 Understanding innovation culture through the lens of organizational archetype

Based on an overview of the key concepts in archetype theory in previous sections, this thesis suggests that the theories on organizational archetypes and archetype movements can offer a theoretical lens through which culture-innovation relationship can be better understood. First of all, defined as a set of prevailing values and beliefs within the organization, the concept of interpretative scheme in archetype theory is similar to the concept of organizational culture. The interpretative scheme is defined as a set of underlying ideas, values and beliefs. Similarly, organizational culture, as defined in this thesis, is a set of values and beliefs and assumptions shared by organizational members. They both represent and shape the prevailing conceptions of what an organization should do, how to do it and how the outcome should be judged (*ibid.*) and can be seen as an organization's mental-map and theory-in-use.

Secondly, the concept of organizational track (*ibid.*) can help to understand an organization's innovation process. As has been discussed in Chapter 2, innovation can be seen as a means of organizational adaptation in response to changes in its internal and/or external environment (March & Simon, 1958; Thompson, 1965; Zaltman, Duncan, & Holbek, 1973; Stata, 1989; Damanpour, 1991). Therefore, an innovation process can also be viewed as a process in which an organization attempts to move from its original archetype to another archetype. And in the latter archetype the organization has a better fit with its environment as it has become more innovative. Therefore the concept of organizational track provides a way to describe and explain different movements ranging from radical transformation, abortive shifts between archetypes to the absence of change. The movements take place between archetypes if the organization's innovation attempt succeeds, and the organization stays in one archetype if its innovation attempt fails.

In particular, Greenwood and Hinings (1988) emphasize the role of interpretative scheme in organizational change. They argue that it is the interpretative scheme that "enables the identification of the directions of

change and explanation of why organizations confronting similar contextual ‘crises’ may respond by moving along different tracks” (ibid: 303). Hence, seeing organizational culture as similar to the interpretative scheme and innovation as a type of organizational change, the archetype theory can be applied to understand how organizational culture influences an organization’s innovation trajectory.

Last, but not least, the analytical model of organizational tracks developed by Greenwood and Hinings (ibid.) can further help to unpack the culture-innovation relationship. Their model suggests that new structural elements introduced to the existing structures and systems may cause temporary disturbance to the existing coherence if they are not consistent with the organization’s interpretative scheme – the prevailing values and beliefs within the organization. These changes will be eventually discarded in order to resume the coherence. By mapping an organization’s movements between several analytical positions, this model reveals how the structures and systems are de-coupled from the interpretative schemes and re-coupled, causing organizations to move along different tracks.

Therefore, this model can be applied to understand the relationship between culture and innovation. As innovation involves novelty, when an organization makes attempt to innovate, the innovation activities introduce changes to certain parts of the structures and systems of the organization. These changes may be inconsistent with the prevailing values, beliefs and assumptions shared by the organizational members as they involve novel and non-routine practices. Therefore how these innovation activities interact with the shared values, beliefs and assumptions is crucial to whether these changes will be accepted by the organization, which eventually decides whether the innovation activities will be continued. Accordingly, Greenwood and Hinings’ (ibid.) model can be helpful in analyzing the dynamic interaction between an organization’s innovation activities and the shared values, beliefs and assumptions and thus revealing the mechanisms of the culture-innovation relationship.

Above all, the theory of organizational archetypes and archetype movements give rise to a tentative analytical lens adopted in this thesis to reveal the relationship between culture and innovation and enhance our understanding of innovation culture. Chapter 8 will present how the data from the cases is analyzed by using the archetype theory.

3.2.4 The patterns of innovation

According to the concept of track and different types of track, organizations' innovation processes as their movements between or within archetypes can follow certain trajectories, that is, an organization's innovation process can exhibit different patterns. In fact, in their earlier archetype theory, Miller and Friesen (1980b) have touched upon innovation when they discuss the continuity of organizations' change of direction. They argue that the same pattern – the momentum in organizational change can be true for innovation: “A sort of momentum seemed to prevail which applied also to the rate of product market innovation...” (ibid: 592). They further suggest that firms with a propensity to innovate will become more innovative, and conservative firms, on the other hand, will become stagnant (Miller & Friesen, 1982).

Later innovation researchers have also noticed and mentioned the patterns of innovation in organizations especially within established organizations. For example, Christensen (1997), from a strategic perspective, suggests that established, especially leading, firms tend to innovate within the same pattern, focusing on addressing the well-understood needs of known customers within their existing value network. Following the same trajectory of performance improvement, these firms make efforts to address the known need of existing customers and market, and therefore are less likely to realize the opportunities of disruptive innovation.

Besides, given that innovation in this thesis is seen as a means of organizational adaptation, previous studies identifying the types of organizational adaptation processes also suggest that patterns of innovation process can be possible. For instance, seeing organizational adaptation as a strategic choice made by the top decision-makers in the organization, Miles and his colleagues (1978, 2003) suggest that organizations can choose different strategies. Following these strategies, organizations have a distinct set of response mechanisms that are consistently applied when a change occurs in the environment and therefore. Therefore their adaptation processes exhibit different patterns. They further identify four types of adaptation processes based on how organizations solve three major problems: entrepreneurial, engineering and administrative problems. These four types of organizational adaptation processes are referred to as defender, prospector, analyzer and reactor.

Organizations with the defender strategy deliberately enact and maintain an environment for which a stable form of organization is appropriate. They usually have narrow product-market domains and focus on efficiency. Top managers in this type of organization are highly expert in their organization's limited area of operation but do not search outside their domains for new opportunities. As a result, these organizations seldom need to make major adjustments in their technology, structure, or methods of operation. Instead, they devote primary attention to improving the efficiency of their existing operations. Companies within mature industries generally favor the defender strategy compared with those within younger and more dynamic industries.

Compared with defenders, organizations with the prospector strategy enact in the environment in a more dynamic manner than other organizations in the same industry. The core capability of this type of organization is exploiting new products and market opportunities, and they regularly experiment with potential responses to emerging environmental trends. The prospectors proactively create change and uncertainty in the environment to which their competitors must respond. They also have strong concern for product and market innovation. Maintaining a reputation as an innovator in product and market development is as important as or even more important than high profitability. However, because of this, prospectors are not as efficient as defenders.

Analyzer is a combination of defender and prospector and represents an organization that attempts to minimize risk while maximizing the opportunity for profit. Analyzers are organizations which operate in both stable and changing product-market domains. In their stable areas, these organizations operate routinely and efficiently through the use of formalized structures and processes. In their more turbulent areas they rapidly adopt new ideas from their competitors which appear to be the most promising and become quick followers. They are not aggressively and proactively exploiting new product and market opportunities like the prospectors and are not as stable like the defenders.

Reactor is an inconsistent and unstable type of organization in which managers are unable to respond efficiently to the environmental change. With a lack of a set of response mechanisms which can be applied reliably to cope with a changing environment, the reactor usually responds inappropriately to environmental change and uncertainty, performs poorly as a result, and then

is reluctant to act aggressively in the future. Because this type of organization lacks a consistent strategy-structure relationship, it seldom makes adjustment of any sort until forced to do so by environmental pressure. According to Miles and Snow (2003), the reactor is a “residual” strategy, arising when one of the other three strategies is improperly pursued.

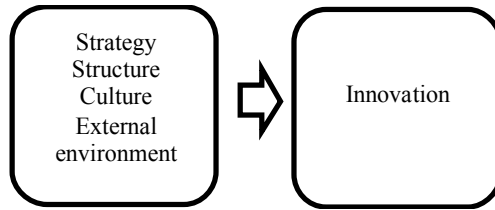
3.3 Towards a theoretical framework

Based on the literature review and data collected during the fieldwork, three models have been constructed and used in the research process, which was an on-going process of confrontation between theory and data as the research proceeded. The three models adopted for successive stages of the research process include (1) a model guiding the pilot study, (2) a model for data collection in the main study, and (3) a revised model for completing data collection and data display as the base for data analysis in the main study. During the research process, the constructs in the framework first emerged from the empirical data (inductive) and were then connected with some theoretical explanation (deductive), and therefore the whole framework came up in an “abductive way” (Alvesson & Sköldbberg, 2009). At the end of this chapter there is a model (Figure 3-3) evolved through this abductive process to complete the data collection and prepare for the data analysis. Each of three models and its development process will be presented in the following sections.

3.3.1 The model guiding the pilot study

The study commenced with a pilot study in Alfa – one of SCAP subsidiaries in central Europe (the complete research process will be further presented in the methodology discussion in Chapter 4). Based on the findings from several explorative interviews with the management team in SCAP headquarters, the pilot study started with the explorative purpose of identifying the hindrances and facilitators of innovation. A framework consisting of the key factors identified from the innovation literature (see section 2.3) was constructed to guide empirical exploration of the pilot study in Figure 3-1:

Figure 3-1 A model for pilot study



References: strategy (Saleh & Wang, 1993; Ritter & Gemunden, 2004); structure (Burns & Stalker, 1961; Mintzberg, 1979; Lawrence & Lorsch, 1967; Miller & Friesen, 1984); culture (Kanter, 1983; Damanpour, 1991; Hurley, 1995; Amabile et al., 1996; Ahmed, 1998); external environment (Damanpour, 1991).

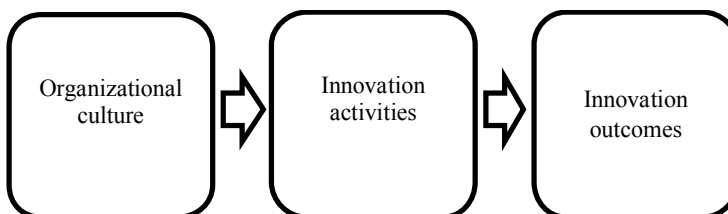
3.3.2 The model for data collection in the main study

From the data analysis of the pilot study, among all the other factors, organizational culture appeared to be an important influencing factor of innovation in the case company, which shifted the research focus from identifying the innovation hindrances and facilitators to the relationship between culture and innovation. The pilot study also helped to narrow down the scope of theoretical exploration to the literature specifically addressing the relationship between culture and innovation.

As discussed in previous sections, a literature review puts forward two main arguments of this thesis based on the existing literature on culture and innovation. First, seeing the concept of innovation culture as self-explanatory, the existing literature portrays the relationship between culture and innovation as a static and linear model, assuming a causal relationship between culture and innovation. Second, the existing literature directly links organizational culture to innovation outcomes whereas it does not explain how these innovation outcomes are generated through innovation processes under the influence of organizational culture. Based on Saffold's (1988) study on the culture-performance relationship and studies on cultural dynamics (Hatch, 1993; Schein, 2010), culture's influence on various organizational outcomes is a consequence of the interaction between culture and organizational processes and practices which create the organizational

outcomes. Accordingly, a new model was built by including the new construct “innovation activities” between organizational culture and innovation outcome for data collection. This new model is shown in Figure 3-2:

Figure 3-2 A model for data collection in the main study



In Figure 3-2, organizational culture is defined as shared values, beliefs and assumptions of organizational members. As product innovation is the focus of this thesis, innovation activities refer to those necessary to develop new products in organizations (see section 2.1.2). Innovation outcomes refer to the changes perceived by organizational members in the innovation processes at a certain time. Moreover, although in the innovation processes different activities are carried out by individual actors, innovation activities in the model refer to the activities at the collective or organizational level.

3.3.3 The revised model for data collection in the main study

After the data was collected and sorted out according to the model in Figure 3-2, two new constructs emerged from empirical material that also accounted for the differences between cases, including organization’s motivation for innovation and the organizational members’ reflections on innovation and future actions. These two new constructs, together with the constructs in the previous data collection model in Figure 3-2 – innovation activities and innovation outcomes captured the major differences in organizations’ innovation processes in three cases. The task then became to find a theory that could account for the differences between cases by comparing them on the above-mentioned four dimensions. Seeing innovation as a means of organizational adaptation in response to the internal and/or external environmental changes, organizational adaptation theory helped to fulfill this

purpose. From an organizational adaptation perspective, these above-mentioned four dimensions could describe and account for different adaptation processes, which will be further discussed in detail as follows.

Adaption is defined as “the deliberate change in organizational actions by decision makers in response to changed organization environment conditions” (Duncan & Weiss, 1979). It suggests that organizations deliberately search for a match between internal organizational structure and its external environment. From an organizational adaptation perspective, innovation is seen as a means for an organization’s adaptation to a changing environment (March & Simon, 1958; Thompson, 1965; Zaltman et al., 1973; Stata, 1989; Damanpour, 1991). As a response to the environmental changes, adaptation is triggered by both problems and opportunities (Duncan & Weiss, 1979; Fiol & Lyles, 1985), and the changes can emanate from the organization’s internal and external environment (Damanpour, 1991). In particular, facing the intense international competition, rapid technology evolution and customers’ maturing expectations, product innovation – the creation of new products – is a central path and primary way in which organizations adapt to and sometimes even transform themselves in a changing environment (Dougherty, 1992a; Eisenhardt & Tabrizi, 1995). And product innovation is also one type of adaptation that occurs through small, frequent shifts in how firms compete in the marketplace (Eisenhardt & Tabrizi, 1995).

Several studies have discussed the organizational adaptation process. According to Duncan and Weiss (1979), an adaptation process includes: (1) identifying problems in the environment; (2) generating information about these problems and transferring this information to that part of the organization that can do something about the problem; (3) taking corrective action; (4) getting feedback on the corrective action to determine if the problem was solved. Schein (1994b) suggests five stages through which organizations are constantly in a dynamic interaction with its environment, including: (1) sensing a change in some parts of the internal or external environment; (2) importing the relevant information about the change into those parts of the organization that can act upon it, and digesting the implication of the information; (3) changing production or conversion process inside the organization according to the information obtained while reducing or managing undesired side effects in related systems, and stabilizing the change; (4) exporting new products, services, etc., which are more in line

with originally perceived changes in the environment; (5) obtaining feedback on the success of the change through further sensing the state of the external environment and the degree of integration of the internal environment.

These processes suggest that an organizational adaptation process exhibits a circular shape. It takes place interactively through a circular process where the “fit” between the organization and its environment is achieved by making adjustment according to the feedback from the corrective actions. Schein (ibid.) refers this circular model as “organization’s adaptive coping cycle”, which suggests that the organizational adaptation process begins with a change in some aspects of its internal or external environment and ends with a more adaptive dynamic equilibrium for dealing with the change.

As discussed in previous sections, based on the theory of archetypes and archetype movements, an innovation process can be seen as a process in which an organization attempts to move from one archetype to another. From an organizational adaptation perspective, in the latter archetype the organization has a better fit with their external environment or a higher degree of integration of the internal environment than in the former archetype. Therefore, the process model of organizational adaptation can also be applied to describe an organization’s innovation process. According to the adaptation process, the above-mentioned four constructs (two from the model in Figure 3-2 and two emerged from empirical material) that account for the differences in innovation processes between cases can be explained as follows:

Motivation for innovation

The literature suggests that the process of organizational innovation can be triggered by both change in the external environment (March & Simon, 1958; Daft, 1978) or within the organization, such as opportunity for new organizational features that can improve organizational performance (March & Simon, 1958; Daft & Becker, 1979; Rogers, 2003) institutionalization of innovation (March & Simon, 1958), or a gap in organizational performance (March & Simon, 1958; Daft & Becker, 1979; Rogers, 2003).

The changes in the external environment can be a trigger for innovation, for example, (1) the demand for organizational outcomes (Daft & Becker, 1979; Nelson & Winter, 1982), (2) the availability of the resources (Nelson & Winter, 1982) and (3) the changes in the technological environment (Daft, 1978). The trigger of innovation can also originate within the organization,

for example, Rogers (2003) argues that when an organization detects a performance gap or another problem, it may trigger a search for an idea that will close the gap or solve the problem. This can be seen as a reactive response to the change. March and Simon (1958) suggest that an opportunity for a new organizational feature which could result in more satisfactory organizational performance can be motivation for organizations to innovate. The purpose can be to solve a problem which currently does not have a solution or to improve the present program even when it is accepted as satisfactory. Cohen and Levinthal (1990) suggest that an organization operating in a proactive mode is sensitive to emerging technological opportunities in its environment, while in a reactive mode it searches for new alternatives in response to failure on performance criterion such as profitability and market share. In this sense, innovation will be the organization's reaction to the environmental change or as a means to close the performance gap.

However, not every environmental change will trigger innovation. According to Pfeffer and Salancik (2003), an organization may not respond to every event in the environment. The organization might (1) be isolated or buffered against effects of the event; (2) not notice the event; or (3) considers the event not to be important enough to require a response. And March and Simon (1958) suggest that organizational change or innovation takes place when organizations sense the current actions to be "unsatisfactory". Within an organization, this can come from a particular profit level, market share and liquidity position. Therefore, whether a change can trigger innovation also depends on how organizations sense the current situations, that is, the process of scanning the environment is followed by "interpretation" where observed events are translated, and shared understanding and conceptual scheme are developed among members of upper management (Daft & Weick, 1984). Those members who are making the decision need to be convinced that these events are important enough for a response.

Hence, these perceived changes or events taking place in the environment and the interpretation of the changes form an organization's motivation for innovation. If the changes and events are perceived as important enough to act upon, they will trigger the organization's innovation actions as a response. And the more important the changes and events are perceived to be, the stronger the organization's motivation for innovation.

Innovation activities

After the changes in the environment are detected and perceived by organizational members as strong enough – that the organization’s motivation for innovation is strong enough – the organization will innovate to respond to these changes. If the actions are taken to solve a problem, they are referred to as “corrective actions” (Duncan & Weiss, 1979) or problem-solving (March & Simon, 1958). Schein (1994b) suggests that the organization will change its production or conversion process while reducing or managing undesired side-effects in related systems, and stabilizing the change.

Product innovation has been regarded as a critical means by which organizations adapt to the changing environment, facing the intense international competition, rapid technology evolution and customers’ maturing expectations (Damanpour, 1987; Dougherty, 1992a; Brown & Eisenhardt, 1995; Eisenhardt & Tabrizi, 1995; Dougherty & Hardy, 1996; Chandy & Tellis, 1998; Veryzer, 1998; Danneels, 2002). As suggested in Chapter 2, in product innovation processes, different activities organized to develop new products include collecting or generating new ideas, developing new products, acquiring resources, designing and preparing for production, providing training linked to new product development, and commercializing the products, and so on. Therefore, seen as a primary way of organizational renewal (Dougherty, 1992a; Brown & Eisenhardt, 1995), developing new products can be an action taken by organizations to address the needs for performance improvement and cope with the pressure from external competition.

Innovation outcomes

The corrective actions lead to certain changes in the organization (Duncan & Weiss, 1979). The new products, services and other outcomes are generated as a result of the organization’s actions to change, which are more in line with originally perceived changes in the environment (Schein, 1994a). However, the use of the term “outcome” can be problematic, as “there is no result of process but only a moment in process” (Follett, 1924: 60-61, in Weick & Westley, 1996: 448). This suggests that the timing when an outcome is judged is arbitrary, and the interpretation may well vary upon subsequent reflection on the outcomes (Huzzard, 2000). Hence, in this thesis the term outcome is used to refer to the organizational members’ perceived changes

that have taken place in innovation processes at the time when the fieldwork was conducted.

Reflections and future measures

The last stage of an adaptation process is obtaining feedback from the perceived changes by sensing the state of the external environment and the degree of integration of the internal environment (Schein, 1994b). If the actions are taken to solve a problem, organizations determine whether the problem has been solved through previous corrective action based on the feedback (Duncan & Weiss, 1979). This suggests that organizations reflect on the changes taking place in the organization and make decisions about whether further actions are needed. The outcome can be defined in different ways. For example, the interpretations of events can be formed to classify outcomes as good or bad (Thompson, 1967), and they can also be defined as success or failure in terms of the relation between performance outcomes and targets (Levitt & March, 1988).

Accordingly, organizations initiate innovation activities which result in changes in the organization and the changes, in turn, are perceived by organizational members as innovation outcomes. Then the outcomes are reflected on according to whether or not they are perceived desirable. An innovation project is considered a success when the organization has achieved its expected outcomes. If the organizational performance is improved or the problem that the organization had before is solved, then the innovation is considered to be a success. And if those expected outcomes are not achieved, innovation is considered a failure.

In terms of attribution of the success or failure, certain properties of the interpretation of previous experience stem from features of individual inference and judgment (March, 1991). At a collective level, culture functions as organizational members' mental-map or interpretative scheme. Hence, organizational members are inclined to accept interpretations that attribute the success to the actions consistent with their values, beliefs and assumptions, while the failure is attributed to the actions which are not culturally accepted. For example, if an organization's culture advocates innovation, the organization tends to interpret failure of innovation less as a result of the innovation practices being incorrect but as an indication that the organization might have not pursued it vigorously enough. In contrast, if an organization's

culture is against innovation, the failure of innovation can be interpreted as the innovation practices being incorrect.

Finally, the feedback from the organizations' innovation outcome also makes the innovation process a circular model, which can be seen as a form of an organization's adaptive coping cycle (Schein, 1994b). It starts when an organization detects the change in its environment and senses the need for innovation either to solve the organization's problem or improve the organizational performance. It ends with a form that fits better with its environment, in which the previous problem has been solved or the performance has been improved. In this way, an organization's innovation takes place iteratively through a circular process in which the organization achieves its expected goals, eventually leading to a better "fit" between the organization and its environment.

A feedback loop from innovation to culture

As has been discussed above, culture as an organization's shared values, beliefs and assumptions can influence how the organization perceives changes in the environment, whether and how it takes action to respond to the changes, how the outcomes are judged and whether further action is needed. Moreover, according to the cultural dynamic theory (Hatch, 1993), there is a dynamic interaction and mutual influence between the tangible cultural artifacts and the intangible values and assumptions. The cultural values and assumptions are embodied and manifested in the artifacts; at the same time, the artifacts contribute to the values and assumptions according to "how things should be". Artifacts can reaffirm the values; they can also create another set of values not aligned with the assumptions or absorbed as new assumptions, evoking a broader cultural frame.

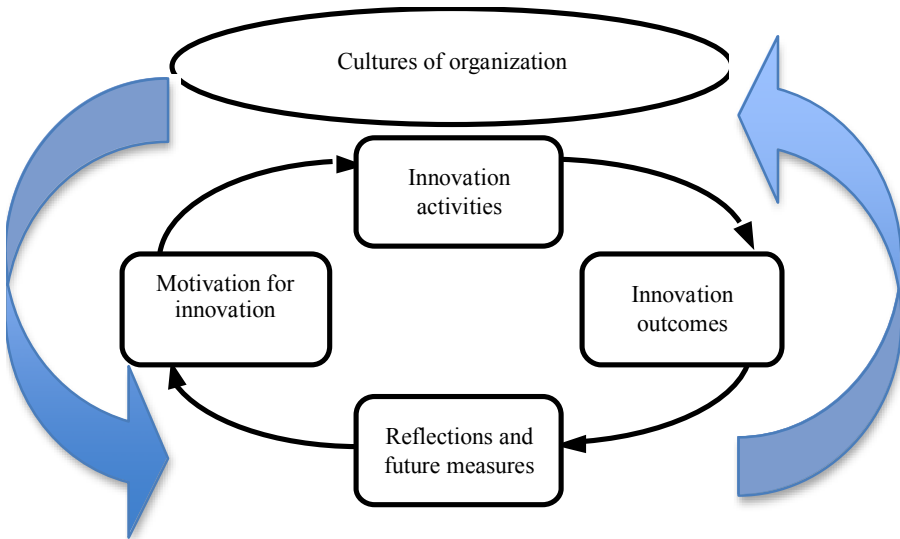
As innovation involves novelty and requires questioning and modifying the existing norms, procedures, policies and objectives (Argyris, 1977), breaking the frame (Argyris et al., 1985) and exploring the new opportunities (March, 1991). It is very likely that innovation will introduce new cultural elements inconsistent with and even contradicting the present culture. And whether these different values and assumptions can be absorbed as new cultural elements into the current culture also depends on the strength of the overarching culture – to what extent the cultural values, beliefs and assumptions are shared and how intensely they are held by organizational members.

The dominant culture and subcultures

Last, but not least, as previous studies have suggested, different functional subcultures may coexist with the dominant culture within an organization (Martin & Siehl, 1983; Trice, 1993; Schein, 2010) which can be a source of inconsistency and therefore can lead to conflict between members from different functional groups involved in innovation processes. And the empirical material also provided evidence for the existence of subculture. More specifically, it draws our attention to the role of design function in innovation process in the case company and how it interacts with the rest of the organization especially production. Accordingly, the construct of organizational culture in the previous model in Figure 3-2 has been extended to incorporate different functional subcultures.

Based on what has been discussed above, the analytical framework used for further data collection and data display as a base for further analysis is summarized in Figure 3-3:

Figure 3-3 A revised model for data collection and data presentation in the main study



To summarize, the revised model in Figure 3-3 has extended the previous model in Figure 3-2 in the following aspects. First of all, after some data had been collected based on the model in Figure 3-2, two new constructs emerged

from the data and were included in the third model in Figure 3-3: (1) the organization's motivation for innovation and (2) their reflection on innovation outcomes and future action. As shown in Figure 3-3, an organization's innovation process starts when it detects changes from the environment and decides whether it should take measures to innovate as a response to the environmental changes (motivation for innovation). If the environmental change is big enough to stimulate innovation, the organization then takes measures to respond to the changes, e.g., developing new products (innovation activities). Members of the organization perceive changes after measures are taken (innovation outcomes), and based on their perception and judgment of whether the expected outcomes have been achieved, decisions are made whether further measures are needed to continue the innovation activities (reflections and future measures). And if so, the cycle continues. This model therefore explores the process of innovation on the four dimensions: (1) motivation for innovation, (2) innovation activities, (3) innovation outcomes, and (4) reflections and future measures.

Secondly, in addition to the dominant culture of the organization, the revised model also includes different subcultures and therefore takes into consideration of the inconsistency and even conflict within the organization, rather than seeing the whole organization as having a single unified culture which implies consistency and harmony. Finally and most importantly, the revised model includes a feedback loop from innovation to culture, suggesting that innovation has a retroactive effect of reaffirming or strengthening the cultural values, beliefs and assumptions of organizational members. This feedback loop also results in a cyclical model of the culture-innovation relationship instead of the linear model depicted in previous studies. It suggests that the relationship between culture and innovation is a dynamic interaction in which culture and innovation mutually influence each other.

The key concepts in the model are summarized in Table 3-1:

Table 3-1 Summary of the key concepts in the model

Cultures of organization	Motivation for innovation	Innovation activities	Innovation outcomes	Reflections and future measures
The values, beliefs and assumptions within an organization, including those shared by a majority of organizational members and those shared within different functional groups.	To what extent an organization senses the need of innovation as it perceives the changes/problems in the internal and/or external environment.	The measures that an organization takes to innovate in response to the changes in the internal and/or external environment or to deal with the associated problems.	The changes perceived by organizational members from innovation at a certain time.	Organizational members' perception and judgment of whether the expected outcomes have been achieved and the decision of whether any future measure is needed.

Chapter 4 Methodology

This chapter discusses the methodology of this thesis, including the research design, research process, sources of data collection, approach of data analysis and criteria by which the quality of the research is evaluated.

4.1 Research design

4.1.1 A single case study with embedded cases

The research method used in this thesis is a single case study with embedded cases (Eisenhardt, 1989; Yin, 2009). The choice of a research strategy is based on the following considerations.

As has been argued in previous chapters that other studies have treated the concept of innovation culture as self-explanatory and therefore taken it as given, assuming a causal relationship between culture and innovation. This taken-for-grantedness of innovation culture and assumed causality between culture and innovation did not tell us how or why culture's influence on innovation takes place. The concept of innovation culture remains a black box and the mechanism of the culture-relationship is unexplained. Therefore, the aim of the thesis is to answer the research question "How does organizational culture influence innovation?". This research endeavor is explorative in nature as it tries to open the black box of the concept of innovation culture and reveal the mechanisms of the culture-innovation relationship. Miles and Huberman (1994) suggest that qualitative analysis is a powerful method for assessing causality, telling us what happens in the "black box" phenomenon and explaining the mechanisms involved:

Qualitative analysis, with its close-up look, can identify mechanisms, going beyond sheer association. It is unrelentingly local, and deals well with the complex network of events and processes in a situation. It can sort out the temporal dimensions, showing clearly what preceded what, either through direct observation or retrospection. It is well equipped to cycle back and forth between variables and processes – showing that “stories” are not capricious, but include underlying variables, and that variables are not disembodied, but have connections over time. (ibid: 147, emphasis original)

According to Miles and Huberman (ibid.), explanations – involving answering good “why” and “how” questions – require us to go beyond sheer association to seeing the actual mechanisms of influence in a bonded local setting. In particular, the case study approach is considered suitable for this kind of inquiry as it is the preferred strategy for exploring more explanatory “how” and “why” questions (Yin, 2009). Based on the assumption that there is a causal link between culture and innovation, previous studies have been largely focusing on drawing correlations between culture and innovation or identifying cultural characteristics that are associated with better innovation outcomes by using quantitative methods. To *explain* this presumed causal link in depth in real-life interventions is also what a case study can offer, while survey or experimental strategies cannot achieve this (ibid).

Besides, the case study is suggested to be suitable for generating theories, especially when the research purpose is to understand the dynamics of a phenomenon within a certain organizational context (Eisenhardt, 1989). In this thesis, the literature review suggests that the culture-innovation relationship has been portrayed as a static and linear model. Drawing on cultural dynamics theory and innovation theory, this thesis proposes a more dynamic and interactive perspective on innovation culture. It suggests that apart from the influence of culture on innovation, there is also a feedback loop from innovation to culture which constitutes a dynamic interaction between culture and innovation. Therefore, providing explanation of the black box concept of innovation culture requires explaining the dynamic interaction between culture and innovation, which inevitably involves developing theory. The case study is, hence, considered to be a suitable research method for this thesis.

Admittedly, a multiple case study would strengthen the ability to generalize the results of the thesis and increase the external validity (Eisenhardt, 1989; Bryman & Bell, 2007; Yin, 2009). However, this thesis has chosen to apply a single case study design for the following reasons. First, the research purpose is to extend our understanding of innovation culture by explaining the mechanisms of the culture-innovation relationship; and the study is explorative in nature for the purpose of theory development rather than generalization. Second, the learning partnership with the case company also restricts attention paid to a single case setting. Nevertheless, incorporating embedded cases as subunits of analysis can add opportunities for extensive analysis (Yin, 2009). In this thesis, although the research was conducted in a single case company setting, different subsidiaries of the case company were chosen as the settings for embedded cases. A comparative strategy was applied to help to understand and compare these embedded cases.

4.1.2 Unit of analysis

Researchers generally emphasize the importance of clearly defining a case and a unit of analysis when conducting a case study (e.g., Miles & Huberman, 1994; Yin, 2009), however, the conceptual separation of the case from the unit of analysis has not been given much attention (Grünbaum, 2007). The distinction between the two concepts is unclear. Many researchers have been very ambiguous about the distinction between unit of analysis and case, or inconsistent about the meaning of them. For example, Miles and Huberman (1994) consider cases as identical with the units of analysis and further suggest that cases need to be defined with a clear focus and a clear boundary. Yin (2009) also views case and unit of analysis as identical, for instance, when discussing how to define what the case is, he argues that “in each situation, an individual person is the case being studied, and the individual is the primary unit of analysis” (ibid: 29). However, Yin is not consistent in his argument. Further on in his typology of case studies (ibid.) he views case and unit of analysis as distinguishable within an embedded case design but indistinguishable within a holistic case design.

Grünbaum (2007), noticing this ambiguity and inconsistency in the distinction between case and unit and analysis in case studies, argues that it is necessary to distinguish between these two concepts. According to this author (ibid.), the unit of analysis is the core or the “heart” of a case; it refers to the

concrete knowledge provided by the key informants identified according to the research purpose, constituting specific information about the unexplored research question that the researcher seeks to answer. Thus the unit of analysis is demarcated as individuals and/or actions of individuals. This knowledge will be on a lower abstraction level closely connected to the research protocol and research purpose and also serves as a base for further data analysis. A case, on the other hand, constitutes something that is closely and logically connected with the unit of analysis (ibid: 89). It includes the context that influences the understanding of the unit of analysis. Therefore, a case can be divided into layers surrounding the “heart” of the case – the unit of analysis.

Accordingly, in this thesis, the unit of analysis refers to the specific knowledge necessary to address the research question, which is provided by the key informants identified according to the research purpose; it refers to concrete information such as actors and actions which can be described or captured. A case includes the unit of analysis as well as the context in which the unit of the analysis is embedded; it includes the contextual bounds which surround, and hence influence, the understanding of unit of analysis.

Given the research purpose is to enhance our understanding about the concept of innovation culture and the culture-innovation relationship, the key informants in this thesis are actors directly or indirectly involved in the innovation projects (product innovation in particular). Therefore, *the case in this thesis refers to SCAP; the embedded cases refer to the selected SCAP subsidiaries; and the unit of analysis refers to the selected product innovation projects and organizational members’ cultural values, beliefs and assumptions surrounding these projects in those subsidiaries.*

More specifically, as will be further illustrated in the later sections, in Case Alfa, the product innovation project refers to the development of Oyster Packaging; in Case Beta, it refers to the two product innovation platforms – Shelf-Ready Packaging and Food-Safe Packaging; and in Case Gamma, it refers to the Monthly Innovation Project. Furthermore, as recalled from Chapter 2, given the richness of the concept of culture, the identified values, beliefs and assumptions could still only be a piece of culture rather than its entirety. Besides, focusing on the relationship between culture and innovation, this thesis is positioned as *a study about innovation from a cultural perspective*, rather than a study about organizational culture. Therefore, the term culture in this thesis is used with a narrow conceptualization, which refers to

organizational members' shared values, beliefs and assumptions surrounding the selected product innovation projects, instead of the whole organizational culture. Here, organization culture refers to culture of each subsidiary rather than SCAP corporate.

4.1.3 Case company

This research project is a part of the learning partnership between a Swedish paper packaging company – SCA Packaging (SCAP) and the Institute of Economic Research at Lund University. SCAP is the second largest packaging manufacturer in Europe belonging to the Swedish forestry group – Svenska Cellulosa Aktiebolaget (SCA). Apart from packaging, SCA also has three other business areas, including hygiene, containerboard and forest products. The headquarters of SCAP is located in Brussels and the company has 25 subsidiaries in different countries. In the spring of 2012, SCAP was acquired by a British packaging company DS Smith.

The core business of SCAP is corrugated paper packaging which constitutes 70% of its sales (SCAP company document, 2009). The company's product portfolio includes consumer packaging (packaging used at the point-of-sale and directly goes to the end product together with the products), transit packaging (the corrugated packaging for the distribution of products and protecting the products in transit), industrial packaging (packaging for storage and transport of heavy, bulky or large goods and hazardous materials), protective packaging (packaging providing cushioning and protection for products during shipping, warehousing and handling by using different multi-materials such as wood, foam, plastic and corrugated board), and displays and promotional packaging (which is designed for in-store point-of-sale display aimed at conveying the brand image and marketing the product in-store).

In 2008, SCAP initiated a strategy aiming at transforming the company from “an undifferentiated, cyclical raw material pusher” to “a full-service packaging provider with growing and differentiated core business offering our customers increasing value” (SCA company document, 2008). Along with this strategy, five transformation themes were identified to assist in accomplishing this transformation, including “High-performing system”, “World-class sales and marketing execution”, “Driving an innovation culture”, “Lean” and

“Appropriate assets”. This strategy was soon introduced from the headquarters to SCAP subsidiaries in different countries.

The corrugated packaging industry has been considered as a mature and capital-intensive industry characterized by mass production and heavy investment in the machinery – the corrugators. Although mature industries have not been the focus of researchers in previous innovation studies, this research context is valuable for studying innovation as it can provide different insights into innovation compared with young and emerging industries. Usually, studies in innovation are carried out in high-tech and knowledge intensive companies where changes take place often and people’s mind-set is used to changes and innovation. These companies usually have already developed the organizational structure and processes for implementing new ideas and change. The challenges for innovation hence lie in the initiation of innovation: how to stimulate more new ideas for innovation in the company. However, operating in mature industries, companies are facing a relatively stable environment for a long time and people are not used to change. Therefore, the challenges facing companies within mature industries are more likely to exist in the implementation of innovation, as the institutionalized structures, processes, as well as the ideas and assumptions about how things should be, can inhibit the efforts of putting new ideas into implementation.

Hence, as a typical example of many other manufacturing companies operating in mature industries, the case company SCAP provides an excellent opportunity to study innovation in these industries. The important insights into innovation provided by SCAP are also useful for other companies within mature industries.

4.1.4 Case selection

The case selection was based on the desirability of controlling the “extraneous variation” (Eisenhardt, 1989: 537) and at the same time, “go for extreme situations” (Pettigrew, 1990). In the research project, the long-established learning partnership has provided excellent access to all the SCAP subsidiaries, which assures the case selection to meet the research purpose. The case company SCAP has a history of more than 80 years and has expanded several times through mergers, acquisition and selling subsidiaries to other companies. The organization is not homogeneous in terms of the subsidiaries’

backgrounds. This heterogeneity also makes it possible for the selection of embedded cases to meet the above-mentioned criteria.

According to Eisenhardt (1989), in a case study researchers can either select similar cases to replicate the results and extend emergent theory or select different cases to fill different theoretical categories and provide examples of polar types. Yin (2009) suggests two similar case selection criteria: literal replication or theoretical replication. The former refers to predicting similar results and the latter to predicting contrasting results but for anticipatable reasons. In this thesis, following the logic of theoretical replication, embedded cases were selected with different characteristics that could potentially lead to contrasting results on two dimensions: innovation and culture, which are two key concepts in this thesis. The case selection is also aiming for the extreme cases which can provide examples of polar types (as will be discussed in section 4.2.3). And the selection of cases is further elaborated as follows.

Firstly, regarding innovation, the target cases are subsidiaries considered as innovative within SCAP and engaging in innovation proactively, as well as those considered as less innovative and facing challenges in innovation. The selection of both high-performing and low-performing organizations regarding innovation is beneficial for cross-case comparison. Most innovations at SCAP concern products, and packaging design is seen as a key part in new product development, so I focused on the subsidiaries with design centers. The final choice fell on those with design centers that are very active in design competitions and design networks at SCAP, and have a high performance in terms of number of new products and patents. The discussion and interviews with top management in SCAP headquarters and the innovation director in the innovation center have helped to select the subsidiaries that could meet the above-mentioned criteria.

Secondly, SCAP is geographically decentralized and subsidiaries with SCAP are independent of each other. Some subsidiaries had belonged to SCAP since they were established, while others became a part of SCAP through mergers and acquisition. Therefore subsidiaries have different historical backgrounds, production capabilities, strategic focuses, and face different external environments. This heterogeneity in the company could result in distinct organizational cultures entailing people's varying views on innovation and the organizations' different innovation approaches. Most traditional SCAP subsidiaries have a long history; they usually focus on corrugated packaging

and mass production of standard products and have very few customized products. In comparison, many acquired companies are relatively younger; they develop different production capabilities and have more diversified product portfolios, focusing not only on corrugated products but also on packaging made of other materials. The interviews with SCAP managers during the explorative study and pilot study as well as discussions with previous learning partnership students have been important sources of this information. As the research proceeded, three embedded cases were gradually identified along the research process, which will be further presented in the following sections.

Thirdly, apart from differences, the embedded cases should also have similarities based on the consideration of variety and balance (Stake, 1995). As all the embedded cases were subsidiaries within the same case company, they faced the same wider organizational context and industry environment, e.g., they had the same core production capabilities, adopted the same strategy from the headquarters and operated in the same industry. These similar contextual factors surrounding the unit of analysis make the cases comparable.

Finally, the access to the subsidiaries, as an opportunity to learn from the case is also considered as a criterion of case selection (ibid.). Case selection inevitably also depends on the availability of the subsidiaries to host and assist the researcher to conduct the study within their organizations. In the end, three embedded cases were chosen from SCAP, which are compared as follows in Table 4-1:

Table 4-1 A summary of comparison of reason of including the three embedded cases

	Alfa	Beta	Gamma
Location	Central Europe	Western Europe	Northern Europe
History	Established in 1996 from a greenfield site	A traditional corrugated box plant acquired by SCAP	Traditional corrugated box plants acquired by SCAP
Organizational setting	Has two production sites (a corrugated box plant and a consumer packaging/display plant), a commercial center, a design center and several service centers	Has three corrugated box plants (one standard mass production plant, one small multi-material plant and one plant focusing on innovation), each with its own commercial center, and a design center	Has three corrugated box plants at three different sites centrally managed by a commercial center; each plant has a design center
Core business	Does not focus on corrugated packaging but is very open to other materials; the product portfolio is diversified including a lot of multi-material packaging	Corrugated packaging is the core business; one plant produces and delivers multi-material packaging but in a very small scale	Corrugated packaging is the core business; has very little multi-material packaging
Innovation orientation	Mostly works with product improvement according to customer request but also proactively searches for opportunities to develop radical innovation; has a very active design center which has won several design awards and a growing number of new products in the past few years; has close connection with innovation center and other design centers	Mostly incremental innovation, but has adopted innovation from other countries in the last few years; the design center is very active in participating in different design competitions and workshops; has close connection with innovation center and other design centers	Mainly focuses on incremental product improvement based on customer requests; design centers were not as active as the other two companies in SCAP design network

External environment	In a very competitive market; has many competitors ranging from big multinational companies to small family-owned companies in different products	In a small and competitive market; the major customers are from food and beverage industries; competitors started to adopt low cost strategy; facing difficulties in expanding the existing market and stimulating business growth	In a relatively stable market; one of the largest packaging company in the market; sharing the market with several competitors; the market share has been stable in the past few years
Financial performance	Has exhibited superior financial performance compared to other subsidiaries in SCAP (at the time when the fieldwork was conducted)	The financial performance has not increased for a few years and the company was struggling with searching for new business growth	The financial performance has been stable in the past few years and the company was satisfied about the current situation

4.2 Research process

The whole research process can be divided into three phases, including an explorative study, a pilot study and a main study. The research question and framework are developed along the research process.

4.2.1 Phase one: the explorative study

Before the research commenced, several explorative interviews and discussions with the management team at the SCAP headquarters were conducted to get close to the company and identify the potential cases. This explorative study started with an official meeting with the top management team at SCAP headquarters. During the meeting, the management team presented general information about the company as well as SCAP's transformation strategy and the implementation process. In particular, innovation as one of the transformation themes in SCAP was introduced. This was followed by a

discussion about the issues which could be potentially interesting for the research project and possible research directions. Later on, explorative interviews with top management were conducted at SCAP head office, which helped to acquire a general understanding about the innovation strategy and its implementation at the corporate level. Interviews in this phase were open-ended aiming at collecting as much information as possible. Moreover, activities during this phase also included visiting the innovation center and interviewing design directors and designers.

These explorative interviews and discussions helped to learn how innovation was planned and organized at the corporate level. They also played an important role in getting acquainted with the case company and identifying the potential embedded cases. During this phase, Alfa was brought forth as a strong candidate to start the case study. The reason for this choice was based on several considerations. First of all, Alfa had a very active design center. According to the top management at the headquarters and innovation director at the innovation center, Alfa design center was considered to be one of the most active and productive design centers among all the 15 SCAP design centers in terms of numbers of new designs and patents generated every year.

Besides, Alfa design center was also actively involved in different design competitions and workshops both within and outside SCAP. The design manager at Alfa had close connection with the innovation center and other design centers. He was also an active member in SCAP design network, working with facilitating communication between design centers and between design centers and the innovation center. In recent years, Alfa has exhibited increasing financial performance. Moreover, a new TV packaging which was considered as a radical innovation in SCAP and has drawn considerable attention from the headquarters was developed by Alfa design center.

Furthermore, Alfa was one of the very few SCAP subsidiaries which did not have a corrugated background. The company was established from a greenfield site in 1996 and has been growing rapidly in the last 20 years. This different historical background provides the possibility of an organizational culture that differs from other traditional corrugated companies in SCAP. Besides, Alfa did not have a strong focus on the traditional corrugated business. Its product portfolio included a great portion of multi-material packaging and customized products. All of these factors made Alfa a potential

candidate different from many of the other subsidiaries in terms of innovation and organizational.

4.2.2 Phase two: pilot study

After the first round of explorative interviews, the purpose of this thesis was initially set to identify the factors that hinder or facilitate innovation. A model was developed based on previous innovation literature that identifies the key factors influencing innovation (Figure 3-1). After access to the company had been negotiated with the management, a pilot study commenced in Alfa in August 2010.

The pilot study started with a chance to participate in a corporate meeting at Alfa's head office, during which the preliminary research plan was presented and discussed with the management and employees at the meeting. The fieldwork during this phase lasted for one week. During that week, six interviews were conducted with designers, production operators and the management team (i.e., the sales, design, key account, production and business support managers). The interview consisted of semi-structured questions guided by the model in Figure 3-1. Open questions were also included in order to allow interesting findings to emerge. Company documents were collected and scrutinized in order to identify the organization's innovation activities and the factors hindering or facilitating innovation. The interviews from the pilot study were later transcribed and analyzed.

The evidence from the pilot study had several implications for the development of the research. First of all, organizational adaptation theory, which views innovation as a means by which the company adapts to the changes in the environment, entered the picture explaining the themes that emerged from the empirical material, and accounting for the differences between cases. Secondly, consistent with previous literature, it was found that product innovation was the major innovation in the company, which narrowed the scope of both conceptualization and operationalization of innovation. Thirdly, among all the innovation influencing factors identified in previous literature as summarized in the framework in Figure 3-1, organizational culture appeared to have great prominence. At the corporate level, a closer scrutiny of the company documents showed that innovation

culture was emphasized in SCAP's corporate strategy as one of the transformation themes, and the headquarters had been advocating the innovation culture across different subsidiaries.

The pilot study thus helped to refine the data collection by narrowing down the scope of exploration and focusing on the relationship between organizational culture and innovation. The question to be answered then became: if organizational culture as an important factor that influences innovation was supported both theoretically and empirically, how does this influence take place? With this question in mind, the literature specifically addressing the relationship between culture and innovation was reviewed. As a result, it was seen that the knowledge provided by the existing literature was not sufficient to answer this question (as discussed in Chapter 3). Therefore the research focus was switched from identifying innovation hindrances and facilitators to understanding how organizational culture influences innovation, which also gave rise to a new model (Figure 3-2) developed to guide data collection in the main study.

4.2.3 Phase three: the main study

After the pilot study, the main study commenced in Alfa in October 2010 after the formal access was discussed and agreed upon by the management team. The previous explorative study and pilot study had helped to gain some prior knowledge about the case company and the industry (e.g., its core business, main innovation activities and technical terms used in the corrugated industry). The main study sought to further interview the representatives according to the revised research model (Figure 3-2) and to select and incorporate more cases. As suggested in the previous section, the aim of this thesis at this phase was *to understand how organizational culture influences innovation*. This also suggests that, compared with the pilot study, the main study had switched the research focus from exploration to the development of understanding.

During the main study, another two embedded cases, Beta and Gamma, emerged as the research progressed. Beta was taken into consideration because it appeared to be a contrast to Alfa in many aspects. Beta used to be a corrugated plant and was acquired by SCAP in the 1980s. The core business of Beta is corrugated packaging and the company has very few multi-material

products. Beta also had a design center and had developed two innovation platforms in the last two years but has been struggling with commercializing the new products; at the same time, the financial performance also declined in the last two years. Seeing Alfa and Beta as two polar cases (Eisenhardt, 1989), Gamma was selected as the third case based on the consideration of balance and variety (Stake, 1995). Gamma was also a corrugated plant acquired by SCAP. The market share and financial performance of the company have been stable for many years, and it recently initiated an innovation project which has received some positive feedback from both management and employees in the company. Up to this point, these three cases were selected according to the criteria mentioned above: theoretical replication, polar examples, variation and balance.

The research then proceeded with visiting each subsidiary and interviewing the key informants. The field study was organized and arranged with the help of the correspondent person in each subsidiary. In each subsidiary, data collection took approximately one week. During the fieldwork, as a researcher I usually got a desk in the office and was sitting among employees. Interviews were conducted according the schedule planned together with the informants previously. Time was also spent on visiting factories, collecting company documents and participating in different meetings and workshops organized by the case company (when the access was permitted and the language was not a barrier) and carrying out observation. Interviews were guided by the model constructed in Figure 3-2. Notes were taken about the observation and informal talks with people when they were available. After the fieldwork, follow-up interviews were also conducted by telephone when it was necessary.

After the fieldwork in Alfa and Beta, data was collected and coded according to the model shown in Figure 3-2. It was found that apart from the three constructs in this model, there were two other constructs which also accounted for the differences between Alfa and Beta. First, although both Alfa and Beta had made efforts to develop new products, the need for or pressure from innovation came from different sources, which gave the two companies different motivation for innovation. Second, although in both Alfa and Beta, the new products developed in the innovation projects had not been successfully commercialized, people in these two companies had distinct views on innovation and the management had made completely different decisions about innovation in the future.

Therefore, two constructs – motivation for innovation as well as reflection on innovation and future actions emerged from the data and were added to the model shown in Figure 3-2. These two new themes together with the other two themes in the previous model (Figure 3-2) – innovation activities and innovation outcomes – can describe the innovation processes in three cases from an organizational adaptation perspective (as discussed previously in Chapter 2), which views innovation as an organization’s means of adapting to the changes in its internal or/and external environment. Moreover, based on the theories on culture dynamics and subcultures, a new model was constructed (Figure 3-3) and further used for data collection from Gamma as well as data reduction and display (Miles & Huberman, 1994).

4.2.4 Summary of research process

As described above, the research question and the theoretical framework emerged along the research process as more data was collected and analyzed. This process is best understood as an abductive approach (Alvesson & Sköldbberg, 2009) in which the researcher moves back and forth between empirical data and theory (Dubois & Gadde, 2002).

An abductive method begins with an account of phenomena detection and then considers the process of constructing explanatory theories (Alvesson & Sköldbberg, 2009). Although starting from empirical data, abduction does not reject the theoretical preconceptions. During the research process, the empirical data area of application is successively developed, and the theory (the proposed overarching pattern) is also adjusted and refined. In the abductive approach, the analysis of the empirical data is combined with, or preceded by, studies of the previous theory in the literature; not as a mechanical application on single cases but as a course of inspiration for the discovery of patterns that bring about understanding (*ibid.*). Therefore, it is an interactive process of moving between data and theory. The theory construction begins by reasoning from phenomena, understood as presumed effect, to their theoretical explanation in terms of underlying causal mechanisms (Haig, 2008).

During the fieldwork for this thesis, it was found that the term “innovation culture” was widely used in the case company, which provides an empirical phenomenon for this research. Starting from this point, existing theories

concerning organizational culture and innovation were reviewed with the aim of explaining and understanding the empirical phenomena. However, since the existing theories have not provided sufficient knowledge to help us understand this phenomenon, the aim of this study was to develop theory that could explain how organizational culture influences innovation.

An initial theoretical framework was constructed from the literature review to identify the key concepts and operationalize them to assist data collection, guiding the empirical investigation of the theoretical concepts, which also serves as a guide for data analysis, especially the earlier steps of data reduction and display (Miles & Huberman, 1994). Moreover, the preliminary theoretical framework constitutes an overview of the study phenomena in the existing literature and also represents where this study can contribute. This also suggests that although the theoretical framework serves as guidance for empirical exploration, it should not be seen as a rigid frame that restricts the researcher's view. As new insights emerge from the empirical data, the framework should allow adjustment and refinement. As discussed above, during the research process, the framework in this thesis has been adjusted and revised from Figure 3-1 to Figure 3-2 and in the end emerged in the form of Figure 3-3. In this way, during the data collection and analysis, the conceptual framework evolved and developed out of the fieldwork itself (*ibid.*). This abductive research process can be summarized in Figure 4-1:

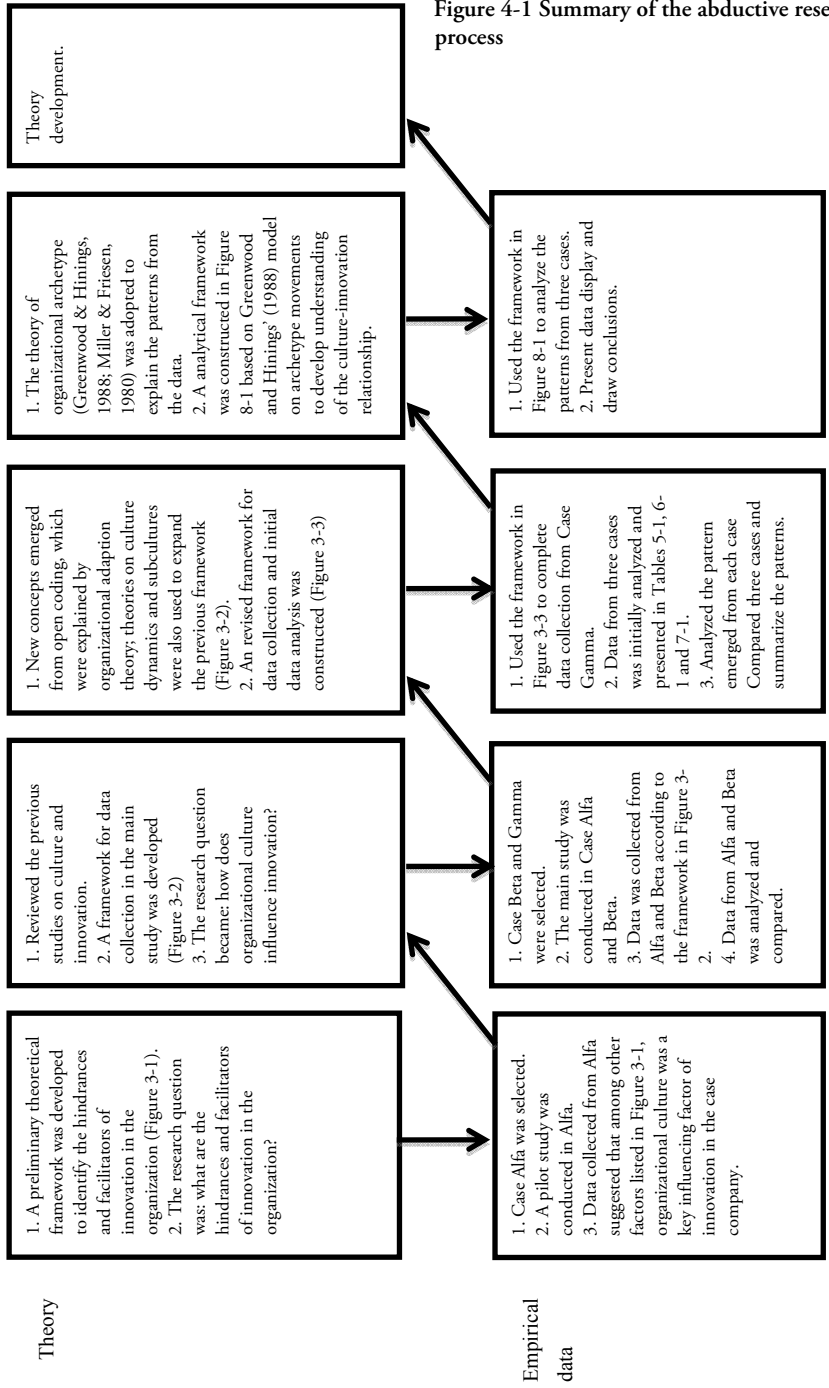


Figure 4-1 Summary of the abductive research process

4.3 Data collection

As the single source of evidence leads to limited results, multiple sources of data are usually used to offer a more comprehensive investigation of the case. Yin (2009) suggests six sources of data collection in a case study, including documentation, archival records, interviews, director observation, participant observation and physical artifacts. In this study, the sources of data collection include interviews, documents and observations. These multiple sources of evidence are also the main strength that a case study offers (Yin, 2009). Different sources of data collection were also used to achieve “triangulation” (ibid.). In addition, the openness of the case company also assured the multiple sources of data collection during the fieldwork.

4.3.1 Interviews

According to Yin (ibid.), interviews are one of the most essential data sources in a case study. In this thesis, semi-structured in-depth interviews were also used as a major source for data collection.

As the unit of analysis in this thesis is selected innovation projects as well as organizational members’ shared values, beliefs and assumptions surrounding these projects, the respondents’ accounts about what they did in innovation processes and how and why they did it are an important source of information. These accounts can help to identify innovation activities as well as interpret organizational members’ shared values, beliefs and assumptions. However, what needs to be noticed is that these interview accounts may only represent the espoused values and beliefs rather than those which are actually held and shared by organizational members. Moreover, their accounts for innovation practice might be what they were supposed or wanted to do instead of what they actually did. In order to minimize this potential risk, during the interviews, for questions regarding innovation activities, I always asked the respondents to give concrete examples about what they did or what the company did in terms of innovation, providing time and places, describing the processes, the people involved and the consequences in detail, as well as verifying the information provided by one respondent with another and with other secondary sources (e.g., corporate documents) to assure reliability. Besides, although the interviews were conducted with individual

members, the aim was to identify those innovation activities at the organizational rather than the individual level.

In addition, multiple sources of data collection were used as a way to avoid being trapped by those espoused values and beliefs. Instead of completely relying on the accounts given by the respondents during the interviews, I also used data collected from other sources to verify the interview accounts. Observation was one major way to achieve this. Values and beliefs inferred deductively from observed behaviors and material conditions of the organization (e.g., physical arrangements, dress code, etc.) can be used to verify those espoused from the interviewee's accounts and corporate value statements. As Martin (2002) suggests, values and beliefs, if deduced from observed behavior or inferred from probing honest conversation, can reflect a deeper level of analysis. Moreover, although the goal was to identify those values and beliefs shared among organizational members, attention was also paid to the inconsistency and conflict between respondents. The root and cause of the inconsistency and conflict as well as how people responded to them could also provide insight to their values and beliefs.

Interview questions

The interview questions were formulated based on the operationalization of the concepts in the theoretical framework in combination with the on-going observations (see Appendix II). The aim of structuring interview questions was to provide themes for discussion rather than to obtain direct answers, as interviews should be guided conversations instead of structured queries (Yin, 2009). At the explorative stage the interview questions were open-ended with the aim of getting acquainted with the case company and collecting as much information as possible. During the pilot as well as the main study, the interviews were semi-structured and guided by an interview guideline. This was modified according to the respondents' positions, responsibilities and expertise; yet the key topics representing the themes remained the same.

The choice of respondents

People directly involved in innovation processes were considered to be the most relevant in this research. They were the key informants and the main target group, including both managers and employees from functional departments involved in innovation projects (e.g., design, production and sales). Other functions were not directly involved in innovation projects but

could support or influence them in different ways (e.g., HR and finance). Besides, as culture is defined as the organizational members' shared values, beliefs and assumptions, the choice of respondents also followed the principle of having a range of respondents that was as broad as possible. Therefore the respondents from those supporting functions were also included in the interviews. In addition, both managers and the rest of the employees from different departments were included in order to identify the cultural values and beliefs shared in the organization rather than only those held by the managers. In the end, interviewees included top management team of each subsidiary (e.g., general managers and cluster directors), middle level managers (e.g., design, sales, production, finance and key account managers), as well as other employees (e.g., designers, sales representatives and production operators).

Conducting interviews

Interviews were arranged with the help of my contact person in each selected subsidiary. Although informing the interviewees about the interview questions in advance might result in a tendency for them to deliberately manipulate the answers in order to convey a good image to the researcher (Goffman, 1959), as requested by the company (in Cases Beta and Gamma), the interview guideline was sent to the interviewees by email in advance to inform them of the purpose of the upcoming interviews. The interviews usually started with a presentation of the researcher, the research project, the aim of the research, why the interviewee was chosen and the confidential issues. All the interviewees were informed that they would remain anonymous and the interview accounts might be used in the published thesis but not for any other purpose.

Following the guideline, interviews usually started with "what" questions and followed by some more specific and detailed "how" and "why" questions. The interviewees were also asked to give examples when they gave accounts. All together 53 interviews (38 interviews from the main study) were conducted. As the interviews in both the explorative and pilot studies were open-ended covering a broad range of questions, they were used to map the research context and define the research question. Therefore apart from some background information about the company, these explorative interviews were not used in the analysis of the main study. Each interview lasted about 45 to 90 minutes. All the interviews were recorded as MP3 files and transcribed afterwards. Notes were also made during the interviews when

something was considered worth further investigation. The role of the researcher during the interview was to ensure that all the questions in the interview guideline were covered and to add new relevant questions, and at the same time to remind the interviewees of the questions when the interviews deviated from the main topic. Information about the interviews is summarized in Table 4-2:

Table 4-2 Summary of the interview information

	Time	Number of interviews	Respondents (number of respondents, if more than one)
Headquarters	Sep 2009-Jun 2010 (Explorative studies)	6	Innovation Director Sales Manager Research and Development Director Designer
Alfa	Aug 2010 (Pilot study)	9	General Manager Sales Manager Sales and Marketing Director Sales and Marketing Manager Design Manger
	Nov, 2010 (Main study)	15	Graphics Designer (2) Structure Designer (2) Project Development Manager Business Support Manager Strategic Development Manager Key Account Manager (2) Production Team Leader
Beta	Oct 2011 (Main study)	14	Cluster Director ¹ General Manager Product Development Manager (Design Manager) Graphics Designer Structure Designer (2) Sales Manager Sales Representative Work Manager (Production Manager) Production Operator (converting and

¹ The cluster consists of Beta and a few other SCAP subsidiaries geographically close to each other. The head of Beta is also the director of the cluster.

			folder gluing) (2) Quality Manager Supply Chain Manager Finance Manager Previous Work Manager
Gamma	Feb 2012-Apr, 2012 (Main study)	9	Product Development Manager Design Manger Graphics Designer Structure Designer (2) Sales Manager Finance Manager Sales Representative Production Team Leader
Total	53 interviews (38 from the main study)		

4.3.2 Documents

Apart from the interviews, company documents were another important source of data collection. These documents included descriptions of the organization’s strategy, structure, company mission and value statements, organizational charts, policies, rules, performance appraisal documents, corporate presentations, as well as designed innovation practices and processes. Such documents can also provide valuable background information about the company as well as build up a description of the organization and its history (Bryman & Bell, 2007), which helps to integrate all the fragmented information into a whole picture. They can also be used for “triangulation” (Yin, 2009) of evidence provided by the respondents in interviews. For instance, in this study, the presentations by the design manager introduced an innovation process model which each project would follow, the presentations by the key account manager described how customers were selected and evaluated, and the presentations by the sales manager illustrated how customer feedback was collected and responded to. The availability of the internal corporate documents was assured by the well-established learning partnership between Lund University and case company SCAP. Some other forms of data such as annual reports, number of patents and designs, internal and external consultant reports were also found online or provided by the company and used for data analysis.

4.3.3 Observation

Observation was another data source in this study as a complement to interview and documents. Direct and participant observations in the field can reveal relevant information about behaviors and environmental conditions and thus enjoy a particular feasibility in studies focusing on the construction of culture norms, expressions of organizational values, and patterns of workplace behavior (Bryman & Bell, 2007). As one of the key concepts in this study was organizational culture, observing the material conditions of the organization (e.g., physical arrangements, dress code, etc.) provides a way of identifying and inferring the underlying values, beliefs and assumptions. These material conditions can be cultural artifacts in which the values, beliefs and assumptions are embodied and manifested. They also constitute the material conditions where culture is created. Observation is the method by which a further appreciation of the “ways in which work is done around here” can be achieved. In particular, observation is another way of “triangulation” (Yin, 2009), in which data collected from observation were compared with those collected from interviews and documents that sometimes expressed the espoused rather than enacted values and beliefs, or what people thought they should do instead of what they were actually doing. Combining interviews and documents with observations of all kinds of cultural artifacts can help to make the interpretation more convincing and accurate (ibid.).

The observation conducted in each case was mainly direct observation, including observing the physical arrangements, people’s dress code and daily practice and so on. When access was allowed and language was not a problem (all the three subsidiaries were located in countries where English is not the first language), participant observation was also conducted during the meetings and workshops.

4.4 Data analysis

In this thesis, the analysis included two steps: analyzing within-case data and searching for cross-case patterns (Eisenhardt, 1989). And in each step, the data analysis included data reduction (coding), data display, data analysis and drawing conclusions (Miles & Huberman, 1994).

Analyzing within-case data

After data had been collected, a summary of each interview transcript was written, including the background information and relevant themes that had been coded. And these summaries were used for later analysis while the original transcripts only served as references when any more information was needed.

Chronologically, the pilot study conducted at Alfa switched the research focus from a list of innovation influencing factors identified from previous studies to organizational culture, and thus the aim of the research changed from identifying key hindrances and facilitators of innovation to understanding the relationship between culture and innovation. The framework in Figure 3-2 was constructed based on existing literature on culture and innovation for data collection in the main study. According to previous theories, in the culture-innovation relationship, the focus also changed from innovation outcomes to innovation activities. Data was collected from Alfa and Beta according the framework in Figure 3-2.

In the main study, interviews were transcribed and organized into written material. According to Miles and Huberman's (ibid.) data processing procedure, all the transcripts were read through several times and coded according to the themes in the framework shown in Figure 3-2. The rest of the data was read through again and the two cases were compared. A number of "loose codes" were also assigned to the data, reflecting the emerging themes of similarities and differences between Alfa and Beta. In the end, in addition to the two themes from the framework shown in Figure 3-2 (innovation activities and innovation outcomes), two new themes accounting for the differences in innovation emerged from the data: motivations for innovation (the organization's perceived changes from its internal and/or external environment as motivation for instigating innovation) as well as organizational members' reflections on innovation and future action (the perception and judgment of whether the expected outcomes have been achieved and the decision of whether any future action is needed).

The next task is to find theories to make sense of and explain these four themes. Organizational adaptation theory was found to be useful in explaining these four themes. From an adaptation perspective, innovation is seen as a means by which an organization adapts to environmental changes,

and innovation process can be explained by the adaptation process. Besides, the construct of organizational culture in the framework shown in Figure 3-2 was also expanded according to the theories in culture dynamics and subcultures. Therefore, a provisional framework was constructed in Figure 3-3 for further data collection and data display, which was an expansion of the previous framework shown in Figure 3-2.

The data from each embedded case were then presented in Tables 5-1, 6-1 and 7-1 in Chapters 5 to 7 according to the framework in Figure 3-3. Representative quotes from each respondent, evidence from observations and company documents were selected and organized under different themes. Later, all the respondents providing similar opinions were grouped together. This helped to see whether these opinions were shared by a majority of respondents in each embedded case. When at least two respondents gave the same accounts about the same events or actions and they did not contradict others, these accounts were deemed as representative for the unit concerned (Miles & Huberman, 1994).

In particular, Schultz's (1994) study has provided some useful tips for analyzing culture at different levels including artifacts, values and assumptions, which were discussed previously in Chapter 2. The cultural values, beliefs and assumptions can be inferred both from the statements made by the organizational members and from the interpretation of various artifacts. In order to infer the shared cultural values, beliefs and assumptions, if one statement was expressed or repeated by more than half of the respondents in each case, it was considered as "shared". And evidence from observations and corporate documents was used as data "triangulation" (Yin, 2009), in which those "shared" opinions provided by respondents in interviews were then tested and verified through observations and scrutiny of company documents. Besides, as culture is manifested at different levels (Hatch, 1993; Schein, 2010), a deeper level of culture such as values, beliefs and assumptions needs to be inferred through the interpretation of different visible and tangible cultural artifacts.

Searching for cross-case patterns

When the data was entered in the matrix according to themes in the framework in Figure 3-3, the analysis had already taken place (Miles & Huberman, 1994). By the time the rows in the table were filled in, the analysis had a first sense of what the dynamics were. By moving across each

row in each case, patterns and themes were drawn. Analytical text was written about each pattern, and the notes of the fieldwork were revisited as needed for amplification and clarification (ibid.). Through a comparative analysis, names were assigned to each pattern, presenting the differences between cases. The pattern of each case is presented in Tables 8-1, 8-2 and 8-3 in Chapter 8.

The patterns identified from the cases then need to be made sense of and explained by theories. Up to this point, theories of organizational archetypes and archetype movement were found to be helpful in explaining and further analyzing these patterns. In particular, a theoretical framework (Figure 8-1) was constructed based on Greenwood and Hinings's (1988) model of unpacking the archetype movements to analyze these patterns. The data was then sorted according to the theoretical dimensions in the framework in Figure 8-1. By doing so, the patterns identified from the data became meaningful.

4.5 Research quality

Reliability and validity are important criteria in establishing and assessing the quality of research for quantitative researchers. When it comes to the case study, some researchers (e.g., Yin, 2009) consider that they are appropriate criteria and suggest ways to enhance the ability to meet them, while others (e.g., Stake, 1995) consider these two concepts are primarily for quality of quantitative research and therefore barely mention them in qualitative research. Along with the first group of researchers, this thesis considers that reliability and validity can also be concerned in qualitative research while the meaning of the terms needs to be adjusted.

Reliability in a qualitative study is mainly referred to as trustworthiness (Silverman, 2006), which suggests that if later researchers follow the same research procedure to conduct the same case study, the same results should be achieved (Yin, 2009). In this thesis, the following actions have been taken to improve the research trustworthiness: using case study protocols to document the research procedures (ibid), recording interviews and observations as concretely as possible followed by a full transcription, conducting interviews in a consistent manner to assure that the interviewees perceived the questions

in the same way, understood the questions correctly and gave relevant answers, as well as keeping notes of field work every day (Silverman, 2006).

Yin (2009) suggests that validity includes three dimensions: construct validity, internal validity and external validity. In this thesis, the ways of improving the construct validity of the research include: (1) keeping the empirical indicators, along which the data was collected, consistent with those suggested by the theoretical framework and across different embedded cases, and (2) combining data from different sources and comparing them through “triangulation” to achieve corroboration (ibid.).

The internal validity concerns the explanatory power and credibility – the “truth value” of the research (Miles & Huberman, 1994). The way of improving internal validity of the research is the abductive research approach which suggests an iterative process, comparing emerging theory built from empirical findings with existing theory (Eisenhardt, 1989; Silverman, 2006)

The external validity concerns the generalizability of the finding beyond the current case study (Yin, 2009). The aim of this thesis is both explorative – to unpack the black box of innovation culture, and explanatory – to explain the mechanisms of how culture influences innovation. Hence, the case study approach used here seeks to optimize the understanding of the case rather than generalizing the results beyond the case, aiming for a more in-depth development of existing theory (Eisenhardt, 1989). Therefore instead of being used for empirical generalization, the findings should be contrasted with existing theories (Yin, 2009). Besides, since the theoretical framework in the thesis was developed along the research process, the thesis does not aim for testing or corroborating certain hypothesized causal relationships in a sample of cases; rather, it was an explorative attempt to extend our understanding about the assumed and taken-for-granted causation between culture and innovation. The generalization of the results from this thesis is like “tendencies” (Walsham, 1995) that might be valuable for other organizations within a similar context, i.e., large manufacturing companies operating within mature industries; it is analytic rather than statistical (Yin, 2009). The external validity was thus achieved by comparing the findings and theoretical contribution of this thesis with related theories and research.

Besides, given the unique research context, the generalization of a case study would be achieved by empirically searching for the similar context, which more depends on readers or other researchers to find the similar research setting to apply the research findings (Lincoln & Guba, 1985). A researcher can, nevertheless, make efforts to present the data and report the case with systematic and thick description in order to make the generalization within similar context possible.

The following sections, Chapters 5, 6, 7, will present three embedded cases from SCAP. The empirical material was presented and organized according to the framework presented in Figure 3-3, describing the selected innovation projects in each case as well as organizational members' shared values and assumptions around them. The empirical findings from each case are summarized at the end of each chapter.

Chapter 5 Case Alfa

Chapter 5 and the following two chapters present three embedded cases that are subsidiaries of SCA Packaging (SCAP), a Swedish multinational corrugated paper packaging company. They are independent profit centers located in three different regions in Europe. In order to better understand the case, a brief introduction about corrugated packaging and the corrugated industry will be presented first to provide some background information.

Corrugated packaging is made of corrugated board which is a combination of three sheets of paper. The two paper layers on the outside are called the “liners” and the fluted or wave-shaped material in the middle is called “fluting”. There are many types of corrugated board based on different flute sizes and profiles, which offer many combinations designed to create packaging with different characteristics. At corrugated plants, the containerboard is combined into corrugated board which is then converted into finished corrugated products such as boxes, containers, point-to purchase displays and other kind of protective and distribution packaging². Corrugated packaging is widely used and known as being durable, strong, lightweight and environmental-friendly for packing and protecting products. The printing on corrugated board can also convey technical supply chain information (e.g., barcodes and date codes), carry branding and be used for promotional display.

As the basic raw material remains the same, today’s corrugated packaging is not very different from that produced and used 150 years ago when it was invented³. The corrugated packaging industry is thus considered as a typical

² Source: Association of Independent Corrugated Converters (AICC)
<http://www.aiccbox.org/Industry/industry.asp>

³ Source: European Federation of Corrugated Board Manufacturers
<http://www.fefco.org/corrugated-packaging/what-corrugated>

example of mature industries which have passed their emerging and growth phases; companies in mature industries have an established market share and earning. The corrugated industry is capital-intensive due to its heavy investment in the machinery – corrugators. In many situations, corrugated boxes are essentially commodity items used in well-established markets. Moreover, the packaging industry is characterized by its customer-intimacy in that packaging companies focus on the needs of specific customers in specific areas and specialize in developing solutions to meet these needs (Fleury & Fleury, 2001). Therefore, new product development and innovation in corrugated companies are mainly about incremental improvement of the existing products according to specific customer requests (e.g., adjusting the size of the boxes, improving printing quality, etc.). Recently, as packaging is increasingly considered as an important part in product success, more companies have started to focus on increasing the value of the customer's products (ibid.). The function of packaging has been expanded from packing, protecting and transporting to many value-adding usages, e.g., reinforcing the packed product's concept by packaging design, ensuring product safety, affecting customer value and possibilities for price differentiation, reducing costs for transport and storage handling, increasing customer convenience and contributing to its innovativeness, supporting market communication, and promotion of other products (Rundh, 2005).

Within this context, in 2009, SCAP initiated a transformation strategy. As shown in the corporate document, the aim of this strategy was:

To become a full-service packaging provider by growing and differentiating our core business to offer our customers increasing value. (SCAP Europe company document, 2009)

According to this strategy, SCAP intended to change its focus from traditional standard corrugated business to more customized packaging solutions which can provide the customer with more added value. Accordingly, five themes have been identified to facilitate the transformation: "High-performing system", "World-class sales and marketing execution", "Driving an innovation culture", "Lean" and "Appropriate assets". Innovation as one of the transformation themes then received considerable attention from top management and was soon introduced to SCAP subsidiaries in different countries.

Case Alfa is a profit center of SCAP located in central Europe. The company was built from a greenfield operation in 1996. It has a commercial center (a head office), a design center, two production sites (one corrugated box plant and one consumer packaging/display plant) as well as four service centers located in different places close to big customers. About 60 people work in Alfa's central office. Compared with many other SCAP subsidiaries, Alfa has a small organizational size. Management, the design center as well as other functional departments are all located in the central office building. As many large electronics companies moved their factories from Western to Central Europe because of the lower production costs there, they constitute Alfa's major customers and contribute to the majority (65%) of Alfa's business (SCA data, 2010) and turnover. Apart from these, Alfa also has three other customer segments: Fast-Moving Consumer Goods (FMCG), industrial and automotive, which constitute 35% of Alfa's business. The design center at Alfa consists of one design manager and 12 designers. It has been regarded as one of the most active and productive design centers in terms of number of new designs and patents within all 15 SCAP design centers in Europe. According to top management at SCAP headquarters, Alfa is a small and agile organization, very active and productive in new product development and quick in responding to customer requests but has a relatively small production scale compared to other subsidiaries. In recent years, Alfa has exhibited increasing profit and a growing number of new products.

5.1 Cultures of organization

Several values, beliefs and assumptions relevant to innovation have been identified in Alfa, including those shared by a majority of members of the organization and those shared among members of different functional groups.

Customer focus

A central value in Alfa is the strong focus on the customer. This is expressed in the corporate strategy as well as its way of working with customers. Alfa's corporate strategy was based on SCAP corporate strategy and adjusted according to its local context. The strategy clearly stated the goal of the company as:

To transform from an undifferentiated, cyclical raw material pusher to the leading full-service packaging business partner, supplier of choice and development partner of the winning customers, with fast growing and differentiated core business, providing increasing and sustainable value to all stakeholders. (Alfa's company document, 2010)

With this strategy, Alfa further developed its business approach referred to as a "customer-centric approach" as distinguished from a "simple business approach". The simple business approach views the packaging company as a "raw material pusher", focusing on lower price by reducing raw material cost. The company acts reactively in response to the customer's requests and its competitive advantage is the low price and supply chain management. There is little innovation involved in the products, as product development is based on the production capability – what the machines can produce – and therefore each plant is a profit center. In the customer-centric approach, the role of a packaging company is seen as a packaging advisor with specialized packaging expertise and knowledge. The goal of the company is to provide customers with full-service packaging with added value by taking into consideration the customer's entire value chain. The core competence of the company is innovation. The focus is on market and customer needs instead of the production capability of the plant. The company is proactively exploring the potential market opportunities and customer needs rather than just providing what the customer asks for. The profit measurement is based on customers rather than plants.

Alfa's customer-centric approach is also realized through an approach called "360° customer understanding", as stated in the company documents:

At SCA Packaging, we create packaging and service solutions and develop appropriate ways of conducting our business through a 360° understanding of our customers' needs. The best solutions are those that work in every stage of our customers' value cycle. (Alfa's company document, 2010)

And,

We have the organizational mindset and behavior in which we continuously monitor and anticipate customer's needs and design our strategy and organizational structure accordingly (ibid.)

This 360° understanding suggests a comprehensive understanding of the customer's value chain, from suppliers to the end-users and from manufacturing to commercialization. The purpose of this approach is to select the most suitable customers with whom to develop a long-term relationship, become their strategic partner and grow and develop together. Sales people play an important role in the customer selection and evaluation. They identify the potential customer's corporate value and compare it with SCA's value statement, analyze their major suppliers, competitors and market environment, and identify their strategic goals, e.g., whether the customer prefers innovation or a development partner, what its focused market segment is, etc. The key customers with the greatest potential are identified and then ranked on a segmentation matrix on two dimensions: (1) opportunities – the anticipated long-term revenue from the customer based on current accounts; (2) fit – to what extent Alfa can utilize this opportunity and benefit from it given its own strategy and resources. Once the customer is selected and the cooperation is established, Alfa tries to “do everything that can satisfy customers”. Currently, Alfa has about 10 customers with a long-standing stable relationship, and most of them are big companies from the electronics industry.

The value of customer focus is also supported by Alfa's organizational structure referred to as a “matrix structure”: vertically, different functions such as design, production and sales as functional departments are managed centrally by the general management team; horizontally, cross-functional teams consisting of design, sales and production are constructed according to the customer segment and coordinated by key account managers.

According to the sales manager, this structure is different and more complex than the structure of many other SCAP subsidiaries. In most SCAP companies, the organizational structure is based on plants – each one being an independent profit center with its own management team, design center and sales force. However at Alfa, the whole company is one profit center and all the plants are seen as production sites, which are all centrally managed and work towards a common goal – to serve the company's customers. The management team can choose where to produce a certain product according to the manufacturing capability and the location of the plant as well as coordinate different production tasks between different plants. Moreover, the design and sales functions are organized in accordance with four different customer segments: electronics, Fast-Moving Consumer Goods (FMCG),

industrial and automotive. Each designer or sales representative has specialized knowledge of a particular segment. This vertical centralization and horizontal segmentation thus constitute the matrix structure.

At Alfa, new product development projects are taken on by different key account teams according to the customer segment. A project is usually based on a problem that the customer wants to solve. And each key account team consists of designers and sales people from the same customer segment as well as production experts. In order to provide customers with the most optimal solution, designers and sales people usually meet customers together to identify the real problem behind the customer request. Involving designers and production people in customer meetings together with sales people has several advantages. First of all, by directly talking to the customer, designers can acquire a better understanding of the problem that the customer wants to solve; this important technical information usually gets lost when sales people convey the information between designers and customers. Secondly, designers can also answer the technical questions that sales people cannot explain to the customer. Furthermore, production operators can contribute with knowledge about the technology and capability of the machinery, e.g., whether it is possible to produce a new design with the current production capability, what the potential problems are, and how to solve them, etc. Above all, working within key account teams, different functions can contribute to both commercial and technical aspects of the packaging solution.

Apart from providing customers with value-adding packaging solutions, in order to become a real “full-service packaging provider”, Alfa also sets up service centers to provide supply chain and logistics service to customers. According to Alfa, the service centers are to “feel the heartbeat of the customer, listen to the customer and understand customer demand” (Alfa’s company document, 2009). They have great flexibility and very short reaction time, providing complex and “tailor-made” logistics and supply chain service to customers on a 7/24 basis. They also provide multi-material packaging service such as kitting, assembling, pre-packing and automated packaging processes. There are four service centers in the region located close to big customers, which are “next-door to the customer” and can provide in-plant service. Alfa’s service centers have received a considerable number of

customer satisfactions, and one of them was given the “Exceptional Scorecard Performance” award by National Instrument⁴ for its on time delivery in 2009.

Innovation and design

Another important value orientation at Alfa is its strong emphasis on innovation. This is seen as Alfa’s core competence and the way in which the company differentiates itself from the competitors. This focus on innovation is manifested in the corporate strategy and was learned by employees through the story of the company’s establishment.

Innovation in Alfa is seen as the “driver of the business” and “key to success”. The role of innovation at Alfa is to (1) differentiate the company from its competitors, (2) win new, higher value business, (3) develop strategic partnership with customers, and (4) become leader in the packaging industry (Alfa’s company document, 2010). And this focus on innovation is associated with Alfa’s corporate strategy which states that the goal of the company is to “transform from an undifferentiated, cyclical raw material pusher to the leading full-service packaging business partner”. As the sales manager stated, innovation is a key means to achieve the goal of the company:

So innovation is a part of our business approach. Its role in SCAP is on top level. In SCAP, the transformation strategy – “to become a full service business partner” can’t be managed without innovation. The whole strategy is about innovation. (Sales Manager, January 2011)

This strong emphasis on innovation can be traced back to the establishment of the company. The story of how the company was established is widely known among both managers and other employees, which suggests that how the company was established had a strong influence on its culture and especially on the value of innovation. The company was established from a greenfield site in 1996. Compared with most other SCAP subsidiaries which were acquired by SCAP through mergers and acquisition with an average company history of between 30 to 50 years, Alfa was a young organization

⁴ An American company has international operation, a producer of automated test equipment and virtual instrumentation software, which gives annual awards to suppliers who through their commitment to excellence, continuous improvement and innovative practices, delivered world-class performance within the global supply chain. Source: www.ni.com

and did not have a corrugated background. The two founders of the company (the general manager and the sales manager) were both from SCAP Hygiene division. They were very open to any opportunity that could help the company to enter the already well-established market. Hence, there was no prior experience or knowledge of the corrugated business at Alfa and the company had very little influence from the traditional business approach in the corrugated industry during its development. Therefore, the company “had no old habits”, as one designer put it:

This company was a new company, so it wasn't bought by SCA; it wasn't an existing company. Then it was made by them (*the two founders of the company*) 10 years ago. They just built this company step by step as they wanted it to be. There were no old habits. As I know in other countries, the companies had already existed for 40 or 50 years before they were bought by SCA and then got the name “SCA”. It (*Alfa*) was an absolutely new company. It started 1996 and they (the two founders) were very open-minded. And the people were chosen by them. So it wasn't a human resource company choosing the right people, but they chose the right people for the positions. In the beginning there was just a small group of people who just started this part (*the central office*). There were altogether around ten people. When I arrived here, it was in 2002, only ten people, were taking care of all the sales and everything. Of course there was the first plant, the conventional corrugated plant [...]. I think everybody feels that this company is theirs. [...] I think it's the secret of the company, I mean the history, that they built it step by step, and it was a new company. The spirit of this company was them (*the two founders*). (Designer, November 2010)

Similarly, the project development manager also stated:

This is a very young organization. In our country there's no acquisition. So it was a greenfield and started from zero. There are no very established traditions in the organization which are more rigid [in other SCAP companies]. (Project Development Manager, November 2010)

Therefore, when entering an established market, Alfa had to find its own niche in order to differentiate itself from other competitors who already had a stable market share. It had to respond to customer needs and update the product portfolio quickly, explore new market areas and develop products which the competitors could not offer. And Alfa realized that innovation through packaging design was the only way to do so. Therefore, from the very

beginning, Alfa felt the pressure to innovate and was used to a changing environment. Innovation has been in the company's strategy during its development process, which is described by the sales and marketing manager:

I think that we have a culture of change in our company versus other SCA plants, traditional corrugated plants. In our history of 15 years, we first entered the very new market [in which the major customers are] big electronics companies, and then we introduced so many products that are not traditional. So our product portfolio always came with new product type. And in supply chain services we always set service centers for customers. We always adapt ourselves to the need of our customers, [...]. So we never worked with traditional customers whose products last 3 years or 10 years; they (*the customers' products*) change in 6 months. Therefore we are quite used to change. (Sales and Marketing Manager, July 2011)

Today, as more and more companies are competing in low price, innovation at Alfa is seen as the way of increasing profit margin and being "one step ahead" of the competitors. According to the general manager, Alfa's packaging price is almost twice as much as the average market price, because Alfa offers products which are more complex and have more added value than the simple corrugated boxes. Hence innovation is seen as the company's core competence and the driving force of the business.

As a traditional corrugated company, SCAP's core business is corrugated packaging which contributes to the majority of the company's sales and profit. Alfa specializes in corrugated packaging but is also open to multi-materials. Alfa refers to itself as a "material-neutral" packaging provider. Apart from corrugated board, the material used by Alfa includes EPS (Expanded Polystyrene) /EPP (Expanded Polypropylene) molded materials, carton board, fabricated foamed material, paper-foam and combinations of the above-mentioned materials. As the goal of the company is to "do everything that can satisfy customers", Alfa tries to search for any type of material which can be used in packaging solutions as long as it can solve the customer's problem and offer "full-service packaging" with added-value, as one designer expresses it:

We were the first [company] trying to sell everything, not only just conventional corrugated boxes, but foam, plastic bags and so on; [we are] one supplier for everything. So for the customers who don't want to ask several companies for a quotation for boxes, bags, we can do everything. It was very innovative in that area at the time. And now we just see our competitors are doing what we did before. They are following our approach, absolutely. They try to sell everything, foams, all set boxes and everything. Now we should do something new. (Designer, November 2010)

Design is a crucial part of innovation at SCAP and therefore the design center plays an important role in innovation at Alfa. The design center concept was introduced at SCAP in 1995 as it was seen as the “core of the strategic ambition of becoming a full-service provider”. More specifically, the purpose of the design center is described as follows in SCAP documents:

In collaboration with our customers, the objective is to develop new and innovative packaging solutions that fulfill all necessary needs throughout the whole supply chain. Since the objective is to become a world-class full-service design and solution provider for our customers, we must at each design center be able to offer the full range design solutions by SCA. (Alfa's company documents, 2010)

Before, design at SCAP used to be a part of the product development department. In order to become a design center, a product development department has to pass the internal design audit and fulfill certain criteria including its design activities, design competence, KPIs (key performance indicators) as well as infrastructure (e.g., design office, hardware and software, etc.). SCAP now has 15 design centers and 300 designers in Europe including structural, graphic and competence designers. Apart from leveraging the design capabilities to achieve the strategic goals, the design centers are also expected to act as a hub in the international SCAP network.

At Alfa, innovation through packaging design is seen as the way to escape the “commodity competition” which focuses on competing for lower price. Design is considered to be what “what the company sells” and is given high value at Alfa, as the sales manager stated:

It [innovation] is aiming at design. Innovation in a new packaging solution, this is basically what we sell. (Sales and Marketing Manager, November 2010)

The design center plays an important role at Alfa and the design manager is also an active and important member of the SCAP European design network, coordinating different design activities between design centers and the innovation center at headquarters. Alfa design center offers design for supply chain, multi-material, and packaging solutions. Although SCAP is a corrugated company and its traditional business is corrugated packaging, Alfa refers to itself as “material-neutral packaging provider”, combining other materials with corrugated to increase the value in packaging solutions.

In 2009, Alfa design center introduced 4000-5000 new products from minor adjustments to existing products to completely new products (Alfa’s company documents, 2010). It has also been very active in different design competitions within and outside SCAP and has won several design awards. Both management and other employees at Alfa are very proud of the company’s design capabilities and consider innovation through design as the driver of the growth. This is expressed by a key account manager:

Since we are very proud of our design, I think design carries more weight in this game. Because we want to sell through our design, we want to use our design to get more and different customers. (Key Account Manager, November 2010)

At Alfa, designers are given a lot of freedom and encouraged to be as creative as possible in product design and not be restricted by the material or production capabilities. The management also supports design by providing designers with different resources (e.g., design software) and flexibility in their work. According to the general manager, about 20% to 40% of the working time at the design center was spent on innovation. Moreover, other functions are seen as support for design. For example, sales function is referred to as the “design agency” which collects market and customer information for designers. And designers were encouraged to be as creative as possible in packaging design, and production was to support design by adjusting the machinery or developing new production technology to assure that the design could be produced.

Risk-taking

Not being afraid of taking risks is another important value at Alfa. This has been expressed through the company's informal practices such as encouraging new ideas as well as tolerance of mistakes. First of all, designers were encouraged to "give everything a try" and be "always open and free to develop" their ideas, and therefore they are "not afraid to do new things". Besides, when a new idea is evaluated, risk is not the most important factor to consider. The first step is to be as creative as possible to generate new ideas, as the sales and marketing manager stated:

[...] Risk, we can measure later and think about that as well. But first just come up with an idea and many people will offer their opinion. And this will evolve further, and some risks can be eliminated. (Sales and Marketing Manager, November 2010)

Moreover, for designers, cost is not the first thing to think about in product design. Because of innovation, Alfa's products have a higher price compared with its competitors. However, it is believed that innovative products can provide customers with more added value, e.g., saving cost in the packing line, supply chain and marketing. Besides, as Alfa's major customers are big electronics companies, they are less sensitive to the price of packaging than companies with a lower profit margin (e.g., companies in the food industry), as explained by a designer:

In the first step we should open our minds, collect everything possible. It doesn't matter if it's very complicated or stupid. [...] cost is important, but as I feel and have learned here, cost is only a part of the product. It depends on how we could sell this product. Maybe it's a higher price, [but] we could sell it because there's more added value in logistics, marketing side and so on, which is less [if the total cost is calculated]. So we are selling at a higher price but the others (*the costs*) are less. So altogether we can [help the customer] save something. In general at SCAP, cost is important. But if you are thinking about innovation, cost is only the second step, the consideration step. (Designer, November 2010)

At Alfa, people are always encouraged to raise questions and search for solutions and not be afraid of making mistakes. There is no punishment in the company if someone makes a mistake or fails to deliver the expected results. On the contrary, the focus is on learning from failure – how to

minimize the negative effect and learn from the experience in order to avoid the same mistake in the future.

Open to external knowledge and learning

Alfa is also very open to external sources of knowledge and willing to learn from others. The Alfa design center has played an active role in the design network at SCAP. According to headquarters and the innovation center, Alfa design center was considered as one of the most active among all the 15 design centers in SCAP Europe. The design manager of Alfa was a member of the SCAP design center development team and coordinated the cooperation between design centers at the European level. He has been actively involved in connecting the innovation center in the headquarters with the design centers in Europe. According to him, it is important “to be kept in the picture” of SCAP design network. As SCAP is geographically decentralized and the subsidiaries are independent profit centers, the design manager of Alfa sees the collaboration projects and workshops as a platform for knowledge sharing and learning between subsidiaries and also effective ways for designers to learn from each other. Therefore, workshops were often organized within the Alfa design center, and designers from the innovation center and other design centers were invited to attend brainstorming sessions. Designers at Alfa also had the opportunity to participate in workshops organized by the innovation center or other design centers, exchanging ideas and getting some inspiration. These opportunities were also seen as a kind of reward for designers, through which they could build networks and keep in contact with each other afterwards, sharing ideas and asking for help if needed.

Open communication

At Alfa, having an open communication between employees and between managers and other employees has also been valued highly. People were encouraged to share their opinions, ask questions and discuss with managers if they had any problems. Information was to be shared among members. As mentioned in the story of the company’s history, at the very beginning when the company was established, the management was very open to different ideas; the managers sat among the other employees and worked together with them. Employees could talk to managers directly if they had any ideas or questions. And in the current office building, apart from the general manager who had a private office, all the other managers sat among employees. People

felt that there were no boundaries between managers and subordinates; this was expressed by one designer:

You don't feel that...here is the manager and he's going to ask something and I don't want to talk to him because I am scared. No, it isn't absolutely, not this atmosphere. No rules between people that you are on that level and the others are on the second level, so you could speak to managers as you wanted to speak to anybody in the company. (Designer, November 2010)

In particular, one of the founders of the company – the sales manager – has played an important role in facilitating open communication. She was very much against referring to “managers” as “bosses”. “We don't have managers or bosses in our company; we have leaders”, she said. “Managers are to control people, while leaders work together with people for the same goal”. This leadership at Alfa is referred to as a “horizontal leadership” which corresponds to its matrix organizational structure. It suggests that people work in matrix rather than hierarchy; it is believed that “business cannot be operated through conventional hierarchy”, and management is achieved through “influence” and “collaboration” (Alfa's company documents, 2010).

Every morning after arriving at the office, the sales manager usually first walked around the office and casually chatted with people from different functions, simply asking how they felt, whether everything was going well and whether they had any problem or difficulty, or any other issues that they would like to discuss. According to her, this was a better and more effective way to communicate with people than writing emails; people feel that there are no boundaries between managers and other employees.

Moreover, in the daily organizational process, information is also shared among the involved organizational members. For example, in a new product development project, all the emails with customers regarding the project are shared within the key account team to make sure that everyone is informed about the progress of the project.

The organization is a big family

The belief that the whole organization is one big family is widely shared and strongly held by members of Alfa. As an example, a key account manager provided the following description:

A lot of people like to work here which makes us a team. Even if there are some differences between design, sales and some other units, still we are a small company here [...] and it's still working like a family. (Key Account Manager, November 2010)

As described in the story of the company's establishment, the two founders played an important role in creating this family atmosphere in the company. According to a senior designer who had been working at Alfa since the company had been established, the two founders – the general manager and the sales manager started the company from scratch and selected all the employees by themselves. Apart from production operators in the manufactory, the company only had 10 employees and two managers in the central office. And managers and other employees sat at a big round table working together. Employees could directly ask questions whenever they needed and get answers immediately, “because she (the sales manager) was just next to me”, as the designer said. “She lets you know how she gets the result”, one key account manager said. The two managers devoted themselves to the company treating it as their own. “They built the company step by step, in the way they wanted it to be”, as the designer said. And their values were diffused into the company through their way of managing it. The managers were open-minded and willing to listen to different ideas and help employees improve. All this created an intimate relationship among employees and a strong sense of belonging which bound everyone in the company together. This resulted in the company's family atmosphere. “Everybody feels the company is theirs”, as this designer said. And she said further:

I think it's the secret of the company, I mean the history, that they built it from step by step, and it was a new company. The spirit of this company was them (the two founders of the company). So I think that's why it was so like a family, that you are part of it. You got courage from them to say your opinion about everything. (Designer, November 2010)

The two founders were seen as the parents of the company and enjoyed great respect from people. By the time the fieldwork was conducted, the general manager had retired, while the sales manager was still working at Alfa and respected by employees as well as the rest of the management team including the current general manager. Many members see her as not only a manager but also as a mentor at work and privately. They were very willing to share their problems with her, consulting her when they were having difficulties or problems in work or private life.

The two managers were often mentioned by senior employees who had been working together with them. And the story of company's establishment was widely shared among organizational members, through which new members who joined the company later also learned how to behave in this context and were integrated into the company, becoming a part of the "family". For example, when the new general manager came to Alfa, he also followed the previous managers' way of managing. Therefore, through the company story, the organizational culture was learned and preserved; as the designer expressed it:

[...] it formed an atmosphere, and then when we came later on, and we started to feel how they would like us to behave in this environment. [...] It's like when you join a crowd, if there are similarities, you integrate, and you start to behave like the others. Because the more we are together, the more power to push this direction. (Design Manager, November 2010)

The organization's physical arrangement also contributed to this family atmosphere within the company. Alfa's head office was located in a three-floor building. The office area was not very big and about 60 people were working there. Apart from the general manager who had his own office, all the other managers were sitting among employees. And all the functional departments (e.g., design, sales, HR, finance, etc.) were located in the same building. This proximity helped to facilitate communication between people from different functions. If people needed information or help from others, they often just went to the other's office and talked to them directly. This also made it "very easy to ask for help", as expressed by a key account manager:

We were just laughing that we don't need to organize workshops, because we like to work as we are working now. I mean not in different places or separated but having a shared office where everybody can sit together. (Key Account Manager, November 2012).

Moreover, seeing organization as a family entails a strong sense of belonging and unity within the company. It was expressed by both the managers and other employees that "being together, we can solve anything".

Personal relationship

Within the big organizational family, the relationship between members at Alfa was described as "more personal than formal colleague relationship".

Many people were not only colleagues at work but also friends in private life. According to managers, the personal relationship was important in their work. For example, the sales manager has a very personal relationship with many employees and knows a lot about their personal lives. She also considers that casual chatting is a good way of getting to know people rather than formal emails. Seeing her not only as a manager at work but also a mentor in their daily lives, young employees like sharing their problems and challenges with her and asking for advice and suggestions concerning both their work as well as their private lives. For other managers, this “personal connection” with others is as important as the “technical knowledge” in work. And having a good personal relationship could make the work easier, especially when one needed to get help from others. This cooperation very much depends on the relationship with others, as shown by the product development manager’s words:

Basically I have a good knowledge of and relationship with almost everybody. So I can get help easily from each organization. As in every organization your cooperation depends on your relationship with people. I can imagine it is more difficult for somebody else, but it is easy as for me. So it’s very personal I think. But the whole company is very open to this. (Product Development Manager, November 2012)

Designers also considered personal relationship to be important when making contact with other design centers and the innovation center:

If you don’t know anything or anybody, if you don’t visit or meet them face-to-face, it could be a problem. Because just sending emails is not personal. I think that’s why it is better that you meet them on workshops. You can discuss later. You can ask as a friend not a colleague. (Designer, November 2010)

Helping each other

Moreover, helping each other was also seen as an important value orientation at Alfa. People were encouraged to ask each other for help when needed and offer help when others were in trouble. Young employees were always encouraged to ask senior employees questions and senior employees with more skills and experience often helped their younger counterparts. Moreover, within a key account team, members also helped each other to deal with other

problems even if it was not their own responsibility, as one designer said, giving an example about their work within the key account team:

Sometimes, when the key account manager is struggling, I can answer the customers, “don’t worry, the key account manager will give you the price tomorrow or some time”. Or I am busy or I am out of the office, since everybody is involved in the mail and conversation with the customer, we can help each other with sales, key account manager and designers together. If the customer has a technical question, then automatically I can answer him. (Designer, November 2010)

People are intrinsically motivated to work

One belief shared by both managers and other employees is that people are intrinsically motivated to work. The major motivation comes from people’s enthusiasm about work and the desire for self-achievement rather than only for money. Therefore there is no bonus or other financial incentives for innovation in the company. It is believed that other types of rewards, e.g., customer satisfaction, success, financial performance as well as recognition from other members are more motivating and important than monetary rewards. Alfa rewards the “innovative individuals” by giving them certain prizes at the annual meeting instead of bonus.

For designers, the motivation comes from the desire for self-accomplishment. Although financial incentives can motivate people to some extent they are not the most important and can only work in the short-term. Feeling accomplishment from work such as winning a new contract, receiving positive feedback from customers and seeing the profit in financial figures is the major source of motivation for innovation. Besides, the recognition from colleagues and management also works as important motivation. For example, innovators are seen as smart or “heroes” in the company and motivate others to do better in their own work.

The design center as a small family

The above-mentioned values, beliefs and assumptions are widely shared among the staff at Alfa and constitute the overall organizational culture. Moreover, designers at Alfa also formed their own subculture within the design center. Compared with the rest of the company, the design center seemed to be a small family, distinct from the rest of the company. Some of

the overarching values, e.g., customer focus, innovation and design, risk-taking, etc., are strongly held within the design center.

First of all, although the company is seen as a big family, the designers and design manager seem to constitute a small family within the design center, as described by the design manager:

We are like a family, and we are always watching each other, if we see each other are struggling and you go there and offer help, [...] proactively. So like a family, we always want to be in harmony. But if we feel some of us are struggling or frustrated, we try to help, even if we are also over-loaded [...].
(Design Manager, November 2010)

The design center is located on the first floor of the office building. The first room is the lounge. Here a table football game has been set up in the middle of the room, surrounded by shelves exhibiting various packaging design and prototypes collected by designers from different sources. Some colorful sofas are positioned close to the shelves, which makes the room look very cozy. The designers often play table football during the break or after lunch. And they also invite other people visiting the design center to join in the game. The office area is behind the lounge. Designers sit in a common space with their desks grouped according to customer segments (electronics, FMCG, industrial and automotive). Each designer has his or her specialized segment. The design manager sits among the designers. When designers come to work in the morning, they say “Hi” to everyone, and the design manager also shakes hands with all the colleagues before going to his own desk.

Every Friday morning, a “Friday breakfast” is organized in the design center. Designers take turns to prepare breakfast for all their colleagues. And very often people bring food from home to share with others at the office. The designers also often organize a team dinner or lunch within the design center. They are also friends outside work – they meet each other after work or during the weekends for drinks and celebrate each other’s birthdays and name days. The designers also decorate the design center and one of the meeting rooms in the office where design meetings are always held. They have made some chairs and decorations for the room, using corrugated board.

To other organizational members, the design center represents the creativity and innovation capability of the company. Designers were referred as “smart

guys”. At the same time, it also seems to be a “closed group”. The separate office, special decoration, seemingly casual way of working, and other activities organized by designers within the team make the design center distinct from the rest of the organization, as one designer put it:

I feel sometimes our colleagues, in different teams [feel that] in design we are a closed group, in which we work very well. We are really happy and have lots of time and resources and so on. [...] we are trying to balance between work and private life, because we spend half of our life in work, so we are trying to work in a friendly way. Therefore other teams sometimes don't like it or feel it, and they feel that we are not really working hard. We are but in another way. (Designer, November 2010)

However, as design is seen as the driving force of innovation, the design center and designers enjoy a high status in Alfa and receive a lot of respect from members of other functions. Both the management and other functions are very proud of the design center and its design capabilities.

Most of the overarching organizational values are also shared and even held more intensely by the design center. In particular, as designers, they also share the value of creativity and challenge. It is important to feel the job is interesting and challenging. And the feeling of achievement and pursuit of success are considered as the most important motivation for work. Creating innovative packaging solutions that can address customers' problems is seen as an important achievement and strong motivation for the designers. Encouraged by both top management and the design manager to try new ideas and not be afraid of taking risks, the designers said that they could “give anything a try”.

Besides, within the small design center family, sharing, helping and caring for each other are valued highly. Although all the designers belong to different segments and have different projects, they share information about their projects and are very open to asking for help from each other. Since the office is an open area, when someone talks on the phone, everyone else can hear the conversation. One designer gave an example:

So if I talk to a customer on the phone, the others have comments afterwards. Everybody knows everything. If there's a question from the customer, then one of the designers just says “oh, no I need to reduce the cost again, what should I do, do you have any ideas?” (Designer, November 2010)

And helping each other is also valued within the design team. If someone cannot come to work because of family issues at home (e.g., care of a sick child), others are willing to help to take care of his or her work, “the team is open and ready to help immediately”, even though sometimes others may have a great deal to do themselves.

Above all, the values, beliefs and assumptions shared within Alfa can be summarized as follows:

- Customer focus
- Innovation and design
- Risk-aversion
- Open to external knowledge and learning
- Open communication
- The organization is a big family
- Personal relationships
- Helping each other
- People are intrinsically motivated to work
- Prominent subculture: design subculture; design center is like a small family; some of the overarching organizational values are held even more intensely within the design center

5.2 Innovation activities

In recent years, Alfa noticed the external environmental changes and felt the pressure from the customers and competitors. On the customer side, new products are developed every year; the vertical integration in customers' industries leads to changes in their lead time, cost, stock which all result in changes in their needs of packaging. On the competitor side, more companies started following low cost strategy, pushing competition towards low prices. Although innovation has been the company's strategy, Alfa realizes that it is even more important today in order to respond to these changes and maintain business growth. Hence, after the innovation strategy was launched by SCAP headquarters in 2008, it was soon introduced to the subsidiaries. At Alfa, management soon adopted this corporate strategy and adjusted it according to its local context. Alfa's new corporate strategy was stated as:

[...] to transform from an undifferentiated, cyclical raw material pusher to the leading full-service packaging business partner, supplier of choice and development partner of the winning customers, with fast growing and differentiated core business, providing increasing and sustainable value to all stakeholders. (Alfa's company document, 2010)

With this strategy in hand, Alfa decided to take a more proactive approach in new product development and focus on developing more radical innovations which could bring novelty to the customer and market. In 2009, Alfa developed a new packaging called the "Oyster Packaging" for the flat screen TV which was considered a "break-through" for SCAP and the market.

The idea of Oyster Packaging was triggered by three factors: (1) the product change in the TV industry; (2) the increasing emphasis on sustainability in the packaging industry; and (3) the need for efficiency improvement in TV manufactures' packing line and the convenience of the end user. First of all, designers at Alfa noticed that the emergence of the flat screen TV in recent years had brought some changes to the TV industry. As the thickness of TV screen was reduced and the width increased, the TV packaging needed to be adjusted in order to adapt to this change. Secondly, environmental issues had raised great awareness of sustainability from the public including the packaging industry. Accordingly, it was anticipated that the trend of the future development of packaging solutions was also moving in the direction of sustainability, which required packaging companies to use less but more environmental-friendly material. Thirdly, it was also found that TV manufacturers had been struggling with how to improve the efficiency on their packing lines. The packing process was too complex and TV manufacturers complained that it took more time to pack a TV than to produce one. The complexity also resulted in a large number of operators working on the packing line, which not only made the packing line crowded but also led to high labor costs. At the same time, the end users often encountered difficulties with opening the big complex TV packages.

Based on these three considerations, Alfa realized that there was a need to develop a new TV packaging solution for the flat screen TV, which could address all the above-mentioned issues. The idea was to develop a packaging solution that was environmental friendly, easy for the manufacturer to pack a TV in, and easy for the end user to open. In order to further develop this idea into design concepts, Alfa design center organized two workshops, one in Alfa

design center and the other in one of Alfa's sister companies within the same region. Designers from the innovation center at the headquarters and other regions were invited to come for the brainstorming discussion to generate ideas. Several ideas about the new packaging solution emerged from the discussions in the workshops and were made into prototypes afterwards. The general manager of Alfa also proposed the project to the innovation center at the headquarters, and it soon caught the attention of the innovation director and he was also involved in this project. The general manager and the innovation director visited one of Alfa's biggest customers – a big electronics company – to collect more information about its production line and problems facing the company during their manufacturing and packing process, as well as to investigate the potential need of a new packaging.

After visiting the customer the general manager and innovation director came back to Alfa design center with the collected information and organized meetings to review all the concepts and prototypes developed before. The design team and project managers participated in the meetings to discuss which concepts could be further developed. And the discussion led to a selection of three concepts for further development. Moreover, the discussion focused on how to use fiber-based material as much as possible to replace plastic and foam in the TV packaging to make it more environmental friendly. Later on, two concepts were discarded and only one remained to be made into a complete packaging solution, which was the original idea of Oyster Packaging. The designers then started to realize this concept into packaging design. And a key account team including people from design, sales, production, supply chain and service department was formed for the new product development.

Oyster Packaging is made of a new type of corrugated board called "Honeycomb"⁵ which had never been used in SCAP before. Compared with the traditional TV packaging, Oyster Packaging has several advantages. First of all, it is light and environment-friendly because the packaging solution is made of 100% fiber (corrugated board) without any other materials such as plastic or foam. The TV can be directly placed in the packaging without

⁵ The structure of the cardboard contains numerous hollow stereo regular hexagons which are formed by conglutinating corrugated papers, which is like honeycomb.

being packed in plastic bags or using foam to support it. Second, it significantly simplifies the packing process. Hence, it can help to increase the efficiency and reduce the labor cost of the production line of the TV manufacturer. At the same time, it also makes unpacking easier for the end users, which improves customer experience. Last but not least, it can also help the TV manufacturer to better market their products. When end users open an Oyster Packaging, a large area of the inside box will be exposed, and this can be used for printing to commercialize the products; while in traditional TV packaging, the printing is only on the out surface of the packaging. Moreover, as Oyster Packaging is a complete packaging solution, Alfa does not only provide its customers with packaging design but also the converting and assembling technology, which constitutes a completely new system in the their production line.

In November 2010, Oyster Packaging was awarded the first prize in 2010 SCAP design competition. Alfa was the first company outside Northern Europe that had won the first three.

After the prototype of the packaging design had been made by the designers, it was sent to the manufactory for trial production before being produced in large volume. At Alfa, new product tests are made possible by management organizing production so that there is a certain amount of flexibility giving room for adjusting the production schedule. Therefore production manager can coordinate between the regular production and the new product test. As the project manager stated:

In my previous working place, if I want to make some trial on the machine, they asked who would pay for the half hour that we would spend on this trial on this machine, and they can charge the cost center for this half hour. In SCAP (Alfa), it is not as rigid. OK, if you need half an hour to run this machine, let's organize it so that we have some time to do this. So it supports the innovation, [...] if they see there's a reason for doing this. [...] And the production also supports. (Project Manager, November 2010)

Moreover, efforts are made by the management to assure that resources are available for both regular production and new product development, e.g., the machine used for new products was not used for regular production at the same time. As all the plants in Alfa were centrally managed, production could also be coordinated between different plants. Therefore, as innovation is

prioritized by management, the resources and support are always provided for new product development, as expressed by the general manager:

I would say it should be project organizing. When there is a project, you have to organize it, to allocate time for it. To make an effort for a trial but not to have customer's orders at that moment on the machine, that should be possible. It's a question of willingness. We are [together with] everyone in the company [so we are] able to solve many things. Having two or three hours on testing shouldn't be a problem in any plant. (General Manager, April 2012)

Besides, Alfa built a new plant specially for production operators could develop and test the new converting technology which was required by the Oyster Packaging.

In July 2010, one year after the Oyster Packaging project was initiated, Alfa started to present some prototypes to its first customer – a big electronics company. The feedback from the customer was very positive – the company was very interested in the concept of Oyster Packaging. Alfa got several TV models from the customer to make packaging designs specifically for them and delivered 100 pieces of each model for production trial. However, high added value in Oyster Packaging also led to a high price, which was a big challenge facing Alfa during the negotiations with the customer. Companies hesitated to pay the high premium for Oyster Packaging; especially the TV industry was not in a growing period in recent years. By the time the case was written, the product development was still going on and the production techniques were becoming mature. Yet Alfa has not received any orders from customers. The sales people from Alfa are still approaching customers and negotiating with them.

To summarize, since the innovation strategy was introduced from the headquarters to Alfa, it was soon adopted by Alfa and adjusted according to its local context. Alfa intended to be more proactive and took action to develop a new product called Oyster Packaging which was considered to be a radical innovation in SCAP, as it was new both to the company and to the market. The innovation activities in the development of Oyster Packaging are summarized as follows:

- Adopting the innovation strategy
- Collecting market information through in-depth study of the customer and market to identify opportunities for radical innovation

- Searching for help from external sources (the innovation center, other design centers) for idea generation
- Constructing key account teams for new product development
- Providing flexibility to assure time in the production for new product trial
- Developing production technology to produce the new design

5.3 Innovation outcomes

Although Oyster Packaging has not been successfully commercialized, people at Alfa sensed that many positive changes had taken place within the company along the innovation process and the organizational performance had been improved.

New facilities, new business and profit

As producing Oyster Packaging requires a different converting technology, Alfa has invested and built a new plant which is currently in use for pilot production of Oyster Packaging. After several sessions of pilot production, the production technique is getting mature, as the general manager put it:

We are very close to technical perfection, but we do not yet have the customer order I would say. So we are in the development phase, we have a plant for the pilot production, and we are able to produce this type of boxes. That's also under the development, because it started completely from zero with the technical process to develop machines, the painting and so on. So I would say it's a real innovation. (General Manager, April 2012)

Moreover, after adopting the innovation strategy from headquarters and having taken action to implement this strategy, according to the general manager, currently at least 30% to 40% of Alfa's business is contributed to by innovation and new production facilities that the company has invested in during the new product development process. This has been reflected in the increased profit, as expressed by the general manager:

We have business of 7 to 10 million euro per year, we have a new production facility, and in the last two years we made at least three million euro profit from it. You cannot separate completely the profit of the corrugated business from it (*innovation*) but at least 3 million euro is from this investment and innovation. (General Manager, April 2012)

Design awards and patents

Apart from the financial outcomes, Alfa also had three patent applications and several design awards both in SCAP and in the national design competition in recent years.

Company image and reputation

Alfa's focus on innovation and its design capability have also helped to create an innovative company image among its customers. For customers, Alfa could provide innovative packaging designs with higher standards compared with other packaging companies. Customers choose Alfa as a packaging supplier because its innovative packaging design solves customers' problems and provides full service packaging solutions which other packaging companies in the market cannot offer. As the sales and marketing manager stated:

So many customers choose us as a supplier, choosing us for a higher standard than the competitors due to this – I would say the innovation capability. So they know that SCAP (Alfa) has things they need. (Sales and Marketing manager, April 2012)

Close customer relations

In the simple business approach where the packaging is seen as a commodity, the packaging company only meets with the purchasing department of the customer and the negotiation is mainly about price. Because of its full-service packaging solution with innovation, the sales people of Alfa now have better access to the customer's company. Instead of meeting with only the purchasing department of the customer, they can meet people from different functions and different levels, i.e., production operators, marketing staff and even the top management of the customer's company, who are usually more interested in the added value in packaging service and are thus more willing to pay premium for it. The customer-centric approach also helped Alfa establish a close relationship with its customers. Seen as a packaging advisor by some customers, Alfa was also involved in their product development process, as the change in products also required packaging to change

accordingly. As stated in Alfa's corporate strategy, the company wanted to be a packaging advisor and the company's business partner instead of just a packaging supplier. This has been achieved through innovation. As the general manager stated:

As I mentioned, we have the access now to completely different people in their organization from people at very high level to [those] who basically do the validating, testing the first production. Now we are in the situation, for example, their TV is not ready yet, but [when] the first one [is ready], it will come to us. So I would say it's a special relation already, and the same with some other customers. And we are part of their development process. They are considering what we are saying. That's a different image and a different reputation (General Manager, April 2012)

Change in people's views on innovation

According to the general manager, most importantly, it can be sensed that people's attitudes to innovation have also changed in the company. Seeing all the changes mentioned above, people at Alfa have become more confident, committed and devoted to innovation. Although innovation has always been the focus of the company, it is now seen as a key business opportunity by both the management and other employees. Management as well as different functions are becoming more experienced in innovation: the sales team has gained experience in how to negotiate with customers to commercialize innovation, the production staff are more and more involved in new product development projects, production facilities have been updated and production techniques have been improved. The whole company is very motivated and committed to continuing working on innovation. As the general manager put it: "the engine of successful innovation starts to move":

I see a change in the organization, so innovation is seen as business opportunity. I think we manage to sell it also afterwards, also some changes in the sales team, we are able promote and sell innovation, and we are looking to generate business based on joint development with the customers. This probably comes this year. We started to have a team also, with small teams capable of delivering innovation, to do something. And more and more technology starts to be part of it. We have some people working on machinery in the process. I would say the engine for successful innovation started to move. (General Manager, April 2012)

Being involved in the innovation process, people from different functions also become clearer about their role in the innovation process, why they are involved and how they could contribute to innovation. A shared understanding of the key role of innovation in the company as well as the role of different functions in innovation has been created. People start to be “on the same side”, realizing that innovation is a part of the company’s “daily life”.

Experience in innovation management

The years of working with innovation have also constituted a learning process for the management during which it has gained a lot of experience. The management now has a better understanding of the innovation process, e.g., what the key issues are and potential obstacles to innovation in different stages, the company’s capability of dealing with these problems as well as how to deal with them. Therefore, the management has become more confident about managing innovation in the future, as expressed by the general manager:

We learned a lot. About the learning I think about how to manage innovation processes, and how to manage the implementation process, and to see the interactions between these two, we also developed organization around [innovation projects], so I feel much more confident now about the capability of the organization to handle such a project. Or when we are looking for some new projects, more or less we know what we have, and the steps to be taken, which people are to be involved, to have a chance to succeed. It’s much easier than it was two years ago. (General Manager, April 2012)

Above all, the innovation outcomes at Alfa as changes perceived by organizational members can be summarized as follows:

- New business, production facilities and increased profit
- Design awards and patents
- Company image and reputation as an innovative company
- Close customer relations
- Change in people’s views on innovation: innovation is seen as business opportunity and a part of the daily work; shared understanding about innovation
- Experience in innovation management

5.4 Reflections and future measures

There is a great chance to succeed in innovation

Although Alfa has not received any order for Oyster Packaging from customers, people at Alfa are still very confident about this new product that they have developed and enthusiastic about continuing commercializing it. The management has a strong belief that Oyster Packaging is a “real innovation” and will make a great impact on the market once it is commercialized. Although the sales people are still searching for customers who would be prepared to pay premium for its added-value, the general manager described the negotiation process as a “great fight”, which requires a lot of work but is very promising and Alfa has a great chance to succeed.

Innovation is the right strategy to follow

Seeing the positive changes and improved organizational performance, people at Alfa are convinced that compared with lower cost strategy, innovation is the right strategy for the company to follow. It was also confirmed that innovation and design are the company’s core competence and competitive advantage. Innovation now is seen as “a needed part of the business”. Becoming a part of the company’s “daily life”, innovation should not be “standing in the corner” but be more central in the company’s operations, as one manager stated:

If innovation is not something standing in the corner, [and] if it can stand up, and you expect it to bring or [believe it] will bring business, it’s much easier to be part of daily life. (General Manager, April 2012)

Innovation is a long process and management plays an important role in it

In the light of the case of Oyster Packaging, it is also realized by Alfa that innovation is a long process and it can take several years to get some results. During this long process, frustration, impatience and doubt begin to grow in the employees as well as top management at headquarters. It is, thus, very important, yet also difficult, to maintain motivation and belief in innovation, as shown in the general manager’s words:

It's quite difficult. [...] Because I want to sell this project with quite high [price], so the question has always been "when are we ready?" So I have to show to the bosses what I think, also the sales people. We need the team, yes. People are pointing at the sales people that they are not able to sell, whatever, to keep up the motivation, to maintain the basic beliefs in the product. That's a special task for all the management. (General Manager, April 2012)

Thus local management plays an important role in motivating people, recognizing their progress, providing feedback and encouraging them in order to move the innovation process forward. And meanwhile, local management also needs to convince top management about the new product. As the general manager further stated:

You always have to seek out the positive things, and just go for the next tour and like this. And meanwhile you also have to be very realistic not to make them very enthusiastic about something. (ibid.)

Moreover, one thing management has learned is that people are more devoted and committed to innovation when they feel the need and pressure of it, that is, people need to feel that innovation is crucial and needed in the company. This requires management to articulate the importance of innovation and give priority to it in the company, so that people are more aware of innovation and feel the urgency to innovate. This, to some extent, is to push people to innovate, as expressed by the general manager:

Absolutely, that's one of the most important things to understand, you have to push people to innovate. (General Manager, April 2012)

In addition, although innovation management requires flexibility in different organizational processes, there should be certain degree of control in innovation process. Management needs to organize the innovation process by providing people with time, material and other resources, maintaining the ambition and motivation for innovation, setting milestones and following up the progress, and taking innovation seriously instead of just "letting it fly", as the general manager further stated:

[...] For example, you have to follow up; you have to look where they are. It's about having regular meetings, setting deadlines, asking questions, we just take it seriously. It's like managing a process, but you cannot let it fly. You have to manage it. And you have to give them resources, time, materials, and ambitions and motivate them. (ibid.)

For instance, management should follow the innovation process by organizing regular meetings and setting deadlines, asking critical and constructive questions and so on. Efforts should be made on a regular basis to make people feel that innovation is important and stay motivated.

Innovation is not only about product design but concerns the customer's entire value chain

Another reflection has been made that innovation in packaging is not only about design but also about the new material, production technology and process; it's about providing the customer with full-service packaging which takes into consideration every aspect of the customer's value chain rather than only packaging and logistic. For example, the Oyster Packaging is considered to be a radical innovation not only because it uses a new material and has a new design but also because it has changed the converting technology in the production process and improved the assembling technology in the TV manufacture's packing line. It goes beyond the current production capability and develops a completely new system for TV manufacturers including packing, logistics and marketing. Innovation, especially radical innovation means that the packaging company needs to take customer's whole value chain into consideration and not be restricted by the current production capability. This is expressed by the design manager:

And for us as well that we are no longer limited to all machine capabilities, [...] It's a complete system, we say that the future of packaging design or innovation is not only to design a component, and sell it, because it's just short benefit you can have, but start thinking in systems, and sell complete systems, and it might include the packaging line as well or some machinery which needs to handle the packaging components. (Design Manager, November 2010)

Similarly, the general manager suggests that it is important to realize that identifying opportunities for innovation is not only about looking into customers' products but also their machinery and production processes,

which involves the participation of people from the production in the new product development process. He explains:

It's necessary to know that today if you want to innovate, it's not enough to just have a product, you have to look at the machinery and the whole process [of the customer]. And for that you need to have some technical people to be part of the team. That was good development during the last two years - the development of the machinery and also of the process around it. (General Manager, April 2012)

Teamwork is key to innovation

It is also realized that teamwork between different functions is a key in the innovation process. Providing customers with full-service packaging needs teamwork between design, production, sales and other supporting functions, each paying attention to different aspects of customer's value chain, from producing, packing to transport, and from the customer's supplier to the end user. This requires people from different functions to use their own knowledge and expertise to support each other, as the general manager further suggested:

So not only for designers to make something nice, but you can bring some good technical guys behind it, you can have some capable suppliers, you can have the finances organization looking at the figures and helping you to analyze the eventual economic results, from them you can have a good cost calculation of the future processes, so it's really good. (ibid.)

And he refers the teamwork as a "full-scale cooperation", which can accelerate the innovation process by bringing people with different expertise into the process who can complement each other, as the general manager further elaborated:

So how [do] designers, plant people, operators, finance work together? We start having a full-scale cooperation around innovation, or at least the results of innovation, implementation of innovation practice. And that brings some new dimensions. It speeds up the process, gives much more knowledge, and just supplements the whole process. (ibid.)

This full-scale cooperation is key to the success of innovation, which does not only have an appealing packaging design but is also technically feasible and has a desirable financial performance.

Innovation is about being willing to take risks

In addition, people at Alfa have also confirmed that innovation is about being willing to take risks. As management plays a key role in the decision-making in innovation, their attitudes toward risk can influence how other parties perceive and react to innovation. For example, in SCAP, large investments beyond a certain amount have to be approved by the headquarters. However, according to the general manager of Alfa, as the rule is the same for all the SCAP companies, whether funding will be approved to a great extent depends on local management's confidence about the innovation project when the idea is presented to top management at the headquarters. Sometimes it is also about "having the courage" to take the risk, as his words suggest:

The rules are the same everywhere within SCAP, so you have to make it now... again how convinced you are about the case, how you are selling it. Yes you also invest a few hundreds of thousands of euros in some machinery, we know that's for testing and business might come in the future. You have promised something probably, here it's about management having the courage. SCA does not allocate development funds to the plants or organization. So yes, for everything you are buying, you have to promise some future benefits. But you take the risk, then you get it. (General Manager, April 2012)

Usually the funding for new product development is only approved when the need for the new product can be justified and its financial benefit can be proved. However according to the general manager, there is no problem for Alfa to get the resources and funding needed for innovation from the headquarters:

Sometimes you have to put financial certification behind it but it's not that strict. So I would say we are able to get whatever we want. (ibid.)

To summarize, the innovation practices have brought not only positive outcomes but also experiences in how the innovation process should be managed and how to deal with the problems during the process. In particular, management plays a key role in the whole process, articulating the importance of innovation at the beginning, motivating people in the process and being brave and taking some risk in order to move the process forward. Moreover, a good balance between innovation and the basic business can avoid conflicting targets and prevent the conflicts between different functions.

Reflections on innovation by people at Alfa include:

- There is a great chance to succeed in innovation
- Innovation is the right strategy to follow
- Innovation is a long process and management plays an important role in it
- Innovation is not only about the product design but the customer's whole value chain
- Teamwork is key to the success of innovation
- Innovation is about being willing to take risks

Future measures

The management of Alfa therefore decided to keep following the innovation strategy and continue with the innovation activities. Since the innovation strategy had been introduced and adopted, in the past few years, several production facilities have been built and used to produce new products. The management decided to continue the investments in innovation and was trying to apply for subsidies from the European Union and the government to build a bigger plant for innovation. At the same time, the sales people at Alfa will still be working on the commercialization of Oyster Packaging. The management was very determined to succeed in this respect, not only because the success would bring great financial benefit to the company but also because it could build up strong motivation for the whole of SCAP. As the general manager stated:

So I would say it's quite important to bring this Oyster Project to success. And it's not only for us; it would be for the whole company. Also the cooling project in the UK, these are the two projects where SCA tries really to do something nice. Both are struggling, and now both are coming to better chance of success, and in the UK they manage to handle the production, and the process is now under control. So having these projects successfully closed or basically passed to normal operation, that would make also the company much more comfortable about innovation. (General Manager, April 2012)

Above all, the empirical finding from Case Alfa is summarized as follows in Table 5-1:

Table 5-1 Summary of the empirical finding from Case Alfa

Cultures of organization	Innovation activities	Innovation outcomes	Reflections and future measures
<p><i>The dominant culture:</i> Customer focus.</p> <p>Innovation and design.</p> <p>Risk-taking.</p> <p>Open to external knowledge and learning.</p> <p>Open communication.</p> <p>The organization is a big family.</p> <p>Personal relationship.</p> <p>Helping each other.</p> <p>People are intrinsically motivated to work.</p> <p><i>Prominent subculture:</i> Design subculture; design center is like a small family; most of the overarching values are held even more intensely within the design center.</p>	<p>Adopting the innovation strategy.</p> <p>Collecting market information through in-depth study of the customer and market to identify opportunities for radical innovation.</p> <p>Searching for help from external sources (the innovation center, other design centers) for idea generation.</p> <p>Constructing key account teams for new product development.</p> <p>Providing flexibility to assure time to the production for new product trial.</p> <p>Developing production technology to produce the new design.</p>	<p>New business, production facilities and increased profit.</p> <p>Design awards and patents.</p> <p>Company image and reputation as an innovative company.</p> <p>Close customer relations.</p> <p>Change in people's views on innovation: innovation is seen as business opportunity and a part of daily work; shared understanding about innovation.</p> <p>Experience in innovation management.</p>	<p><i>Reflections:</i> There is a great chance to succeed in innovation.</p> <p>Innovation is the right strategy to follow.</p> <p>Innovation is a long process and the management plays an important role in it.</p> <p>Innovation is not only about the product design but the customer's whole value chain.</p> <p>Teamwork is key to the success of innovation.</p> <p>Innovation is about being willing to take risks.</p> <p><i>Future measures:</i> Keeping following the innovation strategy and continue with innovation activities.</p>

Chapter 6 Case Beta

Case Beta is a profit center of SCAP located in Western Europe. It consists of several corrugated box plants acquired by SCAP. The organization includes a head office (commercial center), a design center and three production sites (two box plants and one trader/sheet plant). The management team, design center and all the supporting functions (e.g., finance, HR and IT support) are located at the head office. The design center consists of one design manager and eight designers (structure and graphics design). The three production sites have distinct production capabilities and focuses. Plant A is a multi-pass corrugated box plant that produces packaging with complex designs and production techniques and has a medium production volume. It is seen as a plant focusing on innovation. Plant B is a small and agile production site that mainly produces multi-material packaging (e.g., plastic, foam and molded materials) based on specific customer requests. It usually takes orders for small quantities and is able to deliver within a short period of time, so it has a low production volume but high flexibility. Plant C is a one-pass simple corrugated box plant that produces the traditional brown corrugated boxes without complex design or multi-material. It has high productivity and fast throughput but low production flexibility. These three production sites are independent of each other and the case was conducted in Plant A where the head office is located. The major customers of Beta are from the food and beverage industry.

6.1 Cultures of organization

Several key values shared by the members and several important beliefs associated with these values are identified in Beta. These values and beliefs will be further illustrated in the following sections.

Corrugated board business is the core of the company

The first key value in Beta is its strong focus on the corrugated board business. This was clearly expressed in Beta's corporate strategy:

We are a packaging company with corrugated core. (Beta's company document, 2010)

Beta's head office was built next to Plant A after the plant had been acquired by SCAP. The office building has three floors and the manufactory is located behind the office area. On the first floor of the office building, there is an entrance behind the reception and next to the design center leading directly into the manufactory. The company's business was organized based on the production capability of the plant. Since Plant A is a corrugated box plant, the corrugated board business has been Beta's core business since then.

This focus on corrugated board business is also manifested in Beta's product portfolio. Although Beta's company documents show that the company can provide multi-material packaging, and Plant A is referred as plant focusing on innovation, it mainly produces corrugated packaging, while other materials apart from corrugated board (e.g., plastic, foam and molded materials, etc.) are rarely considered or used in packaging design. The reason for this is that corrugated packaging is the core business and corrugated board is what the manufactory can produce, as described by a designer:

We do think about it because we try to offer multi-material. But this plant can only produce cardboard so... I think the profit is mainly from the corrugated board. (Designer, October 2011)

The American folding boxes (the basic brown corrugated boxes) also constitute the company's major turnover. Therefore the corrugated board business is also referred to as the "basic business" and the base for everything else in the company. It is believed that all the other activities could be carried out smoothly only when the basic business is managed well. The company should "take good care of" the basic business and "get the basics right".

Moreover, the value placed on the corrugated packaging business is manifested in how the performance is measured. At Beta this is based on a "paper concept" – when talking about performance, people always refer to volume – the square meters of corrugated board, both for the overall

organizational performance and different functional performance. The performance of production is measured by the number of square meters of corrugated board that have been produced or converted into boxes, and the performance of sales is measured by the number of square meters that have been sold. This paper concept is also associated with the company's deep roots in the corrugated board tradition. As the traditional basic corrugated boxes are standardized products manufactured by mass-production, the cost is based on that of raw material, and the profit is driven by large quantity and low cost. Hence, using volume (square meters) as a measurement of the overall organizational performance shows Beta's strong focus on the corrugated board business.

Productivity

Productivity is another core value at Beta. This value orientation is also reflected in the company's performance measurement. Three indicators are used in Beta to measure the organizational performance: volume, speed and quality. Although these three indicators are originally used to measure performance of the manufactory which indicates productivity, they are also applied to measure the performance of other functions as well as the general organizational performance.

At Beta, volume is seen as the most important performance indicator not only for production but also for the whole company. It is a measurement of how many square meters of corrugated board are used in packaging production. It is used as a common language within the company referring to the organizational performance. When talking about the organizational performance, people always use volume as an indicator, saying that "we have a good volume", or "we need more volume" to suggest a high performance or poor performance which needs improvement. Besides, all the financial index, e.g., sales, profit, and cost-benefit calculation are translated into volumes – in order to reach a certain profit level, how many square meters the manufactory has to produce, how many square meters sales people have to sell; and even designers need to translate their cost calculation of the design in volume.

In particular, sales people's performance is closely associated with sales volume. Their bonus and budgets for the next year are based on the volumes that they sell during the present year. The more volumes they sell, the more bonuses they will have and the more budgets they will get for the next year. "It's a matter of getting the order", said the supply chain manager. The goal

of the sales is to “get a good number of orders into the company and make the delivery as good as possible”. Thus sales people have more incentive to sell the basic American boxes than new products with more complexity, as the former can be easily sold in large volumes while the latter are usually more difficult.

The second performance indicator is speed, which refers to how many square meters of corrugated board are used in production every hour. Production needs to keep the machines running as fast as possible to assure the production volumes. “We need the basic volume” and “we need to produce as fast as possible” were frequently expressed by people at Beta. And the third performance indicator is quality including both quality of the products and quality of service, e.g., number of customer complaints, on-time delivery, etc.

Besides, as corrugated industry is a capital-intensive industry, the heaviest investment of Beta is its machinery – the corrugator. Once the machines are bought, they are seen as long-term investments and associated with high fixed costs; they need to be used as much as possible so that the investment can pay off. The more and the faster the machines produce, the more value they can create for the company. Therefore, the manufactory should be “full of orders” and “busy”, regardless of the types of products. When interventions happen in production, the plant is seen as inefficient and people are “being lazy”.

In addition, the machines also decide what kind of products the company can design and produce. Design often has to compromise with production capability. Designers are told to “make sure that it is possible to produce the design on the machinery”. Therefore, designers have to learn to understand the specifications of each machine and its production parameters, as each machine has its specifications in terms of the type of boxes it can produce. Innovative packaging design often requires adjustment to the machines and thus can reduce the production speed and cause trouble for the production operators. Moreover, it might not be possible to produce some of the new products using the current machinery and production technology. Hence production often gets into conflict with design when it comes to testing or producing new products. And when there is a conflict, designers need to go to the manufactory and negotiate with production staff. In most such cases designers have to adjust the design to match the current production capability so that it can be produced on the machinery at hand.

Furthermore, as a sign of high product productivity, the machines are always running at full capacity, and designers complained that there was no time for new product tests in the manufactory. Moreover, according to the design manager, in order to improve productivity and reduce cost, the production manager had been trying to reduce the number of people working on the production line by replacing them with robots to operate the machines. This put more constraints on the designers' creativity and freedom in design, as the automation reduced the flexibility and freedom to adjust the machine for new products. With regard to the production, if a new product needs to be tested, the work manager⁶ reports to the management that the machine needs maintenance and thus will not be running for normal production, to make sure that this will not show on the production parameters.

There is no need for innovation; we are innovative enough

People at Beta also share the belief that there is no need for innovation in the company, because the external environment, including the industry, the market or customer, does not require innovation.

First of all, at Beta, people consider themselves to be in a very stable industry with little dynamics. The corrugated cardboard was invented at the end of the 1900s. Today this material is still used in corrugated packaging production and the most often seen corrugated packaging is still the brown box. In the last few decades, technology development focused mainly on incremental improvement such as improving the graphic effect and way of folding, etc., while the basic technology and production principles of corrugated board remain the same as 150 years ago. Many people stated that they had not seen any revolutionary changes in the machinery, manufacturing principles, material and so on in the industry during the last two decades, and the boxes are "exactly the same as 20 years ago" and "50% of the machines are the same as 40 years ago". Therefore, it is believed that as a single company, there is not much they could do to innovate, given such an environment, as everything is "just a matter of whether it is easy to produce or not".

⁶ In Beta the production manager is referred to as "work manager".

Besides, people at Beta believe that the company is operating in a market with a production overcapacity. As one of the biggest corrugated packaging companies in a small market, Beta has competitors ranging from big international companies to small local manufacturers. The competition is considered as “very heavy” and mainly focuses on low price. As many other big manufacturers, Beta needs to produce large volumes in order to cover the huge fixed cost. However, small companies are more flexible and faster in responding to customer requests. They could take orders with a small volume but still offer a low price, which makes it easy for customers to choose packaging companies which offer lower prices. Moreover, in Beta’s market, almost corrugated packaging companies use the same machinery supplied by the same manufacturer. In a mature industry where the manufacturing technology is diffused, there is not much difference in production capability between companies, regardless of their age and size.

This overcapacity also makes it easy for customers to choose between companies which can offer lower prices. In particular, when a design is based on a specific customer request, the customer considers that it has the ownership of the design. Very often the packaging is designed at Beta but then taken by the customer to another company to produce for the lower price. In this case, even though Beta devotes resources and time to design, the cost does not pay off.

Moreover, as corrugated boxes are known for their basic functions in transporting and protecting the products, they are usually considered by the customer as a part of the production or logistics cost. Especially, since Beta’s major customers are from the food industry where the profit margin is low, they are very sensitive to the price of the packaging; they want the packaging price to be as low as possible in order to reduce the total cost of the product. It is thus difficult to convince them to pay premium for the added-value in the packing design. “It’s still the game they want the lowest possible price”, as one manager stated. “There is no point of a new design, because in the end it always goes back to cost reduction and price”, as the design manager stated. And the finance manager also suggested:

[...] we are in a cost-driven market. It’s 0.5 euro/square meter, then you can’t afford to pay five people working on innovation or technology. We don’t have this margin. (Finance Manager, October 2011)

Although there is not much difference between companies in terms of production capability, according to the management, Beta is known for its design capability among customers. Therefore, people in Beta also believe that the company is already innovative enough compared with its competitors. According to the cluster director, Beta is the “most innovative” in the market and “a big step ahead of the competitors” in innovation.

Certainty

A third key value is the certainty and the desire to always avoid risk. According to the respondents, at Beta, “things are based on facts”. The decision-making has to be supported by evidence. For example, when applying for funding for investment in Beta, if the result of the investment cannot be justified, it will not be approved. The decision-making is described as a “chicken-and-egg” situation. An investment will only be approved when its outcome is certain, that is, it is for products which have already been ordered by customers, as the work manager put it:

Because SCAP says “where is the market, show me which customer you will do it for, what’s the potential, what it will bring”, and then they will give you the money. It’s the “chicken and the egg” [situation]. First you put the egg and say, “yes I’ve tried the machine”, and then go and look for a customer. No, the SCA process is first look for a customer, and then they will hurry to get you a machine. (Work Manager, October 2011)

The key for approving an investment is “to find the business first” in order to prove it will bring benefit to the company. And if there is no customer in advance, it is difficult to justify the investment decision. As one respondent stated, there is “no budget for failure” at Beta. Before launching a new project or implementing a new practice, the cost-benefit calculation is always needed in order to estimate the risk. If it is considered as too risky, it will not get approved. The work manager provided an example of how he managed to convince the management to set a robot on the production line in the factory which he thought could increase the production speed:

[...] you should have the experiences and calculate your risk before you do something. I put here a robot behind the multi-point folder gluer. A lot of people in SCA say it doesn’t work, but now it’s running. So it’s working. Basically it’s my risk and head which are covering for it. (Work Manager, October, 2011)

In this case, the proposal was initially opposed by the management and many people in the company due to the big investment and unknown outcome. In the end it was approved as the work manager guaranteed that it would not cause any problem for the normal production schedule and influence productivity of the production line – there would be no loss for trying it.

Moreover, at Beta, before the designers present a new design to the customer, they need to do “a whole analysis about what could possibly go wrong”. Several forms had to be completed in order to make sure that all the aspects and details were checked to “make sure that nothing goes wrong”. Besides, the value placed on certainty is also reflected in Beta’s strong focus on the corrugated board business. Corrugated packaging is seen as the company’s core business and what the company is good at. Therefore trying to increase the volume of the basic business is like continuing to do what the company is good at, staying in the comfort zone instead of being brave and explore new opportunities.

The above-mentioned values were shared across functions by the majority of the organizational members, while there were also subcultures in the company, mainly within production and the design center.

Subculture in production

The overall organizational values and beliefs are particularly prominent in production. Given the key performance indicators (KPIs) as volume, speed and quality, people from production strongly hold the value that the corrugated packaging is the core business and productivity has the highest priority in the company. The value of certainty and avoidance of risk is especially prominent in production. New product design often receives complaints and resistance from production. For the regular products, the production technology is well known and the production operators are familiar with the manufacturing processes. It is therefore easy to maintain the production volume, speed and quality to have a good performance; while innovation with new designs often involves unfamiliar functions of the machines as well as new technologies, posing challenges to production operators. People from production consider testing and producing new products as “making themselves very difficult” – they have to learn new technology and tools that they never used before. Besides, testing new products can lead to a hiatus in the regular production. And due to the lack of experience, compared to producing regular products, producing innovation

is slower, with low volume and undesirable quality, which is considered to undermine production's performance and will eventually be shown as undesirable KPIs.

To production, innovation is also seen only as designer's job. At Beta, there is no formal organizational structure for new product development. The design manager also has the title of product development manager and takes the responsibility of coordinating between different functions in the new product development process. Given their performance measurement as volume, speed and quality, working with innovation – testing and producing new products – undermines production's performance. Therefore innovation is seen as the designers' job, as one production operator described:

Because of the conflicting targets, we have to produce; we also have to make sure the production is successful. But for them (*the designers*), it's their job to innovate, so you have to send it to the customer, we have to be correct. We also have the same priority of course, but we have the time pressure. We can do it but we only have the time from 8:00 to 17:00. Then we have to stop and then we have to run another production series. (Production Operator, October 2011)

And production's responsibility is to follow the job description to assure production efficiency and product quality and therefore does not have much influence on innovation. As the work manager stated:

If the working documents say in the drawing, to punch a hole there on this board, I produce them as well and as fast as I can. That's it. From this point of view production doesn't have a lot of influence on the innovation processes. (Work Manager, October 2011)

People from production also consider themselves as the ones who make decisions. The role of production is to decide the production feasibility of the design and if the design does not fit into the production capability, designers will be “warned and advised to change the design”, as the work manager further stated:

That's the role of production, of course we are not the final decision makers, because the technical people will finally say what it (*the design*) will be, but if they (*designers*) hear production is a little bit doubtful about this, then they are warned and advised to think about a new way. That's the role of production. (Work Manager, October 2011)

The belief that innovation is not needed in the company is also held within production. It is believed that as the machinery is the same as any other companies, the company can only win the competition through speed and low cost of raw material. Adjusting machines to make them available for producing something different does not add value in competition. According to production, the company's competitive advantage is its capability of producing large volumes at low cost. Therefore, the way of creating value for the company is to reduce cost, as the work manager explained:

Once it is in production, my view of creating value is reducing cost, and then you create value for SCA. (Work Manager, October 2011)

The value of the corrugated board business is also deeply engrained in production. According to production, the company should focus on the traditional standardized products, as the production manager further stated:

Basically you are producing a box; you are not shooting a rocket to the moon. To me 90% of the packaging should be of standard design. (ibid.)

Therefore design is seen as only being used for "showing off to the customer". As the work (production) manager used the following metaphor to describe his view on innovation:

I see innovation as the cream of the coffee. The coffee is your normal stuff, which you use to cover your fixed cost and your employee cost and such stuff. Then you have the design, the innovation, I don't know, showing off to the customers or creating something new, because if you never try something new you will never succeed. (Work Manager, October 2011)

According to the work manager, the regular products – the traditional corrugated boxes that contribute to most of the company's profits are like "coffee", and innovation is seen as the "cream" on top of the coffee – it is just for the purpose of decoration and adding more flavor but cannot replace the coffee. Therefore design is just used by the company to attract customers; it cannot cover the fixed cost of the plant. Besides, as the packaging design can

be very easily copied by competitors, it is not easy to keep being competitive through new design. Innovation at Beta should focus on how to reduce cost and make the product more cost-efficient.

Subculture in design

However, within the design center, designers seemed to hold some values and beliefs which were different from the overall values and beliefs shared by the rest of the company, such as openness, innovation and proactivity.

The design center was located on the first floor of the office building, which is separated from the rest of the company including both management and other departments (i.e., sales, human resources and finance) are located on the second and third floors. The design center was a big open area without any entrance hall or offices. When people enter the company, they can see the design center on the right side of the reception. Eight designers were placed in this big open area surrounded by a few shelves where different corrugated boxes, design samples, printing samples as well as corrugated boards were displayed. Two rows of desks were placed in the center of the office area. The graphics designers had their places on one side and the structure designers on the other side. The design manager did not have a private office but had her own desk behind the designers. Apart from the design manager, all the other managers had their private offices on the third floor. In the middle of the design center stood a big raised table for designers to meet with customers or other visitors. Most of the meetings were held in this open area and since the table was raised, people could either sit at or stand by the table during the meeting.

When the designers came to work every morning, the first thing to do was to turn on a radio in the middle of the design center, and it stayed on all day. “We have it all the time. It’s more relaxing and easier for people to talk and discuss, especially when customers visit us”, the design manager said. At the end of the office there was a room where the designers could make samples and prototypes. It was also connected to the manufactory, into which designers could directly enter without passing through the main entrance.

This open space and working environment shows the value of openness and flexibility. Within the design center, designers also had a very flexible working time. The design manager gave them the freedom and encouragement to be as creative as possible and try new ideas.

The designers are also open to learning from others and are customer-focused. As it is very close to the innovation center geographically, the design center at Alfa also has a very close relationship with the innovation center which is about 50 km away from the headquarters. Designers often participate in the workshops organized by the innovation center and other design centers, as well as in different design challenges and competitions both within and outside SCAP. Workshops are often organized at the Beta design center, to which customers and other designers from the innovation center and other design centers are invited to come for brainstorming in order to find inspiration and new ideas for design.

Although the company's core business is in corrugated board business, the design manager and designers believe that innovation is the only way through which the company can differentiate itself from other competitors. As most companies in the market have the same machinery and production capabilities, each company is able to produce almost the same products. The competition is strongly focused on low price based on cost reduction. Designers believe that the innovation through design can help the company to open a new market and escape from the low price competition.

To summarize, as shown in the case, as a traditional corrugated packaging company, Beta sees corrugated packaging as its core business and production volume and speed as the key performance measurement of the company. The company is not willing to take risks. Operating in a mature industry, Beta feels that there is no need for innovation as the technology in the corrugated packaging industry is mature and the customers were not willing to pay for the added value in innovative packaging design. Besides, among all the other corrugated companies, Beta is already considered as innovative and famous for its design capability among customers. These values and beliefs are especially strongly held within production, while within the design center, designers share some other values and beliefs different from the rest of the organization. The values and beliefs shared by people at Beta can be summarized as follows:

The dominant culture:

- Corrugated board is the core for the company
- Productivity
- There is no need for innovation; we are innovative enough
- Certainty

Prominent subcultures:

- Production: the values and beliefs of the dominant culture are more prominent within production than the rest of the organization, i.e., focusing on corrugated board business, productivity, stability and simplicity; it is also believed that innovation is only the designers' job.
- Design center: designers share certain values and beliefs different from those of the dominant organizational culture, including openness, innovation and proactivity.

6.2 Innovation activities

Switching the strategic focus to innovation

After innovation strategy from the headquarters corporate strategy in 2009, the management of Beta changed its strategic focus from the basic corrugated board business to innovation. Under the new strategy, the management decided to focus on new product development and be more proactive to develop more radical innovations. Beta had been working with incremental product improvement by adjusting the existing products according to specific customers' requests. By the new strategy, Beta expected to enlarge its market share and enter some new business areas through new product development especially more radical innovations. Since 2007, Beta had developed two new product platforms: the Shelf-Ready Packaging (SRP) and the Food-Safe packaging (FSP). Both of them were new to the company and the market. Under each platform, a series of products were developed based on the key designs and manufacturing technologies. The plan was to start with these two innovation platforms and add a third one in the future, as the cluster director explained:

Those two areas we have pushed very hard. We chose to work on these two areas some two and a half years ago that we really made a difference in the market-based innovation. We wanted to compete in the market-based innovation with those two platforms, and perhaps at a certain time, add a third platform and make the platforms bigger. That was the strategy. (Design/Product Development Manager, October 2011)

Anticipating market trend and searching for opportunities

The Shelf-Ready Packaging (SRP) is a packaging for consumer products especially for food. SRP has many advantages over the existing consumer packaging. Packed in SRP, products can be delivered to retailers in ready-to-sell merchandised units which can be placed on the shelves directly without unpacking or repacking. It is also regarded as “easy to identify, easy to open, easy to dispose, easy to shelf and easy to shop”⁷. Seeing the advantages of SRP, in the last few years more and more retailers started to require the food producers to deliver their products in SRP. As the majority of the customers are from food companies, Beta noticed this trend and also realized that no company in the market can produce or supply SRP. It therefore decided to take this potential opportunity to develop SRP and become a market leader. Beta also believed that more and more food companies would have to adopt SRP because of the increasing pressure from the retailers. This would give Beta a first move advantage and a big market share in this area. Without any knowledge in designing or producing SRP, Beta introduced SRP from another SCAP subsidiary Delta which was a leading company in this kind of packaging.

The idea of the second innovation platform Food-Safe Packaging (FSP) was triggered by the food safety regulations in the food industry. In order to prevent food from being contaminated during transportation, a new food safety regulation ruled that food should not have direct contact with the packaging. Since most of Beta’s customers are in the food industry, Beta believed that under this regulation, more and more food companies would start to use FSP, which provided another opportunity for the company to enter a new market area and become a market leader, since no one else in the

⁷ An agreement on common functional requirements for the design of Shelf-Ready Packaging was implemented by the Efficient Consumer Response (ECR) Europe working group

market could supply qualified packaging according to this new regulation. Beta then developed a series of Food-Safe Packaging with different degrees of protection, ranging from moisture/grease resistance to moisture/grease block and to total block packaging. By the time when the case was written, Beta was still the first and the only company that could supply FSP in the market.

During the development process, the design center at Beta also got some help from the R&D center of SCAP. Several workshops were organized involving designers from the innovation center and other design centers for brainstorming sessions to find better designs. Every month, project meetings were organized at Beta to track the new product development progress, reviewing the current phase and making plans for the next one.

Acquiring resources

After seeing the potential opportunities, Beta started developing the two new innovation platforms. The Shelf-Ready Packaging (SRP) was based on a two-piece packaging design called “Z-fold” which could not be produced on the machinery which Beta currently had. Being convinced that the new product would increase the company’s profit in the next few years, the management decided to apply for funding from the SCAP headquarters to buy a new machine which cost 115,000 Euro. In order to get approval for such a big investment, Beta had to present a detailed cost and benefit calculation to show the top management at the headquarters that the investment would pay off. At SCAP, the funding for a new product development project normally would only be approved when the benefit was assured. The decision-making about investment for a new project was based on a careful cost and benefit calculation, showing that whether and when this investment would be paid off. This was referred to as a “chicken-and-egg” or “catch-22” situation, as the design manager (who was also the product development manager in Beta) stated:

[...] we could invest in a new machine, so that’s one of the biggest challenges, is ... how do you [justify it]? It’s the “chicken-and-egg” situation, how can you develop something, you don’t have, and you don’t get the money to invest in it because you cannot prove you will sell it. It’s a *catch-22*. For me that’s really one of the challenges. We discussed it... We got a new customer, who will be our first customer of this two-piece box. And we need to start producing the box, that’s an investment, 115,000 Euros, and there’s no way to justify it. (Design/Product Development Manager, October 2011)

In the end the funding was approved and the new machine was bought, as Beta got a small order to deliver some samples from a customer, by which the management convinced the top management that there would be customers for the new product which the machines were to be used for and it would bring profit to the company. However, this was not easy, as described by the work manager:

I got a new machine by headcount reduction. [...] It has been used, so normally on Friday we have another test; we already have a customer behind it. So if there's no customer it's difficult to do, and you don't have the budget for failure. (Work Manager, October 2011)

Launching the new machine and providing training for production operators

After the new machine was bought, Beta also organized training for production operators. The training was given by technicians from the machine supplier and designers, including classroom learning and operational practice, e.g., what the different tools are used for and how to combine them to produce different packaging designs, etc. The training was full time (daily from 8:00 am to 4:00 pm) and lasted for three weeks. Eight production operators took leave from their work to participate in the training. However, the production people were very skeptical about buying the new machine from the beginning and not very motivated to participate in the training. The designers' proposal to launch this new machine to produce the new "Z-fold" design was met by strong resistance from production – producing the "Z-fold" design was too complex compared to the previous products; it was seen like "flying to the moon" by the production operators, as the design/product development manager put it:

[...] I think [for] people from the folder gluer where we made Shelf-Ready Packaging, it was really "flying-to-the moon" to them, because we were used to producing always the same boxes, and now it's too complex for them to do it. But I think we really managed to get them on board and I think it's because I sent one designer to that machine. (Design/Product Development Manager, October 2011)

Testing and producing the new products

After design and sampling, the box was sent to the manufactory for testing and trial production. Production was very doubtful about it because it was

seen as being against their KPIs (Key Performance Indicators) of volume, speed and quality.

And problems emerged as the production schedule was always full and the machines had no capacity or time for new product tests or trial production. In order to test the new design, production operators had to stop the regular production and adjust the machinery by adding special tools for coating on the machine, which was considered as “time-consuming”, as one production operator said:

It's time consuming, and it's very difficult in our production because we don't have that time. And we have some problems, i.e., we have to deliver the day after, and we have to do some test, because the time problem we cannot do the test. We have to move it to another date. Still if we do the test, we are also under time pressure, and that makes it very difficult for the production. We don't have the time to develop or to test. (Production Operator, October 2011)

Producing different products requires the use of different tools on the machinery. The production operators have to combine different tools on the machinery according to the production requirements to set up the machine before production. Each new box had different measurements (e.g., the strength and the size of the board), and therefore the machine set-up for one box could be completely different from another. Producing a new product means that production operators need to learn and find a new way to set up the machine. This setting-up work was seen as an extra job and time-consuming for production.

According to the production operators, it took more than a month to find an optimal way to produce SRP with the Z-fold design on the new folder-gluer machine. The first time testing took eight hours including the machine set-up time. Production operators then decided to search for a better solution to reduce the machine set-up time. However, after two weeks, when running the second test, production operators found it very difficult to set up the machine in the same way as last time. Although they wrote down the procedures, took pictures and made videos about how it was done, re-setting up the machine from scratch, fixing every bolt and assembling all the tools still took a lot of time.

Once the machine started running, operators also needed to constantly stop to check the quality of the new product. Due to the lack of experience, problems always emerged during the first few trials. It thus took several tests to get the desired quality. Even though the testing was planned to be done within one day, it usually lasted longer than expected because of all kinds of unexpected problems. The first test of the Z-fold design took five working days in total (in several weeks) to find an optimal set-up for the machine.

Therefore for the new machine, after the training and two months of practicing, production operators still complained that they did not have enough experience in handling it. “A one-time success did not assure the second or third time”, as one production operator said. The production still encountered some problems and it was still much slower than producing the normal product. According to the operators, usually the training might take two to three weeks, but the production needed about half a year to achieve a reliable production performance with the desired production volume, speed and quality. “The big issue is that we don’t have the time to train to find how we can produce the new products in the best way”, one operator stated. According to the work manager, for the Food-Safe Packaging, 20% of the production process was still “not under control”, while the manufactory would have to deliver the first order of pilot production soon.

Moreover, some products only needed to be tested on the converting machines, while others needed to be tested also on the corrugator which produced corrugated board for the whole production line. As there was only one corrugator in the manufactory, if it was used for new product testing, the production of corrugated board had to stop and there was no supply of corrugated board for the converting machine and production line; this caused even an longer waiting time in the manufactory. Besides, as testing the new product also stole time from regular production, some operators had to work during weekends in order to catch up on the normal production and make sure the customer’s order was delivered on time.

In sum, testing new products was considered as time-consuming and troublesome and undermining production’s performance measured by volume, speed and quality, as described by the work manager:

For example, the next Friday we will have a test and will block our production time. So I just say this machine will not be running, as it will in maintenance or is silent. I will test it; so it will not show up in my production statistics. But once it links to customer order, then it will be seen in my production statistics. (Work Manager, October 2011)

The main problem was it was new product testing and innovation were counteracting production's KPIs, as one production manager stated:

It's also very difficult for people, because we are a production site. We have to produce a lot of boxes to earn money. For the Food-Safe Packaging, we need a lot of extra time. So people understand that we shut down the machines to do some tests, to try again and again. But on the other hand, we are told that we have to produce [regular] boxes. So people at the factory have been questioning whether it works. Does the customer need that product? It's difficult to convince people from the production side working on the machine about the food-safe. (Production Operator, October 2011)

Besides, for production, innovation was seen as designers' job, and testing new products was like giving the machinery to designers for another job, as one designer stated:

And in reality our production wants to produce as fast as possible. If there's a problem, we take it away from the machine and we do another job. But there is not that much time to re-think or to test. (Designer, October 2011)

People from production also seemed very skeptical about these new products, wondering whether they could show the expected outcomes and therefore were not very enthusiastic about them. The designers usually went into the manufactory during the testing and trial production. Very often when they arrived there, the machines were still occupied by the regular production and the production staff seemed not very interested in testing and producing the new products. Design and production appeared to be playing an internal game due to their different jobs and KPIs (Key Performance Indicators), as one designer stated:

And often we are there, and production is not ready, nothing is ready, they are still doing their job. So we spend plenty of time sitting there and waiting. And the moment we are there to do the test for example, they are always thinking about the production [of the regular boxes]. That's a bit of the problem. There are different needs, like the production they really don't need our design. They have their own problems, they have their KPIs, they want to produce as fast and as well as possible, and then we are there with something special. So that's the game we need to play internally. (Designer, October 2011)

As the leader of the new product development, the designer manager took the responsibility of coordinating between the company's design, production and sales as well as top management. She felt it was very difficult to "have everybody on board". Apart from the design team providing support for her, other functions were not really cooperating in the process and the design manager had to "chase everybody", as she said:

So it's really important to have everybody on board. What is also important is that you have the right people, because I can't do everything on my own. I need to have a very strong team that is also thinking, pulling a lot, challenging people, and have a lot of discussions with them. If I don't have that I will be burned out within 6 months. You chase everybody. (Design/Product Development Manager, October 2011)

Commercializing the new products

Although the two platforms had been developed, their commercialization did not go very well. For Food-Safe Packaging, the company organized an event at the design center to introduce and promote it. People who had been involved in the development process from both R&D and innovation center were invited. Customers were invited to the event, and designers explained why FSP was important and how it was designed. However, according to the design manager, the price of FSP was about 44% higher than the regular corrugated boxes, and this appeared to be the major challenge in selling it. As the regulation for food safety had not been completely implemented, many food companies could still use the regular boxes as packaging for food and therefore were unwilling to pay such a high price for FSP.

The commercialization of the Shelf-Ready Packaging started already before the packaging was developed. Seeing the advantages of SRP, the demands

from the retailers as well as its application in other countries, Beta was convinced that it could be a potential opportunity for the company. While the designers were working on the design and learning the production techniques from their sister company Delta, the sales people were trying to introduce SRP to customers. However, trying to convince customers seemed very difficult. Although the market for SRP was well known and the market was already well-established in other countries, it was still very new on Beta's market. Most food companies and retailers had never heard about SRP before, it was a challenge to convince them about its advantages, especially when the price was much higher than for the regular packaging; the design manager said:

So we worked like this for half a year, almost a year, we couldn't sell anything. Because if we try to sell it from company Delta, the transport cost is so high, and also it's easier for them to ask premium in their market; because it's [a] very established market, and they are the only company that do it. There the retailers are really reinforcing this type of boxes – everyone uses this type of boxes. While in our country, nobody heard about it. So we still need to convince the customers and the retailers of its advantages. (Design/Product Development Manager, October 2011)

In particular, negotiating with the buyer (e.g., purchasing or procurement department) of the customer's company was very difficult, as they usually only focused on low price rather than added value in the packaging. Yet the marketing department and management were more likely to recognize the added value in the packaging and were therefore willing to pay premium for it.

By the time when the fieldwork was conducted, Beta was still in the process of searching for and negotiating with customers. They were still having meetings with one potential customer for the Shelf-Ready Packaging, and a pilot production was going to be conducted within one month, which would decide whether the customer would make an order. However so far the sales people haven't got any order for the Food-Safe Packaging.

To summarize, under the corporate innovation strategy, Beta claimed that it switched its strategic focus from basic corrugated board business to innovation and took a lot of action in their attempt to innovate. They initiated two innovation platforms based on anticipation of the market trend and regulation. These two new innovation platforms – the Shelf-Ready

Packaging and Food-Safe Packaging were both new to the company and to the market. However, by the time when the case was written, Beta had not succeeded in commercializing them. Beta's innovation attempts can be summarized as follows:

- Switching the strategic focus to innovation
- Anticipating market trends and searching for opportunities
- Developing radical innovations new to the market and the company
- Applying funding for resources
- Launching the new machine and providing training for production people
- Testing and producing the new products
- Commercializing the new products

6.3 Innovation outcomes

No profit and loss in basic business

Focusing on innovation and engaging in new product development for three years since 2009, the outcomes of innovation perceived by members of Beta were trivial. As they had not sold any of their new products, Beta have not received any financial outcome from its two innovation platforms. By the time when the fieldwork was conducted, Beta had got their first order for the Shelf-Ready-Packaging from a customer for some pilot production and were about to start producing it, while they had no orders for Food-Safe Packaging. The high price of the new products which “blocks” the customers, posed a challenge for the company. In addition, people complained that the cost of the new product development had become a burden to the company; this is described by the cluster director:

So we felt there was a big opportunity there, we developed these products and started to push out, and again the additional costs of these products is very a much big burden. It's a blocker to our customers. (Cluster Director, October 2011)

Moreover, Beta lost several customers in the corrugated board business due to product quality, delayed delivery and other service problems. The basic corrugated board business had shrunk, which was attributed to too much focus on innovation. People blamed the new product development for taking

too much time and energy from the company and thus it failed to manage its basic business and daily operation; as described by the design manager:

What you see is that we have focused on this (*innovation*) so much that we didn't manage the rest of the business very well, so we shrank and shrank. At the beginning of the year, we said that now we had to focus on our basic business again, because otherwise we would not be able to survive. (Design/Product Development Manager, October 2011)

Loss of faith and motivation for innovation

Furthermore, having been working on innovation for three years without seeing any success, both managers and other employees at Beta felt very frustrated and started losing motivation and faith in innovation. People also felt that the time and other resources devoted to innovation were not paying off. Hence, innovation was seen as extra work and had become a heavy burden for the company, which is explained by the quality manager:

I should say that, it's always the question about having some success. It can't change suddenly I think, but you need some success. It's very demotivating. [...] But in our organization, it's an extra effort, and this effort is very heavy, because we don't have all the means for that. [...] It's very demotivating if you do all these things for more than two even three years seeing very little result. And that's the point where some people start to doubt: "will it be successful?" because it doesn't come. (Quality Manager, October 2011)

Above all, the innovation outcomes at Beta are summarized as follows:

- No customer for innovation
- Loss of customers in basic business and declining financial performance
- Loss of faith and motivation for innovation

6.4 Reflections and future measures

Innovation takes a long time

The first reflection on innovation was that it took a long time. The process was much longer than Beta had expected. Since 2009 when they started developing the two innovation platforms, it took three years until they got the first order for pilot production for Shelf-Ready Packaging. And the Food-Safe

Packaging still hasn't got any order from the customer yet, as the design manager stated:

I think one thing is now we had a lot of focus on innovation, and what you saw is it works, but it takes a long time to get the results. It takes a year to develop the offer, and it takes a year to get your sales comfortable with it, and it takes a year for the customer to start to order. So at least it takes three years. It's a long-term strategy. (Design/Product Development Manager, October 2011)

For Beta, three years of development without any financial outcome was "too long"; people in the company started losing patience, which is described by the quality manager:

There was a presentation of marketing about where we were in the innovation, and that was not 100% successful. Too long, innovation takes too long. We were too impatient. (Quality Manager, October 2011)

For the finance department, the cost of new product development was the major concern during the long development process, which is explained by the finance manager:

[...] innovation takes a very long time. It's amazing, we thought six months then we will get the first sale. No way. One year later, sales are coming now, very slowly but they are coming. It takes a very long time. But at the same time you see your cost – you have to do something on your cost side, so it can be a balance (Finance Manager, October, 2011).

And for sales people, since their performance measurement was the sales volume, the fewer orders they got in the pervious year, the less budget and bonus they have for the next year. Therefore, selling innovation did not seem beneficial, as not managing to sell it would be seen as bad performance reflected on their KPIs, as the sales manager says:

What we see is that it is a hard work to get the new products into the market. It took more than a year, and even longer in some cases, so that might sound a bit frustrating, but we are used to having long development time with customers. In average it's six up to nine months. If you have it for one year or one year and a half, that's not that frustrating. The only frustration is that you have your KPI on the top in your budget, and you don't get it, that's frustrating. (Sales Manager, October 2011)

Innovation can only contribute to a small part of the business

At the beginning, Beta had high expectations for innovation, hoping that it would help the company become a market leader in some new market areas. However struggling with commercializing these new products, people at Beta started to doubt how much innovation could contribute to the business or whether this goal could be achieved at all. Facing the current situation, management realized that the new business from innovation was much less whereas the cost was much greater than the company had expected. A cost-benefit calculation suggested that the cost of innovation did not pay off. This is explained by the cluster director:

[...] there we've seen that the take-over of the [new product] development is very small. My view initially was when we push these product developments I said 10% of our sales needs to be generated from the new product development. Now we see this is only 1% or 2%. But 1% or 2% is not sufficient to keep pushing that. That's why we decided that we needed to slow down the work with innovation, we can keep developing it, but more in the background rather than in the foreground. And we could be much more cost focused. (Cluster Director, October 2011)

Innovation is not needed in the company or the industry

In addition, people at Beta also began to question whether innovation was necessary for the company. Seeing that there has been no radical development in the corrugated packaging industry over a period of about 150 years, whether a single company needed innovation through packaging design and how much it could make a difference to the company seemed questionable. According to the current situation, innovation has not brought any boost to Beta's business, as one respondent explained:

But I am not sure if this industry has a need in really putting a lot of effort into innovation. [...] So I question whether we really need to put so much effort in it, because there's a big cost related to it as well. And up to now I don't see really that we are close to a really big step that we are going to make. So I have big questions about it, if we really have a need for innovation. (General Manager of Plant B, October 2011).

Furthermore, as the main material of corrugated packaging is still the same as it was 150 years ago, and the production technology in the corrugated packaging industry has not changed much, innovation through design was

not really necessary. The current production technology will eventually not be able to produce complex packaging designs, as he went on to say:

[...] our business is not ready for that, because on the production side, there hasn't been any huge development to handle or to produce these different types of design and so on. (ibid.)

Moreover, the investment in innovation was considered as unnecessary. A cost-benefit calculation of the new product development, suggested that the cost of innovation does not pay off, as the quality manager said:

That (*design and test of innovation*) is our cost, our investment. [...] For products we want to launch, that's our investment. We will learn about the new things and help the customer at the same time and so on. We think that's our investment and [what] we should do. But if the customer says no, then of course it's our cost. Therefore after two or three years, when coming to the point we see that we have already had quite a lot of costs and investment, and we are not very successful, then you start doubting. (Quality Manager, October 2011)

Besides, the finance manager claimed that innovation did not pay off all the investments and efforts. Since the traditional corrugated packaging business is seen as the base of the company, innovation "doesn't add to the bottom line".

The basic business is more important than innovation

Furthermore, seeing the declining organizational performance, people in Beta started to doubt whether the innovation strategy was the right one for the company; this is shown in the previous work manager's words:

Speaking about innovation is like speaking about world peace, but what is it? I challenge it. I think we don't do it, [...] we are busy but what are we busy for? I think first of all we need good KPIs, and good lean thinking [...] we are here for a reason: to satisfy customers. My argument is that [we should have a] stable good manufacturing base, a strong quality, and then we can consider innovation. (Previous Work Manager, October 2011)

Therefore, compared with new product development, production efficiency and product quality were considered as the key to satisfy the customer and more important than innovation. Innovation should only be considered when the basic business was managed well. Hence, given that the company had lost

several customers in the basic business in the last three years, resuming the basic business was seen as the most urgent issue that the management needed to address and therefore had the highest priority in the company; this is explained by the sales manager:

You still need it [the basic business] because you need that layer and the minimum volume to work on. And if you are losing too much on your basic volume, you need to regain that before you can work on innovation. It's like Maslow's pyramid, if you want to get there but you are hungry, it won't work. You need to do it step-wise. (Sales Manager, October 2011)

At that moment, facing declining business and the loss of customers, people at Beta realized that the company should prioritize the basic business in order to build “a solid base” for the company's daily operations and innovation, as the sales manager puts it:

In our market at this moment we are really struggling in the sense that we have been losing a lot volume during the last years, [...]. What we need right now is have a solid basis again, and to get to that solid basis and build on it [...]. We are still building on that solid basis. (Sales Manager, October 2011)

Even the design manager who used to take a leading role in Beta's new product development process and tried very hard to push the innovation project forward started to admit that the company needed to focus more on the basic business. And focusing too much on innovation could put the company in risk of “losing everything”, as she stated:

This thing (*innovation*) is important, but the other thing (*the basic business*) is more important. You see it becomes much harder to maintain this (*the basic business*). There's a risk that you are going to lose everything. So it's really a very hard struggle to be able to introduce new things and get results from them. (Design/Product Development Manager, October 2011)

Furthermore, the design manager used a metaphor to describe the relationship between the basic business and innovation – if the basic business is like a bowl of “soup”, innovation is only the “cream on top of the soup”. Although the cream can make the soup rich, it cannot replace the soup. Hence, although innovation could bring novelty and differentiate the company from its competitors, it cannot replace the basic business, as she illustrates:

But for me it's like a triangle, or the cream on [top of] the soup. If you have the soup, and the soup is your business. The innovative part is on the top, [...]. You need to have that total mix. You can't only ask for innovation, because you will have it, but this will be too small, and then you will still be hungry in the business. If you only focus on this (*basic business*), you will have a lot of soup, but it's only water, it's too diluted. (Design/Product Development Manager, October 2011)

In all, people at Beta considered the problem was that the company had put too much emphasis on innovation while neglecting the basic business which still constituted the majority of the company's sales and profit. A company's product portfolio should be a mix of both basic business and innovation, and the portion of them should be balanced. Since the new product development was a long-term process, the basic business should play an even more important role in supporting innovation.

Innovation should be based on customer needs

With the innovation strategy, Beta decided to take a more proactive approach to develop radical innovations instead of reacting to specific customer requests, with the attempt to open a new business area and become a market leader. However, seeing customer's reactions to the two innovation platforms, people at Beta concluded that these steps were "too much ahead", that customers and market were not ready to realize the needs of them, and therefore it was difficult for customers to accept these innovations. For both of its two innovation platforms – Shelf-Ready Packaging and Food-Safe Packaging, Beta was the first company in its market to develop them. The Shelf-Ready Packaging was introduced from its sister company in the same region, while the Food-Safe Packaging was completely new and developed entirely at Beta. Initially, Beta anticipated that the pressure from retailers and food safety regulation would push the food companies to use Shelf-Ready Packaging or Food-Safe Packaging. However, so far this force seemed not strong enough. Therefore there is very little incentive for food companies to adopt the Shelf-Ready Packaging or Food-safe Packaging and pay a higher price for them. "The market is not really ready for those products at the moment", the supply chain manager stated.

Moreover, it was realized that being more proactive was also associated with higher risk. Compared with incremental innovation, breakthrough innovations could bring significant growth if they succeeded, the loss would

also be higher if they failed. Therefore incremental improvement of the existing products according to customer requests seemed to be a safer approach than radical innovation which provided customers with completely new products; the cluster director explained:

You see when entering a new market, if you are too innovative and want to be paid for all these efforts, you will be disappointed. So [we need] a little bit of innovation, small differences in the product, very small. So incremental innovation helps you get new business. Big steps, breakthrough innovation, or bigger projects of innovation are actually very difficult for the market to absorb, because you use a lot of energy, and you get no rewards for it, and the market is not prepared to pay for it. (Cluster Director, October 2011)

Future measures

Seeing that innovation has not brought any new business, and considering the declining organizational performance, the limited outcome of the innovation platforms and the shrinking basic business, it was realized that the most urgent issue for the company was to consolidate operations and resume the basic business rather than focusing on innovation. As the previous work manager stated, now the main task of the company is:

[...] to return to the overall operational excellence basics, and first of all, look at ourselves and start to be good at what we should do. (Previous Work Manager, October 2011)

Therefore, the management of Beta decided to change its strategic focus from innovation back to the basic business after three years of new product development. And the initial idea of developing a third innovation platform based on the current trend of sustainability was also discarded. This new strategy suggested that sales people would still try to sell the new products developed under the two innovation platforms, but all the other new product development activities were withdrawn. The current priority of the company was to change the focus back to what the company used to do before – maintaining the existing business and customers, i.e., reducing cost, improving production efficiency, sales volume and customer service. Instead of innovation, another way of being a good packaging company was to provide customers with good service and maintain its traditional business. And among all these practices, cost reduction was seen as the most important, as the cluster director suggested:

And therefore we changed our approach. We said, rather than wanting to make a difference with new product development, today we say we need to make a difference with cost. So in a rational cost conscious world, [...], it is a very competitive market; it is more cost conscious and far less keen to adapt to new products. (Cluster Director, October 2011)

The cluster director further explained that although the current priority of the company was to focus on the basic business, it did not mean that innovation was completely discarded. Innovation could, and only would, be considered when the company had regained its prosperity in the basic business, as he stated:

We focused a lot on innovation in the last three years, but now we changed the focus back to volume, to the basic business that we have. Because it takes a lot of time to put the new product to the market and we haven't seen any delivery yet. But it's also not black and white. It doesn't mean that we don't need innovation any more, we still need it but with less focus, because we need to lower the cost to keep the basic business. (Cluster Director, October 2011)

The new strategy was therefore referred to as a “double strategy” which focuses on the basic business but does not completely exclude innovation. However, innovation should be “standing by” until the company regained the health of its basic business, as the quality manager suggested:

But in my mind, it (*innovation*) is still lying there. For me it's just a sign [of] saying that “let's wait now for some time”. If we have a project, we will still do it, and then if you are successful we will re-launch them (*the innovation projects*). But for the moment, we have done enough investment already. If the opportunity for innovation comes, it's better. If it doesn't come, maybe we have to change our vision. (Quality Manager, October 2011)

This also suggested that even if the company is going to resume innovation in the future, it should take a less proactive approach. The company should innovate “in a smart way” – be more cautious before initiating an innovation project and make sure that there are customer needs for it and the sales volume is big enough to cover the development cost, as the supply chain manager stated:

We put immense energy, time and money in it (*innovation*), which we never get back. So what we decide now, for new product development, we don't say "no, we don't do it any more"; we want to do it in a smart way; we want to see what the potential is of that customer, what is the volume behind it, and then we go into [...]. That's what we did before, and then you see the cost of innovating, the design and the overhead cost is going very high without the volume coming up. That's not smart. (Supply Chain Manager, October 2011)

The finance manager held the same opinion. Seeing a major obstacle for commercializing the new products was the high price due to the high development cost, the finance manager further suggested that the company should focus on consolidating the basic business, increasing production effectiveness to reduce the cost, which is the base of the company in order to compensate the cost of new product development; this is shown in the following words:

My opinion is that we have to work on cost effectiveness and production, and use the benefits that we have there to invest in innovation, to make sure that we still have the competitive price. (Finance Manager, October 2011)

The quality department suggested that instead of focusing on developing added value packaging to be an "innovator", the company should focus on improving customer service, product quality and being a "good supplier" to customers; the quality manager suggested:

[...] Now we need to maintain, put in efforts in serving the customers, in on time delivery, OTIF⁸, all these types of things, being a good supplier for the customers, taking care of the service elements. (Quality Manager, October 2011)

After changing the strategy, in September 2011 with the new focus on the basic business Beta's financial report showed that business started growing. This was believed to be a result of the strategy change and the increased volumes of basic business. The finance manager describes this:

⁸ OTIF: On Time In Full Delivery; this indicates how many deliveries are supplied on time without any goods missing.

Last month was the first positive month in 12 months, I think. I hope we are going up now, I really hope so. We will believe in it. But it will not be because of innovation. The switch is not made by innovation but by the basic volume. Everything of innovation is welcome, but it [should] help us make the basic good. (Finance Manager, October 2011)

And the supply chain manager's words also showed:

Let's focus on the things we are doing right at the moment, what is very important now [is] to satisfy the existing customer and get new customers in. And we are doing very well at the moment; we see the business is growing and increasing. And then we can go further with the new products. (Supply Chain Manager, October 2011)

Above all, reflections on innovation is summarized as follows:

- Innovation takes a long time
- Innovation can only contribute to a small part of the business
- Innovation is not needed in the company or the industry
- The basic business is more important than innovation
- Innovation should be based on customer needs

Accordingly, the following measures were taken in the company:

- Changing the strategic focus from innovation back to basic business
- Focusing on consolidating operations and resuming the basic business, e.g., increasing production efficiency and volume, reducing cost and improving product quality.
- Leaving innovation "standing-by" until the company restores the prosperity of the basic business.

After the innovation strategy from SCAP headquarters was introduced to Beta, the company took action to develop more radical innovations. Major efforts were put into the development of two innovation platforms. Both management and employees were very enthusiastic about innovation at the beginning, with the expectation that innovation would bring new business and profit to the company. However, after three years of new product development, these two innovations have failed to be successfully commercialized. Moreover, Beta also lost several customers during this period due to quality and customer service issues in the basic business. Both management and employees felt demotivated and frustrated about innovation. People started to question whether innovation was the right strategy for the

company. In the end, the management of Beta changed its strategy back to focus on the basic business and prioritize cost reduction and production efficiency in order to restore the prosperity of the basic business. The empirical findings from Case Beta can be summarized as follows in Table 6-1:

Table 6-1 Summary of the empirical finding from Case Beta

Cultures of organization	Innovation activities	Innovation outcomes	Reflections and future measures
<p><i>The dominant culture:</i> Corrugated board is the core for the company.</p> <p>Productivity.</p> <p>There is no need for innovation; we are already innovative enough.</p> <p>Certainty.</p> <p><i>Prominent subcultures:</i> Production: the values and beliefs of the dominant culture are more prominent within production than the rest of the organization, i.e., focusing on corrugated board business, productivity, stability and simplicity; it is also believed that innovation is only the designers' job.</p> <p>Design center: share some values and beliefs different from the overall organizational culture, including openness, innovation, and proactivity.</p>	<p>Switching the strategic focus.</p> <p>Anticipating market trends and searching for opportunities.</p> <p>Developing radical innovations new to the market and the company.</p> <p>Applying funding for resources.</p> <p>Launching the new machine and providing training for production people.</p> <p>Testing and producing the new products.</p> <p>Commercializing the new products.</p>	<p>No customer for innovation.</p> <p>Loss of customers in basic business; the declining financial performance.</p> <p>Loss of faith and motivation for innovation.</p>	<p><i>Reflections:</i> Innovation takes a long time.</p> <p>Innovation can only contribute to a small part of the business.</p> <p>Innovation is not needed in the company or the industry.</p> <p>The basic business is more important than innovation.</p> <p>Innovation should be based on customer needs.</p> <p><i>Future measures:</i> Changing the strategic focus from innovation to basic business.</p> <p>Focusing on consolidating the operation and resuming production efficiency, e.g., reducing cost, improving product quality and increasing production volume.</p> <p>Leaving innovation "standing-by" until the company resumes the prosperity of the basic business.</p>

Chapter 7 Case Gamma

Gamma is a profit center of SCAP located in Northern Europe. It has three corrugated plants in three different locations, each with a design center, and also two EPS (Expanded Polystyrene) plants. Gamma's product portfolio includes American folding boxes, display and outdoor commercial packaging, packaging line and logistics solutions. The corrugated packaging is the company's core business which constitutes 61% of its total turnover. In the market, Gamma has three major competitors and the market share has been relatively stable over the years. As the second biggest player in the market, Gamma has 28% of the market share, following the biggest competitor which has 34% of the market share (Gamma's company document, 2010). Gamma's major customers are small and middle-sized companies from the food and beverage industry.

The three corrugated plants at Gamma used to be three independent profit centers, each with its own management team, production facilities, design center and sales team. At the end of 2011, Gamma's management restructured the whole organization and the three plants became one profit center. The following measures were taken in the restructuring: (1) integrating three plants into one corrugated division, (2) keeping the local management team in each plant, and (3) restructuring design and sales under the central management of the sales director of the corrugated division. And the purpose of this restructuring, as stated in the company documents, was to:

- Strengthen our competitiveness.
- Take advantage of our production resources in the best way.
- Utilize the full power of our offering to the market.

(Gamma's company document, 2011)

According to the management, the main purpose of the organizational restructuring was to centralize sales and design in the company, bring all the three corrugated plants together and make them work as one unit instead of competing with each other for customers, which often caused conflicts between the plants. All the design centers and sales people were to serve the whole SCA Gamma instead of only their respective plants. It was also expected that the plants could learn from each other without being restricted by the design and production capabilities of the local plants. As the product development manager stated:

We want to bring the corrugated plants closer together not working autonomously but working as a corrugated unit in Gamma. So corrugated Gamma is not three different plants, because you get conflicts between the plants. When you have the sales force belonging to the plant, even if you say you should share the customer, [...]. For instance, if you have a customer who needs a board that is not produced in plant A, that sales person is going to do everything to produce this board in plant A because he belongs to that profit center and he's not going to sell for plant B. (Product Development Manager, February 2012)

Therefore, after the organizational restructuring, the three corrugated plants were no longer independent of each other but three production sites with one profit center – the corrugated division. Each plant still kept its own management team, including plant manager, supply chain manager, finance manager, production manager and HR manager. And all the local management reported to the production and supply chain directors of the corrugated division. However, the design center and sales team of each plant were centralized – they were no longer managed by the local management team but by the sales director of the corrugated division. The designers and sales people at each production site did not only work for the local corrugated box plant and serve local customers but for the corrugated division and served customers from different regions in the country.

7.1 Cultures of organization

Several core values, beliefs and assumptions shared among members of Gamma are identified and discussed as follows.

Profitability

The first important value orientation in Gamma is profitability. All the activities in the company should be able to be associated with financial performance – profit which can be calculated. This strong emphasis on profit can be seen in the performance measurement in the company. The organizational performance is measured by an index called CBI (corrugated business index) which is a measurement of profit margin. The performance of each functional department is also associated with profit. In the sales team, their performance is measured by “contribution”, a combination of both the sales volume and profit, in which profit carries the greater weight. Each sales person’s profitability of both conventional and new packaging solutions which they sell is tracked. High profit can be achieved through either selling traditional corrugated boxes in large volume or selling packaging solutions with high profit margin. As the sales manager stated:

[...] profit is the most important KPI, because [...] it’s not important to have a lot of volume in the factory. We must have good profit and things we do. But you must have good volumes to have profit. But for me it’s important with a growing profit. For me it’s better to sell innovation, a little smaller volume with innovation products, which we can get a high profit on. (Sales Manager, April 2012)

This measurement thus provides sales people with motivation to sell innovation, as one sales representative says:

One goal is square meter, [and] one goal is how much money from those square meters – [it is] actually profit, and then new customers. We want a lot of square meters but we want a lot of money for them too. Here you go back to the question, if you innovate or have a new idea, you can earn more money. And you come to one customer and try to make them your customers, if you just use the solution you already use, then there’s not much profit from it. (Sales Representative, April 2012)

The performance of the design center is measured by hit-rate which refers to the number of designs eventually adopted, produced and sold to customers, which also finally leads to the profit for the company.

Sales is the driving force of the business

As high value has been placed on profit, sales function is seen as the driving force of the company and therefore enjoys high status at Gamma. Sales people are seen as “the leaders” who drive the profit. “To sell” was referred as “what the whole business is about” and the “main goal” of the company. Other functions at Gamma are seen as supports to sales function. For example, the design center is seen as “a part of the sales process”. Under the new organizational structure, the design centers are seen as a part of the sales structure and all the design managers report to the sales director of the corrugated division. To sales, as the goal of the company is to make profit by selling packaging solutions with added value instead of standard corrugated boxes, design also plays an important role in this process. Designers create value by designing packaging solutions, and sales people realize this value by introducing and selling these packaging solutions to customers. Therefore at Gamma, design is seen as an important support to sales, as the sales manager said:

Design is a very important part of the whole sales structure. We don't sell products but solutions. If we talk about innovation, it's quite important. A lot of customers buy products, standard boxes or so, but we want to go to the customers who want total solutions. When you talk about total solutions, you often talk about innovation. Then everything starts in our design center. For me that's natural that design belongs to sales. (Sales Manager, April 2012)

Besides, as the sales people have direct contact with customers, they also have a great influence on the decision-making related to customers' requests, as the product development manager also explained:

If there's a decision to be made, sales always take over if the customers report to sales. [...] because design centers are absolutely part of the sales process, and it's part of selling the solution to the customer, it's a part of creating the value, a part of communicating the value and a part of commercializing that value. (Product Development Manager, February 2012)

Moreover, the organization's structural change was also seen as a sign that design's status had been raised in the company. Designers were proud of

being part of the same organizational structure as sales people, working together with sales people more often and being invited to customer meetings or workshops organized by sales people. To designers and members from other functions, this was seen a sign that design had become “more important” in the company. Before the organizational restructuring, designers had very little opportunity to meet customers. In most cases, it was the sales people that got the orders from customers, decided which type of packaging to offer and then gave the specification to designers. Designers then made drawing and painting according to the specification from sales people. Sometimes, sales people just brought some boxes to the design center and asked designers to make a similar one. Designers did not get much information about the background of the customer or the product. They felt like a “copy machine” and their work was just about “copy and paste”.

After the organizational restructuring, designers were more often involved in customer meetings and all kinds of workshops organized by sales people, which gave them the chance to ask customers questions and discuss possible solutions with them. The designers felt that they could make an impact on the product design instead of just following sales people’s instructions, doing “copy and paste” work. The designers considered themselves as the “instrument of sales people”, and their role was to help sales people to better serve the customer to “get more orders” and “earn more money”. Therefore, the designers felt more important and valuable than before. As shown in one designer’s words:

[...] today we are bringing the knowledge and the effort of the people from design center to help the sales people move further in the project [...]. Personally, or we are all agreed that this copy-paste as what we did before is really not the way of working, and you don’t get the benefit, if it doesn’t develop us as designers, you are just a copy machine. Instead we are doing this new way of thinking, we are looking more at the transport chain, can we change something or make them earn more money, and of course, to help us get more orders, I think it is more focused today than before. (Structure Designer, April 2012)

Furthermore, sales people are seen as the “team leaders” in new product development. They contact customers, bring customer requests to the design center, initiate new product development projects, arrange customer meetings

and workshops, and coordinate different functions as well as between functions and top management during the new product development process.

Balance

Another important value orientation in Gamma is balance. This is manifested and expressed in many different aspects of the company's operations at both departmental and organizational level. This value put on balance is also expressed in different ways in different functions. For instance, production should use the production capability as much as possible but at the same time have some flexibility to test new products. Sales people need to keep a balance between selling standardized products and innovation in order to meet the KPIs consisting of both volume and profit, as the conventional standard products are usually sold at large volume but low profit margin, and the innovation products usually have high profit margin but are sold with lower volume. The finance department keeps track of the profitability of both the new and the traditional products. Designers should "think outside the box" to be creative but at the same time consider the manufacturing capability to make sure that design can be produced with the current production capability.

At the organizational level, this balance mainly focuses on the following three aspects: the traditional corrugated business and innovation, the novelty in design and production capability, and developing radical innovation to be a market leader and focusing on incremental changes to be a fast follower.

First of all, in the company's business, the balance should be kept between the traditional corrugated business and customized products and innovation. In Gamma's company document, the goal of the company is stated as:

Our mission is to develop, market and produce packaging mainly in corrugated paper packaging, with the purpose of improving packing, transporting, handling and selling of products, primarily for our business market. (Gamma's company document, 2012)

As the mission statement suggests, the traditional corrugated business is the main business of the company. The traditional simple corrugated boxes are seen as standard, cost-efficient, having high quality and easy to produce. They are referred to as "classic" and the company's "bread and butter". However, at the same time, Gamma considers itself as providing customers with packaging solutions instead of packaging products. In the traditional corrugated business,

packaging is usually seen as a commodity and needs to be sold in large volume to give high profit. A packaging solution takes the customer's entire value chain into consideration, including packing, transporting, handling and selling, and from manufactured products until they reach the end users, which can add value to the customer's entire value chain, Therefore this goal shows the company's intention to keep a balance between corrugated business and innovation.

Moreover, Gamma's focus on profit also suggests a balance between the traditional corrugated business and innovation. Profit is the most important indicator for the organizational performance and all the functional performance indicators are directly associated with it. Profit is further broken down into two indicators – volume and profit margin. The traditional corrugated business refers to simple corrugated boxes which are usually sold at large volumes, while new products involving innovation have a high profit margin. Therefore in order to get a good profit, the company needs to have both volume and profit margin, which suggests a balance between the traditional corrugated business and innovation. As the product development manager stated, "If there's no balance, we are behind".

This balance is also seen in Gamma's production facilities and product portfolio. Apart from the two corrugated plants producing American boxes, Gamma also has one EPS (Expanded Polystyrene) plant and one EPP (Expanded Polypropylene) plant producing protection and cushion materials. It also has trading operations (a business unit which buys corrugated boxes internally from Gamma, combines them with all kinds of other things, e.g., cushioning, protecting materials and sells them to customers, mostly to small companies with specific requests), display operations and consumer display. According to the sales people, 50% of the customers are asking for new products (adjustment to the existing products) and 50% customers order the standardized products. In terms of turnover, 40% of the company's turnover is from the American boxes.

However, the packaging design at Gamma still focuses on corrugated board, while other materials are rarely considered. This focus on corrugated board became a constraint to the designers' creativity, as one designer stated:

Today we are very focused on corrugated [board]. But I think also that for the sales it is very important that we keep up the volumes, so to be honest we are not so open to new materials, even if I have a thought on making a lid for a box, which I want it to be made in plastic, for example, you often get “No” to it, or they try to change it to corrugated. Of course, that’s the problem. We want to sell as much corrugated as possible. The customer maybe has some requirements, so you have to listen to the customer also of course, and not just shut the door totally. (Structure Designer, April 2012)

Secondly, in new product development, Gamma also tries to keep a balance between the novelty in design, the production capability and cost. The packaging design should be “as good as possible” so that it can solve customers’ challenging problems; at the same time, it should not exceed the current manufacturing capabilities, and also have a competitive price. This poses challenges to designers – they have to provide packaging designs which can satisfy customer, production and sales. Therefore, the designers’ “major task” but also the “biggest challenge” is to make creative designs both “production-friendly” and “cost-effective”. And the major problem exists between design and production. When a design is made into a prototype and sent to production for testing and trial production, production usually is not willing to do it because testing new products can add complexity to the production procedure and slow down the production, as one designer says:

If I come out with a quite complex box to them, they will of course say no. [...] Today the production is very... they only focus on the machines which must run at 100% of their capabilities. They are checking the time – how fast it can be. So if I come with a bit more complicated project, they will say “It’s not good for us”. (Structure Designer, April 2012)

Designers claimed that they often felt restricted by the capability of the machinery. “There is always a challenge to make them as good as possible with our techniques”, one designer said, and another designer stated:

I have my vision of how I want this box to become, but then I have to change a lot of my thinking just to get it to our production, that’s one of the biggest challenges that I have daily, to make them production-friendly [...] (Structure Designer, April 2012)

Thirdly, in innovation, the balance also exists between being a market leader and a fast follower and between radical innovation and incremental changes.

At Gamma, it is considered that the company should be neither too aggressive nor too passive in innovation. Radical innovation is seen by Gamma as something which is not based on customer requests. It can be an eye-opener for the customers and “a big leap” for the company to become a market leader. However, seeing the corrugated industry as static and conservative, people from Gamma also felt that being the first one in the market to develop radical innovation can be risky and the customer might not be willing to buy it. Incremental improvement of existing products according to customer requests and fast response to market change seem to be a safe approach in innovation, while always passively reacting to the market change and to a follower behind competitors can also lead the company to losing opportunities to competitors. Therefore a balance should be kept between being proactive to develop radical innovation and be a market leader and being reactive to focus on incremental changes and be a fast follower. This is described by the product development manager:

In many senses the corrugated business is the faster follower, because the market, like I say, is very static, in that sense. The market is not open to radical innovation because it's very conservative I would say. But sometimes when something happens, you see innovation is possible to go to the market and it can actually open their eyes and you can make big leap in the packaging industry, but it doesn't happen very often. You have to come up with small things that customers think are creative, do small changes, introducing a trend that we've seen ... (Product Development Manager, February 2012)

Therefore, Gamma also tries to find a balance between risk-taking and risk-avoiding. Designers are encouraged to be creative and explorative in product design, especially when facing situations which they never met before, e.g., the use of new materials, new technology, etc. They need to be creative and open to new solutions and sometimes even step “out of lines”. “If we don't take the risk, we stop there; we can't take one step forward”, as the design manager stated. However, Gamma rarely took proactive action to develop new packaging without specific customer requests. Being proactive and developing something new without specific customer requests can put the company at risk that there is no need for it. As in the finance manager's words:

From our design point of view, we are out of these lines often, because we try new things... but I think the key is that if we make something new, we don't just do it and send the boxes to the customer, we involve the customer and try it. We often say that we must try it, we must try one sample and send it to the customer and see what the outcome is. Because if we change something, it also depends on whether the customer wants it or we have to try to improve with the customer. (Finance Director, April 2012)

According to the design manager, trying new things is like being "on thin ice", and involving customers in the process is seen as a good way of reducing the risk of producing something that is not needed by the customer. Any change beyond customer requests is discussed with the customer in order to make sure of agreement. As the design manager stated:

Even if you are on thin ice, or you could say so, you could interact with the customer. We test it with the customer. Of course we make solutions which do not work or break sometimes, but then we are also close to the customer, so the customer can understand. So the risk is not so high. We don't lose the customer. Because if we have a risk project or something, we have a close relationship with the customer and we told them what can be a problem. But if you want, we can try it and support you with samples or something. (Design Manager, April 2012)

Compromise

Another important value orientation for Gamma is compromise. When the balance cannot be achieved and conflict emerges between different parties, they need to compromise in order to find a mutually agreed solution to solve the conflict. This is achieved through communication. For example, designers and production operators often discuss how to keep a balance between the novelty in design and production capability. In the end, even though production people are willing to cooperate, there is a limit regarding to what extent the machines can be adapted to a new design. Therefore, most of the time it is the designers who adjust the design. Although doing so makes designers feel that they are constrained by the production capability, they choose to compromise in order to solve the problem and avoid conflicts with production. A designer said:

So we have to compromise sometimes. Yes there is a bit of conflict, but at the same time we have become better to communicate with the production and they have learned to see that you can't make only simple boxes, because others can often make them at the lower price, then we are not competitive. But sometimes it's tough. (Structure Designer, May 2012)

If there is any problem in the production process, it is the designers' job to go to the factory and negotiate with the production operators. Most of the time the design needs to be changed in order to make sure that it can be produced on the machinery, and at the same time, to make sure customers agreed with those changes, as one designer said:

All the designs that I am ready [with], they should be OK to produce. It won't be that big problem. But sometimes they (*production*) can't produce at the speed that they wish, or they have to change one color before another, if they get these problems, they could also make some smaller changes in the machine. If I am not sure whether we can produce it or not, I always talk to the responsible person at that machine and see what he or she thinks, whether you think it will be OK. And then I get back to the customers and discuss the problem with them. (Graphics Designer, May 2012)

Management also takes responsibility and plays an important role in mediating in the conflict between different functions to make sure that they reach an agreement and the new product development process can move forward. If managed well, the conflict can even be beneficial to the company, as when different functions negotiate with each other, they actually challenge each other by "pushing each other to the boundaries". And the agreed final solution will take into consideration the needs of each function. The product development manager explains:

[...] that conflict needs to be managed. [...] If he (*the manager*) had that conflict, he knew that he was right in the middle, because he was challenging production to do more innovative solutions and actually produce what they designed, and he was challenging designers to do that. And at the same it was a sort of healthy conflict, so he was constantly challenging and pushing the boundaries. (Product Development Manager, February 2012)

Being content when it's good enough

Members of Gamma also share an important value of "being content when it's good enough". If something is good enough, people are content and there

is no need to make more effort, because it does not have to be too good or much better. All the efforts aiming for improvement should be made gradually. The company should do “a little bit more” and “a little bit different” every time to make things “a little bit better”. And if there is a small improvement, it’s good enough. This is described by the product development manager:

If I do what I’ve always done, I delivered a good enough solution. We can have a margin this high. But if I put another four hours of thought process into that solution and redesign it, I do something which is a little bit different, a little more interesting to the customer, possible to have a little higher margin. So where is that peak of that curve, if you have effort versus margin? So if I put in more effort, I get a higher margin. (Product Development Manager, February 2012)

And Gamma was also very content with its current situation, including the market share, the hit rate at the design center, and proportion of standard products and new products in the product portfolio, etc. Everything seemed “good enough”. There was no incentive to make big changes, as the product development manager went on to say:

Unfortunately it’s good enough, because we have 30% market share, we have 41% hit rate, which means that if we just keep our sales years up, if we deliver good enough and the customers buy good enough, that’s fine. But it’s not innovation. It’s standard boxes with standard features priced at a cost sufficient rate to the customer. If you keep that, there’s no incentive or motivation to go for innovation. (Product Development Manager, February 2012)

Besides, the company was also very content with its current position in the market and the image among customers. People at Gamma believe that the company is the “best” at serving customers in terms of providing them with packaging solutions which add value to their whole value chain, instead of just providing standard corrugated boxes. Compared to other competitors in the market, Gamma sees its competitive advantage as the “full-scale knowledge about the whole packaging” rather than low price. And the company considers itself to be “one of the best actors in the market” and “doing better than the competitors”. Customers chose Gamma for its ability to present packaging solution to solve their problems, and view the brand of

SCAP is “more premium” than other competitors. Above all, the main organizational values and beliefs are summarized as follows:

- Profitability
- Sales is the driving force of the company
- Balance
- Compromise
- Being content when it’s “good enough”

7.2 Innovation activities

Adopting the innovation strategy

When the innovation strategy was introduced by the headquarters to Gamma, people at Gamma did not consider it as completely new. Seeing innovation as incremental changes to the existing products in response to specific customer requests, managers of Gamma considered that the company had been carrying out innovation on a daily basis without explicitly talking about innovation – the word “innovation” was not clearly “out-spoken”. Although Gamma was very satisfied about its current situation in terms of profit level and market share, the management still felt the pressure from the competitors. According to the product development manager, everyone in the market was “running” as they developed new products, being less innovative and staying in the same place was like “going backwards”, which will eventually make it difficult to maintain the market share and profit, as he further explained:

But if you keep doing what you always do, you will always have what you have got. And if you don’t develop, you actually stagnate. Since everybody around you is running - taking the leading role and running away from you, you are actually going backwards. Because if you don’t have innovation, you won’t develop; you won’t be new to the market, and you are not attractive as a packaging supplier. So without innovation we will have 20% market share, and we won’t earn any money. (Product Development Manager, February 2012)

Therefore, innovation is seen as the key to maintain the current financial performance – “to earn a lot of money” and maintain “good profit”. This is explained by the sales manager:

In order to earn a lot of money and good profit, you must have innovation. We have to compete in this (*innovation*) with those companies only working with standard boxes. I think their profit is not so good. (Sales Manager, April 2012)

Innovation is also seen as “the only way” for Gamma to differentiate itself from the competitors, escaping from the low price competition and maintaining the financial performance, as one designer said:

It (*innovation*) is actually the only way to go. It’s the right way. I mean if we want to be a company selling at [low] price, then we will not earn any money in the end. But if we are going on the innovation track, then we will keep up the good figures. (Structure Designer, April 2012)

Therefore, facing the pressure from the competitors, in order to maintain the current position in the market and financial performance, management at Gamma decided to adopt the innovation strategy initiated by the headquarters, be more proactive and search for ideas to develop more radical innovations instead of responding to customer requests. The product development manager explains:

[...] we want to show a lot of innovation power within SCAP. So we want to create solutions from scratch. Just if you perceive a problem or see something out of the market, or see something that we can improve, we can do something about it. And then we go to the customer with a concept – it’s design that comes up with the idea. So the innovation power or ideas can come from both sales and design, but most often from sales, since they are the ones who are out in the market. (Product Development Manager, February 2012)

Being more proactive: initiating Monthly Innovation Project

Accordingly, under the new innovation strategy, at the beginning of 2012, Gamma initiated a project called “Monthly Innovation Project”. In this project, each sales person was asked to bring three ideas that he/she considered could be developed into innovation projects in the company every month. They could be challenging problems that customers wanted to address – something “almost impossible to find a solution to”, or the challenges facing sales people when they tried to get access to customer. These customers were referred as “dragon customers”, as they had a good profit margin and volume but were “almost impossible to get access to”. Every

month, the design center would choose one of these ideas and develop it into an innovation project. The target was to have 10 to 12 innovation projects every year. Designers were encouraged to be as creative as possible and to think beyond their routine work in order to provide solutions to solve these problems or challenges.

One product developed in the Monthly Innovation Project was a packaging designed for a meat producer with a premium brand in the market. Seeing the good profit margin and large sales volume, the sales people from Gamma were trying to become a packaging supplier for this company for 12 years. However, since the company already had a really a stable relationship with its current packaging supplier, the sales people from Gamma never succeeded or even got the opportunity to negotiate with the company. The purchasing manager of the company always stated that they were very satisfied with the current packaging supplier and were not interested in changing it. The sales people refer to this company as a “dragon customer”.

In 2012, the sales people brought this case into the Monthly Innovation Project. The purpose was to design a packaging which could be interesting to the company and hence catch the business opportunity. A project team consisting of two structure designers and two graphics designers started working on this project. The aim of this project was to develop a packaging solution with added value that the customer’s current packaging could not provide. Gamma was expecting the new packaging could be a “door-opener”, through which it could get a chance to negotiate with the customer. After studying the company’s products and the packaging, the designers found that the current packaging design, especially the printing on the packaging, did not convey a premium brand image to the customer as the company wished to position itself in the market. The current packaging was a simple white corrugated box with the printing of a stamp representing the company’s high quality award. Designers then decided to use this as an opportunity and design a new packaging for the product. They organized several brainstorming workshops to discuss different possibilities for the new packaging design, manufacturing techniques and estimated the cost and price. Based on the discussion, designers made a few prototypes with different graphics designs and different prices. The sales people then contacted the customer, offering these prototypes and explaining why this new packaging could better represent the company’s brand image. And this eventually helped the sales people gain access to the customer. The customer had agreed on

having a meeting with the sales people to further discuss the possibility of developing a new packaging solution for its product with Gamma. Apart from the first one, two other projects were developed since the Monthly Innovation Project was initiated. One was a packaging solution for a plastic bottle handle. It is used to help to reduce accidental spills and slips while pouring drinks (e.g., soft drinks). It also has an extra cap which could be used to open and close after the original cap had been opened. The request from this customer was to design a packaging solution which could have a better marketing effect with retailers. One way of packing it was to put each handle into an independent packaging and sell it separately from the drinks; and the other way was to put all the handles into one big box, placing them next to the soft drinks so that customers could buy it while purchasing drinks. The packaging was also to have printing showing a clear company image. Understanding the customer's needs, designers made a few prototypes for each option for the customer so that they could compare and choose.

Another project was an ice cream box. The idea came from a designer who saw the staff in a supermarket were having difficulties in taking ice cream out of the boxes and place it in the freezer. The designer then brought the ice cream packaging to the design center and worked together with other designers to design a new packaging solution which could make it easier for people to unpack the ice cream. And this packaging solution has been developed and is now under commercialization.

Focusing more on customers

In order to better understand the customers and involve them more in the new product development process, sales people at Gamma also started to organize more workshops, invited customers to the company to visit the design center, factories and have brainstorming discussions with designers and production operators. In this way, the customers could get to know the design and production process and therefore have a better understanding of the added value in the packaging and would be more willing to pay premium for it. It was seen as a "good way to strengthen the bond with customers" and make them focus more on the solution instead of the price. Designers, production and sales people work closely in the new product development team. They visit the customers' production lines to see how they handle their products in order to understand their needs. Every Wednesday, project meetings involving design, production and sales are organized for everyone in the team to discuss the progress of the project.

Testing new products

For a new product test, according to a production team leader, in principle, one to two hours are allotted every day for new product trials. However, most of the time the production is full of customer orders and machines are running at their full capacities. The time for new product trials is considered as “waste” by production since a new product test usually interrupts the regular production if all the machines are overloaded. Therefore when a new product needs to be tested, the product development manager has to ask the production director for approval, saying that the cost of stopping the regular production would be covered. This is explained by the product development manager:

Sometimes we try to take trial times out of their normal routine. So I have a small account, we can allocate the cost for the waste for this product, we will not go into the waste of the plant and affect your premium or your incentive, it will affect mine. If I want an hour on the machine, I need to go to the production director, saying that we have a trial to run and I will take the cost and responsibility. So there are some structured ways of getting trial runs. But it's more and more difficult. (Product Development Manager, February 2012)

The management sometimes also needs to coordinate between different functions, for example, if the new product test is urgent, they will ask production to stop the regular production and prioritize the new product test. If there is conflict between different functions, mostly between design and production, meetings are organized for people from different functions to discuss and negotiate with each other.

Organizing and participating in design competitions and investing in new design tools

In order to facilitate the communication between design centers and get new ideas from the external company, Gamma also organized training programs for designers at different sites. Designers had more opportunities to travel to different design centers and production sites, working together with other designers and sharing knowledge with each other; visiting factories and discussing with production people. Apart from training, Gamma also organized several design competitions and innovation contests with the aim of challenging designers and encouraging them to think more creatively. During these competitions, designers could be as creative as possible without considering the production capabilities in order to find solutions for a given

problem. Some of the solutions were further developed into products and commercialized. Some awarded designs were made into videos and shared on the company's website. Design centers at Gamma also upgraded some of their design software. Designers have got a new 3D photo program from which they can send 3D photos of designs via email.

To summarize, Gamma's innovation activities include:

- Adopting the innovation strategy
- Being more proactive to search for new ideas instead of responding to customer requests
- Coordinating between different functions in new product development
- Focusing more on customers: involving customers into new product development processes, organizing workshops for customers, inviting them to visit the company, design center and factory
- Testing new products
- Organizing and participating in design competitions investing in design tools

7.3 Innovation outcomes

Satisfactory financial performance

Since the "Monthly Innovation Project" started, three innovation projects have been initiated in three months. One of them was close to prototype making and the other two were still within the design processes. Many ideas that the sales people brought into the design center were still in the project pipeline and have not been developed due to the limited time. Although none of the products from the "Monthly Innovation Project" has got a customer order yet, both management and employees at Gamma seemed to be very satisfied with the current situation and believed that the reason that the company could maintain a good financial performance was innovation. This is discussed by the product development manager:

I think SCAP Gamma is actually doing quite well in profit, and I think one of the possibilities which make it like that is innovation. [We have] lots of products and new customers, and also our salesmen also work a lot more with the old customers. I think this is the key to our success right now, for both new customers and old customers I would say. (Product Development Manager, February 2012)

Although Gamma's overall financial performance has been stable in the last few years, the number of new products has increased, and now constitutes 35% of the total turnover and 40% of the profit of the company. The hit-rate of the new products in the design center has reached 50%, and the overall financial performance of the company has been showing an upward trend. All of these are seen as a result of innovation and also justify the role of design in the company, as the product development manager said:

For SCAP Gamma, in 12 months from 1 February, 2011 to 31 January, 2012, we had 5,800 projects, of which 2,400 became orders, so we have a hit rate of 50%. And as you can see it's fairly static. And the turnover of the new products is actually 47.7 million Euro which stands for 35%. This tells me that we actually turned the whole product portfolio over in 2 years, of course with modification. The total turnover is 0.14 million Euro, but this 35% actually stands for almost 40% of the [profit] margin. And they have a higher index. This means that we price our new solutions higher than we price the existing solutions. [...] And if we can develop new solutions, we can put them at a higher price and we can get more money. So this for me justifies the whole concept of the design center. (Product Development Manager, February 2012)

Door-opener to the "dragon" customer

One of the products developed in the "Monthly Innovation Project" helped Gamma get access to a "dragon customer" which the sales people from Gamma had been trying to approach for 12 years. With the new packaging solution, the sales people finally got a chance to meet with the marketing department of the company. Although this was only the first step and the customer has not made any order yet, the sales people were very excited and motivated about this success, seeing it as a good start, since they had always been rejected when they tried to contact this company. As they said, innovation of a new packaging solution has become a "door-opener" to customers' companies and brought possibilities of new business. The product

development manager was very confident and showed a strong belief in this product: “if the customer does not choose this (the packaging new solution), I will be very surprised.”

Improved teamwork and communication between functions

As more workshops for customers were organized in the company, people at Gamma also sensed a big change in their way of working. In the past, there was very little communication between departments. Sales people brought in the customer’s requirement and gave it to designers. The designers made the drawing of the box according to the request and then sent the prototypes to production. Each department only focused on finishing its own task and rarely had communication or feedback from each other or knowledge about each other’s work. Conflict always takes place between departments and is referred as a “big war”, as one of the respondents said:

I mean our department, for example, sales, they only work with sales, only the same thing. If they have the design work, they just put it to the designs. And then design works on it with themselves, and then they pass it to production, and then they work with the product. No response, no feedbacks between the departments. So that is what I mean with “wars”. (Production Team Leader, April 2012)

The work has become more interactive since designers and production operators now have more occasions to meet customers together with sales people. The customer meetings and workshops also provided more opportunities for sales, design and production to meet and discuss the packaging solutions from different perspectives. Therefore, working together in the innovation projects has helped to improve the cooperation and communication between different functions. One designer stated:

[...] I think the most interesting thing is this change that more people are working together than before. Before it was only mostly up to me. But if we are working in this way, people can share their experience and thoughts together, and see what you can do to a very simple box. It’s interesting. It is also a challenge to you. (Structure Designer, April 2012)

Besides, by linking different functions which otherwise are “far from each other”, together through interaction and communication, the company also improved teamwork between different functions and people from different

functions also increased their mutual understanding about each other. As another designer's words showed:

I think it's very good for the company overall, because you link the parts together, you link the sales and production which have been very far from each other. Because the sales say that the customer wants this, and the production says why can't you sell it, and you get a strong bond inside the company, and more understanding about what could be done, and why they want something done [...]. (Structure Designer, May 2012)

The change of design's role in the company

As innovation became more emphasized in the company, people at Gamma also sensed that the role of design had changed. Design function has become more important in the company. Before, designers only got instructions from sales people about what kind of packaging customers were asking for and even the specifications of the packaging were given by sales. They did not have any direct contact with the customers about the designs since the solution to the customer's problem was already given by the sales. The designers' work was referred as "painting and drawing" or "copy and paste". Every time the design center received orders from the sales, structure designers "drew" the structure of the box and graphics designer "painted" on it. And sometimes, sales people just brought a packaging from somewhere else and asked designers to make a similar box.

Before it was that one sales person came to me and gave me a project, and I solved the problem. It then it might or might not go to the order, and it was fine by then. But now my feeling is that we share more together. Even in the daily work I ask my colleagues "what do you think about this solution", or "do you have any other opinions or other ways of thinking about this?" (Structure Designer, April 2012)

Similarly, the design manager also stated:

[...] you feel that you are involved in the process. You know what you do and why you do it, and so on. And then it's a very very big success for the designers that you are feeling good and that you are important, it's an important project. (Design Manager, April 2012)

Being more involved in the innovation processes and having more interaction with other departments, designers sensed that they were becoming more

important and getting more valued in the company. They felt that their opinions were taken into consideration, and they could make an influence on the project process and contribute more to the final design. Seeing management's investment in the design center, e.g., upgrading design tools and providing training for designers, the designers also sensed that management was putting more emphasis on the design center, which was seen as a sign that the status of design had been raised. As the design manager stated:

[...] we think we are a very important part of SCA, [...] because we have these programs we need, we have the support we need. For now I can't say what other things that we must have, because we have what we need today. (Design Manager, April 2012)

Other functions at Gamma also perceived this change in the role of design in the company. For example, the finance manager stated:

I think the status of the design center has increased. It's the same product we make packaging for, but the status [of design] has improved. You see [it in] the presentations and the strategy from the management. You feel [it is] more important so to say. (Finance Manager, April 2012)

Motivation for work

Working in new product development projects is seen as "more fun" and adding more challenges to people's daily work and therefore motivates people to work. Especially for designers, being involved in the process of solving a customer's problem is challenging and also makes the job interesting. As one designer says:

That's what makes the job interesting. The problem itself is what makes the job really nice, even though we are not having that kind of bonus... (Graphics Designer, May 2012)

In addition, people also consider Gamma as an innovative company different from many other traditional corrugated companies and therefore feel proud of being a part of it, as shown in the product development manager's words:

[...] it's more fun to work in a company that you feel is innovative. If you generally think about the packaging industry, you wouldn't really think innovation, so I think it's a little bit of pride for me to say that I am working for a packaging company which is innovative. (Product Development Manager, February 2012)

Company image and strengthened customer relation

Among other packaging companies, the packaging solution that Gamma has provided, and the innovation activities have helped the company earn trust from the customer. Gamma is known for its design capabilities to solve customers' challenging problems. According to the sales people, some customers even came to Gamma from competitors, because the packaging solution which Gamma provided solved the problem which the previous packaging supplier had difficulty in doing. Especially, involving customers in the new product development process, i.e., organizing workshops and customer meetings, inviting customers for brainstorming and visiting the design center and manufactory, as well as presenting different packaging solutions for customers to choose, is considered as helpful in creating an image of an "innovative company". It also helps to strengthen the relationship with customers. As one designer described, "the bond with the customer" has become stronger. This is shown in the following accounts:

[...] the customer relation is a big part. They feel that we help them with the problem with good service and new solutions. The relationship will be good. They will trust us and keep coming to us with their problems. Company image is one too. [...] We actually have taken new customers, who have gone to our competitors first, and got the answer that it can't be done as there's no solution for this. We came up with the solution, and this makes our relationship very good. (Sales Representative, April 2012)

Change in people's way of thinking

In addition, members of Gamma claim that people's way of thinking has also changed since the company adopted the innovation strategy and put more emphasis on new product development. Employees feel that the company has become more future oriented, proactive and open. It started to proactively search for opportunities to develop new products instead of waiting for customers bring the problems and then responding to them, as one respondent puts it:

[Before] It was really conservative. [...] For example, they always refer to “in the past we did like this, in the past we did that...” “It was like in the past” or stuff like that. I think some people have changed. They are actually looking in the future in a way, to see where we actually can go. (Production Team Leader, April 2012)

Although this change is a slow process and has not taken place in the whole company, it is seen as a good sign that the company is moving in the right direction:

My experience is about this. I think it’s a really good way to think. But of course, progress is a little bit too slow. This is my point of view I think. It’s a really big company, and really hard to change the old habits to the new habits. There’s nothing you could do in a short time. But of course, we move in the right direction, it may take a lot of more time and effort to really change it so to say. (Production Team Leader, April 2012)

In sum, the outcomes of innovation in Gamma can be summarized as follows:

- Satisfactory financial performance
- “Door-opener” to the “dragon” customer
- Improved team work and cross-functional communication
- The change of design’s role in the company: designers feel more important and valued
- Motivation for work: making the work more interesting
- Company image as “an innovative company”
- Strengthened customer relation
- Change in people’s way of thinking

7.4 Reflections and future measures

Seeing the satisfactory organizational performance and all the other changes which have taken place in the company, the managers and other employees were very positive about innovation and confirmed that the innovation strategy was the right way for the company to go and should be continued. People felt that being in a company focusing on innovation and design was like being in the “right boat”, and the company was moving in the right direction, as the design manager says:

I think we feel, like we said before that we sit in the right boat, because no matter from the European point, Swedish point or the division point here, we feel that innovation is very important. (Design Manager, April 2012)

Therefore, the management of Gamma decided to keep following the innovation strategy and continue working on the innovation projects, investing in innovation and design and devoting time to training and workshops. Although people started to change their way of thinking, more efforts are needed in order to make this change happen more thoroughly in the company, as shown in the finance director's words:

I think we are convinced in the strategy that it (*innovation*) is the part of the market that we want to compete in. I think we will continue to invest in innovation. [There is also] Some learning about how we do it and how we get people to think in that way, because it's not just...[but] something has to get into people's heads, how to work. And that's the whole change, every day or every week, it's a long-term process. That needs continuous investment in training, discussions, and coaching from the managers, etc. (Finance Director, April 2012)

At the same time, people from Alfa also realized that it took a long time to develop innovation and benefit from it. So far only one product from the "Monthly Innovation Project" was close to completion, and none of the products had been commercialized. Moreover, what is more difficult was to change people's mind-sets from being reactive and focusing on traditional business to being proactive and searching for different opportunities. Although very slow, this change has started taking place as people at Gamma become more convinced and confident about innovation, as shown in one production operator's words:

But of course, it moves a little bit too slow. This is my point of view I think. It's a really big company, and really hard to change the old habits to the new habits. There's nothing you could do in a short time. But of course, we move in the right direction, it may take a lot more time and effort to really change it, so to say. (Production Team Leader, April 2012)

Trying to change from the previous business approach to innovation was also seen as a learning process in which people learned to deal with new situations and problems, involving new ways of working and thinking. Therefore this changing process might take more time at the beginning due to the lack of

experience. As the process continued, it was believed that it would get much easier and faster as both the management and employees were gaining more experience from the innovation practices, as one designer stated:

For me this is the future when you work. Now in the beginning it takes much time, since now we have learned or found our way of working, I think it will be much easier and much faster. (Structure Designer, April 2012)

However, Gamma still considered innovation as a worthy effort in the long run. As it takes a long time for the company to benefit from innovation, the cost/benefit calculation shows the investment in innovation does not pay off early on; however, with time, innovation will become the way by which Gamma can differentiate itself from competitors and escape from the low price competition, as shown in one designer's words:

I think it's a worthy effort. You are not selling on price; you make customized solutions. I think in the long run you are the winner. But in short terms, sometimes we put in a lot of work but we don't get the order. But I think it's a good way in the long term to both make good bonds with the customer that the customer sees us as the leading actor in the market. Absolutely it's worth it. (Structure Designer, May 2012)

It was also realized that cross-functional communication was crucial in the innovation process. The way of dealing with the conflict between different functions was by having more communication, which can be achieved during the teamwork and cooperation between different functions. By participating in workshops and visiting customers together, different functions could understand each other's work and see the scenario in its entirety. This is described by a sales representative:

Within the company communication is the key to be able to innovate. [...] If it's a designer who comes up with a good idea, it can be shut down by the production. It's much easier to shut it down if they haven't had the communication. (Sales Representative, April 2012)

Above all, the reflections about innovation and its continuity in the future are summarized as follows:

- Innovation is the right strategy to follow
- Innovation is a long process and can be very slow
- Experience gained along the way can help with innovation management in the future
- Communication is important in innovation processes

And the measures to be taken by Gamma include:

- Keeping following the innovation strategy
- Continuing innovation activities and keep investing in design and innovation

The empirical finding from Case Gamma can be summarized as follows in Table 7-1:

Table 7-1 Summary of the empirical finding from Case Gamma

Cultures of organization	Innovation activities	Innovation outcomes	Reflections and future measures
<p>Profitability.</p> <p>Sales is the driving force of the company.</p> <p>Balance.</p> <p>Compromise.</p> <p>Being content when it's "good enough".</p>	<p>Adopting the innovation strategy.</p> <p>Being more proactive to search for new ideas instead of responding to customer requests.</p> <p>Coordinating between different functions in new product development.</p> <p>Focusing more on customers: involving customers in new product development process, organizing workshops for customers, inviting them to visit the company, design center and factory.</p> <p>Organizing and participating in design competitions and investing in design tools.</p>	<p>Satisfactory financial performance.</p> <p>"Door-opener" to the "dragon" customer.</p> <p>Improved team work and cross-functional communication.</p> <p>The change of design's role in the company: designers feel important and valued.</p> <p>Motivation for work: making the work more interesting.</p> <p>Company image as "an innovative company".</p> <p>Strengthened customer relation.</p> <p>Change in people's way of thinking.</p>	<p><i>Reflections:</i></p> <p>Innovation is the right strategy to follow.</p> <p>Innovation is a long process and can be very slow.</p> <p>Experience gained along the way can help with innovation management.</p> <p>Communication is important in innovation processes.</p> <p><i>Future measures:</i></p> <p>Keeping following the innovation strategy.</p> <p>Continuing innovation activities and keep investing in design and innovation.</p>

Chapter 8 Analysis

As recalled from Chapter 1, the aim of this thesis is to understand how organization culture influences innovation. In Chapter 3, I have reviewed the theories of organizational archetype and archetype movement (Miller & Friesen, 1980a; 1980b; Greenwood & Hinings, 1988) and discussed how it can be potentially helpful to understand the concept of innovation culture. That is, seeing innovation processes as organizations' *movements between or within archetypes* in order to adapt to the changes in the environment, the theories of organizational archetype and archetype movements (or the absence of movement) can provide us with an analytical tool to understand the dynamic interaction between culture and innovation.

Later, in Chapters 5 to 7, I have presented three cases and summarized the empirical findings from each case. In the present chapter, data from the cases is analyzed to answer the research question "*how does culture influence innovation?*" The analysis in this chapter is conducted at both organizational and functional levels⁹. The organizational level of analysis (sections 8.1 to 8.3) uses the archetype theory as a theoretical lens to understand the culture-innovation relationship. I precede the analysis by (1) identifying and describing the patterns emerged from the data (section 8.1), and (2) using the archetype theory as a theoretical lens to explain the patterns (sections 8.2 and 8.3). The functional level of analysis (section 8.4) discusses the dynamic interaction between different functional subcultures and how the interaction between them influences innovation, further addressing the issues that the archetype theory does not explain. And then some key findings from the analysis are discussed in relation to previous studies (section 8.5). Finally, a summary of the analysis is made (section 8.6) to conclude this chapter.

⁹ Here organizational level refers to SCAP subsidiary level, and functional level refers to different functional departments within subsidiaries.

8.1 Identifying the patterns of innovation dynamics

As discussed in Chapter 3, according to organizational adaptation theory, innovation in this thesis is seen as a means for an organization to adapt in response to changes in its internal and/or external environment. The innovation process can be seen as an adaptation process through which the organization attempts to move from its original state to another one, because in the latter state it has a better fit with the environment. According to previous studies on the adaptation process, the innovation process can be described in the following aspects: (1) motivation for innovation: to what extent an organization senses the need for innovation as it perceives the changes/problems in the internal and/or the external environment; (2) innovation activities the measures that an organization takes to innovate in response to the changes in the internal and/or external environment or to deal with the associated problems; (3) innovation outcomes: the changes perceived by organizational members from innovation at a certain time; (4) reflections and future measures: organizational members' perception and judgment of whether the changes/problems sensed at the beginning have been coped with/solved and decision of whether any future measure is needed.

On these four dimensions, three different types of innovation processes emerged from the cases presented in Chapters 5 to 7, that is, the three companies' movements exhibit different patterns during their innovation processes, which are referred to as "innovation dynamics". Three innovation dynamics identified from the cases, namely *striding forward*, *aborted excursion* and *reorientation* are discussed respectively in the following sections.

8.1.1 Case Alfa striding forward

At Alfa, innovation was seen as a part of the company's strategy and business approach. Since the company had been established, Alfa proactively set its own strategy and identified its business approach according to the environment instead of passively responding to the market and customer needs. Established from a greenfield site, as all the competitors already had their market shares, Alfa had to find its own niche in order to get a place in the market. Therefore Alfa differentiated itself from the competitors by providing innovative packaging with added value instead of commodity

products with low prices. The company's strategic focus was on innovation and added value packaging rather than production efficiency and low price. Instead of being a packaging supplier, the goal of the company was to become customers' packaging advisor and to develop long-term customer relations. Innovation had been woven into the company's history and was an important part of its strategy. Thus Alfa had a strong motivation for innovation, as it was seen as the core competence and the competitive advantage of the company through which the goal of the company could be achieved.

Therefore, when the innovation strategy was introduced from the headquarters to Alfa, it was soon adopted by Alfa's management, adjusted and incorporated into Alfa's previous strategy. The aim of adopting this strategy was to be more proactive in developing radical innovations instead of responding to specific customer requests. Under the new innovation strategy, a new packaging for flat screen TV – "Oyster Packaging" was developed by Alfa, which was new both to the company and the market.

Alfa's innovation attempt resulted in improved organizational performance. Members of Alfa claimed that the company had received positive outcomes from innovation, e.g., increased profits, design patents and awards as well as a company image among its customers and competitors as being an innovative company. Although the radical innovation project – Oyster Packaging – that took Alfa three years to develop, had not brought any financial outcome to the company, both managers and other employees were very optimistic about it and had a strong belief that it would succeed in the future. Management had gained more experience and became more confident in managing innovation processes. It was also believed that innovation should remain the focus and even become more central in the company. Seeing the improved organizational performance, it was realized that the company was moving in the right direction. Alfa's management was motivated and determined to push innovation forward. More measures were planned to strengthen the innovation attempt, e.g., building more production infrastructure to facilitate innovation, getting production more involved in innovation processes, motivating and supporting employees in innovation, etc.

Therefore the innovation progress continued at Alfa and members felt very enthusiastic and motivated by the improved organizational performance and therefore were very convinced that innovation was the right strategy for the

company. Alfa’s innovation dynamics can be summarized in Table 8-1 as follows:

Table 8-1 Alfa’s innovation dynamics: striding forward

Motivation for innovation	Innovation activities	Innovation outcomes	Reflections and future measures
Strong: innovation is seen as a part of the company’s strategy and business approach, the core competence and competitive advantage and a way of achieving company’s strategic goals	Aggressive: anticipating the market and customer needs to develop radical innovations new to the company and market	Improved organizational performance	Enthusiastic and motivated; confirming and strengthening the innovation attempt

As shown in Table 8-1, Alfa’s innovation dynamics represents the company’s movement to a new archetype that is an extension of its original one. As innovation had been a part of the company’s strategy and business approach, it did not cause changes in its original strategic focus or business approach. Moreover, the improved organizational performance has confirmed this innovation focused strategy and business approach. In the new archetype, members of Alfa became more confident about innovation and more convinced that innovation was the right strategy to follow. They were very enthusiastic and motivated about putting more effort into innovation and pushing it forward in the future. Therefore, Alfa’s innovation dynamics is referred to as “striding forward”.

8.1.2 Case Beta: aborted excursion

Beta’s innovation process appeared to be very different from Alfa’s. Seeing that more and more competitors were adopting a cost leadership strategy, Beta’s management realized the difficulty in stimulating market growth in the existing business. Therefore, there was pressure for Beta to explore new market areas and become a market leader searching for new business growth. Hence, Beta also had a strong motivation for innovation as it was seen as a way to potentially save the company from the current situation. When the innovation strategy had been introduced by headquarters, Beta decided to change its strategy from focusing on the traditional business to innovation and be more proactive in developing radical innovations that were

completely new to the customer and market rather than adjusting to the existing products according to customer requests. Two innovation platforms were developed by Beta – Shelf-Ready Packaging and Food-Safe Packaging. And considerable effort had been made to develop these two innovation platforms, e.g., studying the external environment, investing in new machinery, introducing new product models from other SCAP subsidiaries, developing new packaging designs and so on.

However, Beta's innovation attempt did not bring the desired outcomes expected by the company. The innovation attempt had left Beta with new products that were considered unprofitable since they could not be sold. Moreover, the profit from the traditional business was declining as the company lost several customers. Members of Beta realized that innovation was not the right strategy for the company; and the efforts spent on innovation were not paid off. Therefore, it was recognized that the company needed to slow down its innovation process and focus on consolidating its operations to restore the prosperity of its basic business.

Thus, the major task of management was to consolidate and stabilize the operations rather than build and expand the business. It therefore changed the corporate strategy back to focusing on traditional corrugated business and production efficiency. New product development activities were abandoned, as they were not considered as complementary to the core business; rather they were seen as an impediment to production efficiency. Beta's current focus was to restore the prosperity of the traditional business through cost reduction, improving product quality and customer service, etc. Innovation would only be resumed when the basic business had recovered. Both managers and other employees felt disappointed and frustrated. They also became skeptical and started questioning the previous innovation attempt.

Therefore, as the management abandoned all the innovation activities, Beta's innovation journey ceased and the company returned to its starting point. Beta's innovation dynamics can be summarized in Table 8-2 as follows:

Table 8-2 Beta's innovation dynamics: aborted excursion

Motivation for innovation	Innovation activities	Innovation outcomes	Reflections and future measures
Strong: facing the pressure from the competitors and the challenge of stimulating growth in the existing business; innovation is seen as a way to open a new market area and to become a market leader	Aggressive: changing the strategic focus; exploring opportunities from outside the company to develop radical innovations new to the company and market	Declining organizational performance	Frustrated and disappointed; rejecting and abandoning innovation attempt; resuming the previous strategy and focusing on production efficiency

As shown in Table 8-2, Beta’s innovation dynamics shows that although the company had attempted to move away from tradition, conservatism, reactivity and rigidity toward novelty, openness, proactivity and flexibility, this attempt was eventually abandoned. The temporary and limited withdrawal from the previous archetype caused by innovation activities was followed by retention – the movement towards a new archetype was “aborted” and Beta returned to its original archetype.

Beta’s innovation dynamics is thus referred to as an “aborted excursion”, which describes the movement in which the original organizational archetype had changed temporarily, but management was compelled to abort the innovation activities and reinstalled its previous structure because of the declining organizational performance. Furthermore, the declining performance led to skepticism towards innovation and the reinforcement of the previous values and beliefs of members which focused on traditional business, production capability, certainty and stability. In all, Beta returned to its original archetype and the intended movements towards a new archetype did not succeed.

8.1.3 Case Gamma: reorientation

Gamma’s innovation dynamics described the company’s intention to move somewhat from its original archetype and the process of slowly working in that direction. Members of Gamma showed neither great enthusiasm nor skepticism about innovation. Gamma was satisfied with its current situation

in terms of market share, sales growth and profitability. Everything seemed “good enough” and thus the company’s motivation to pursue innovation or any other change was not very strong. However, since all the other competitors were (or claimed that they were) innovating, Gamma felt the pressure that working without innovation would make the company stagnate and eventually get left behind their competitors. Innovation was seen as a way of maintaining the current market share and profit level, and moreover, could possibly help the company open up some new opportunities.

Compared with Alfa and Beta, Gamma took a rather moderate approach to innovation. Instead of developing products that were completely new to the market or to the company, Gamma’s management initiated a “Monthly Innovation Project”, encouraging designers and sales people to propose ideas for innovation by bringing challenging problems that customers wanted to solve and try to develop solutions to them. Efforts were also made to organize more workshops, involving customers in new product development, as well as putting more emphasis on design, etc.

Although several innovation projects were still under development and none of them were successfully commercialized, the organizational performance was perceived to be satisfactory – the profit level and market share remained stable, and innovation seemed to have brought some new opportunities for the company as it opened the door to customers which Gamma had never managed to approach before. Besides, members of Gamma also sensed other positive changes in the company. Compared with the previous situation, the company became more proactive, customer relations were more interactive and intimate, teamwork and cross-functional communication were improved as different functions often met and worked together in innovation projects. The design function became more important and valued in the company, and designers felt that their status had been raised. Designers considered themselves as being “in the right boat”. Both managers and other employees became more convinced about innovation and started to have more faith in it. Management also became more certain and confident about innovation as it gained more experience from previous innovation attempts.

Satisfied with the organizational performance, Gamma’s management thus confirmed the innovation strategy and decided to continue the investment in training and resources for innovation. Gamma’s innovation dynamics can be summarized in Table 8-3 as follows:

Table 8-3 Gamma's innovation dynamics: reorientation

Motivation for innovation	Innovation activities	Innovation outcomes	Reflections and future measures
Moderate: satisfied with the current situation; innovation is seen as a way of maintaining the current profit level and market position and a potential opportunity to stimulate business growth	Moderate: being more proactive to search for opportunities to develop innovations new to the customer, which are significant improvement on the existing products	Satisfactory organizational performance	Satisfied and pragmatic; confirming and continuing the innovation attempt

As seen in Table 8-3, Gamma’s innovation dynamics shows the company’s attempt to slightly change its direction of development through innovation. As the viability of innovation seemed to have been demonstrated, Gamma decided to move along its innovation track which showed a slight reorientation. Based on a pragmatic analysis of the innovation outcomes, the organizational performance was considered to be satisfactory. Hence, although the innovation activities were tentative at the beginning, they gradually became legitimized in the end and were therefore maintained. Members of Gamma had also changed from being somewhat uneasy and uncertain about innovation to being more convinced and certain. Therefore, Gamma’s innovation dynamics is labeled as “reorientation”. This reorientation suggests that Gamma had slightly moved away from its original archetype to a new archetype in which the organization focused more on design and innovation.

8.2 Archetype theory and innovation dynamics

In the light of the three different patterns of innovation dynamics that emerged from the cases in the previous section, representing different innovation processes, the question to be answered now is: how are we to understand these innovation dynamics? And why do they exhibit different patterns? Up to this point, the archetype theory is seen as helpful and offers a theoretical lens to answer these two questions. More specifically, the concept of “track” in Greenwood and Hinings’ (1988) theory of archetype movement can be used to make sense of the innovation dynamics. Moreover, their

analytical model of organizational tracks (ibid.) in archetype movements (or the absence of the movements) can be used to unpack the innovation dynamics in order to explain why each of them exhibits a particular pattern.

8.2.1 Innovation dynamics

Through the lens of organizational archetype, innovation as a means of organizational adaptation can be seen as *a means through which the organization attempts to move from one archetype to another*. In the later archetype the organization has a better fit with its external environment or/and a higher degree of integration of the internal environment. Thus an innovation process as an organizational adaptation process can be seen as the *organization's movement between archetypes* (if the organization moves to a new archetype through innovation) or *within archetype* (if the movement fails and the organization stays in its original archetype). As recalled from Chapter 3, the movements between archetypes or the absence of the movement (inertia) are referred to as “tracks” (ibid.). Greenwood and Hinings (ibid) further identify four prototypical types of tracks, namely inertia, aborted excursion, reorientation (transformation) and unsolved excursion, describing and explaining different movements ranging from radical transformation, abortive shifts between archetypes to absence of change. Accordingly, in this thesis, the organizations' movements between or within archetypes by means of innovation are referred to as *innovation dynamics*. As presented in the previous section, three patterns of innovation dynamics have been identified from the cases, providing empirical illustration of archetype theory in innovation studies.

As discussed in Chapter 3, an organizational design archetype is the interpretative scheme – a set of ideas, values and beliefs – coupled with associated structural arrangements (ibid.). The concept of archetype explains organizational change by revealing the interaction between an organization's interpretative scheme and its structure and system. An organizational archetype remains stable when the coherence and consistency exist between the organization's interpretative scheme and its structure and system. When new elements are introduced to the existing structure and system, they can temporarily disturb the organization's current coherence. Therefore, in order to resume the coherence, the organization will discard the elements introduced to the structural arrangements that are inconsistent with its

interpretative scheme and retain those consistent with it. For this reason, organizational archetypes appear inert in the long run (ibid.).

As mentioned in Chapter 2, innovation in this thesis refers to product innovation, and organizational culture refers to the values and beliefs surrounding the selected new product development projects. Therefore, an archetype in this thesis refers to a set of prevailing values, beliefs and assumptions around these new product development projects and the organization's structural arrangements needed for developing these new products. Moreover, seeing the organizational culture consisting of a set of values and beliefs shared by the organizational members as the interpretative scheme of the organization, the theory of archetype movements offers a theoretical lens to understand the culture-innovation relationship.

8.2.2 Explaining the innovation dynamics

Having discussed the conceptualization of innovation dynamics, the analysis then proceeds to answer the question: how might we explain these innovation dynamics? That is, why do innovation dynamics entail the adherence to a particular pattern (i.e., striding forward, aborted excursion and reorientation)? And how does organizational culture play a role here? Greenwood and Hinings' (ibid.) model of tracks offers a theoretical framework to answer these questions.

As recalled from Chapter 3, the theory of organizational design archetype (Greenwood & Hinings, 1988; 1993) suggests that the coherence and consistency between the interpretative schemes – the underlying ideas, values and beliefs and structural arrangements – is the key to keeping archetypes stable. When this coherence is disturbed, an archetype can also change as the organization tries to retain its coherence. The organization's movements between/within archetypes or the absence of movement (inertia) are called tracks. Greenwood and Hinings (1988) provide a model to analyze these movements or absence of movements. They suggest tracks can be classified according to three analytical positions that organizations move between and through, including archetype coherence, embryonic coherence and schizoid incoherence.

(1) *Archetype coherence*: in which the structures and processes of the organization consistently reflect and reinforce its interpretative scheme.

(2) *Embryonic coherence*: in which the structures and processes almost consistently reflect the ideas and values of an interpretative scheme. In this position, organizations have structures and processes in which significant design elements are discordant. In a situation of two available archetypes there would be two positions of embryonic archetype coherence.

(3) *Schizoid incoherence*: in which structures and processes reflect the tension between two contradictory sets of ideas and values. In this position, organizations show the presence of both interpretative schemes, and structural elements of both organizational forms.

Hence, based on Greenwood and Hinings' (ibid.) model, an analytical framework is proposed in this section to unpack each of the innovation dynamics into different positions. The aim is to identify different positions in each of the innovation dynamics, as well as discuss how the organization's structures and systems interact with the values, beliefs and assumptions within the organization when innovation practices are introduced to organizations. Here the prevailing values, beliefs and assumptions shared by a majority of organizational members constitute the organization's interpretative scheme. Accordingly, this thesis suggests that during innovation processes, an organization will move through three positions: initial coherence, temporary incoherence and new coherence, each of these being illustrated as follows:

Initial coherence

At this stage, the structures and systems of an organization are consistent with its interpretative scheme. The interpretative schemes are embodied and supported by different forms of structures and systems of the functions. This stage is referred to as *initial coherence*; the organization stays stable because of the coherence between the interpretative scheme and the structural arrangements.

Interaction

At this stage, an organization makes attempts to innovate. The innovation activities cause changes to the organization's existing structural arrangement. If they are not consistent with the prevailing values, beliefs and assumptions of the interpretative scheme, they might disturb the initial coherence of the organization, resulting in the organization's temporary straying from its original coherence. It reflects the tension between the interpretative scheme of

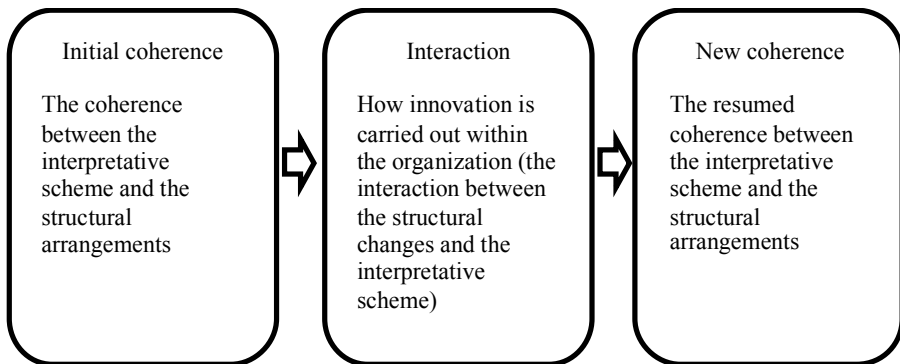
organization and structural arrangements. This stage is referred to as *dynamic interaction*, in which the organization’s initial coherence can be temporarily disturbed during the interaction between the organization’s interpretative scheme and its structures and systems.

New coherence

At this stage, as the organization tries to resume its coherence, the innovation activities that cause changes that are inconsistent with the interpretative scheme will be discarded, and those changes that are consistent with the interpretative scheme will be retained. This stage is referred to as *new coherence*, suggesting that the coherence can be different from the initial coherence as it can entail adjustment to the organization’s structures and systems as well as its interpretative scheme.

These three analytical positions are shown in Figure 8-1:

Figure 8-1 An analytical model of unpacking innovation dynamics



As shown in Figure 8-1, the framework of “initial coherence”, “interaction” and “new coherence” constructed above is similar to Lewin’s (1947) three-stage change model of “unfreeze”, “change” and “refreeze”. According to this model, the organization prepares for change, implements the change and then strives to regain stability as soon as possible. In the following section, the three innovation dynamics identified from the cases are analyzed according to the framework in Figure 8-1. By identifying the movements of each of the innovation dynamics between these three positions, I aim to reveal how the values and beliefs of organizational members interact with the organization’s

structural arrangements, which shapes the three innovation dynamics into different patterns.

8.3 Unpacking the innovation dynamics

In this section, the three respective innovation dynamics are unpacked according to the framework in Figure 8-1 in the following sections.

8.3.1 Case Alfa

Initial coherence

The initial coherence refers to Alfa's original state in which the consistency exists between the dominant values, beliefs and assumptions shared by a majority of organizational members and its structural arrangements. At Alfa, there is a strong overarching culture characterized by a set of core values such as customer focus, innovation, design, open to external knowledge and learning, risk-taking, open communication as well as organizational members' strong sense of belonging to a big family which further entails harmony, personal relationship, helping and caring for each other.

These values and beliefs are widely shared within Alfa, constituting Alfa's overarching culture which is also its interpretative scheme. They are embodied in different organizational structural arrangements. For example, the company has a matrix structure based on functional divisions and customer segments. Key account teams consisting of key account managers and people from different functions are formed for new product development. There is a well-defined approach and process to understand and select customers. Alfa also has an active and productive design center which is regarded as the most crucial function in the company. Designers enjoy a high status in the company and are respected by people from other functions. The management supports the design activities by providing the design center with the necessary resources. The company's performance evaluation system emphasizes outcome measures such as the product's acceptance by the market and customer satisfaction rather than input measures such as efficiency with

which the resources are utilized. These structural arrangements are not only embodied in but also support Alfa's interpretative scheme.

Interaction

When the innovation strategy from the headquarters was introduced into Alfa, management rapidly adopted it, modified it according to Alfa's local situation and started to implement it. Both managers and other employees believed that innovation had been Alfa's business approach since the company had been established. It helped the company succeed in the past and had always been a part of the corporate strategy during the company's development. The adoption of the innovation strategy was followed by a series of activities to develop radical innovations, e.g., collecting information from the customer and market to identify opportunities, utilizing the knowledge from the external sources such as the innovation center and other design centers, constructing key account teams for new product development, and developing production technology for the new design, etc. By doing so, Alfa developed a radical innovation project – the Oyster Packaging – which was new to both the company and the market.

New coherence

These innovation activities fit into Alfa's existing structural arrangements easily because they are consistent with the interpretative scheme of the company. Yet a new coherence emerged with changes to the organization's original coherence. The innovation strategy seemed to have provided legitimacy and support for Alfa's business approach and confirmed what it had been doing. Those innovation activities were accepted and integrated into the organization, which extended and strengthened the existing structural arrangements. These further led to an improved organizational performance, which reinforced the organization's interpretative scheme. Members of Alfa confirmed the innovation strategy and management planned a series of measures that were to be more devoted to innovation. It was also realized that innovation had become "a positive thing and a required part of business" and a part of the company's daily life, and it was to be "more central" in the company. As members of Alfa felt more confident and determined about innovation than before, it has changed from the gut feeling of the management to a legitimized and demonstrated business approach. Hence Alfa reached a new coherence with an enhanced interpretative scheme and strengthened organizational structural arrangements.

8.3.2 Case Beta

Initial coherence

The dominant culture at Beta consists of a set of prevailing values, beliefs and assumptions shared by a majority of organizational members. At Beta, faith to the corrugated business, productivity and certainty is valued highly. Members of Beta also believed that there was no need for innovation; the company was already sufficiently innovative compared with its competitors.

This dominant culture as the Beta's interpretative scheme is embodied and reflected in its structural arrangements. For example, Beta's product development is based on the use of corrugated board which is considered the core of the company. Production is regarded as the most crucial function in the company. The production schedule should not be changed to avoid disturbance to the production flow and to assure production efficiency. The organization relies on a functional structure and there are no project-based units for new product development. The performance evaluation system is based on productivity measurements such as volume and speed. Budget decisions are based on a cost-benefit calculation on whether there are foreseeable outcomes. These structural arrangements are not only embodiments but also supports of the dominant culture of Beta.

Interaction

When the innovation strategy was introduced into Beta, it was considered as inappropriate according to Beta's interpretive scheme. However, as more competitors were adopting a low price strategy and the market had been stable for several years, Beta's management decided to change the corporate strategy to focus on innovation. Innovation was seen as a chance to open a new market and a way for Beta to become a market leader. Two innovation platforms – Shelf-Ready Packaging and Food-Safe Packaging were developed under the new strategy. Under each innovation platform, Beta developed a series of products which were new to both the company and the market. The management also applied for funds from the headquarters to invest in a new machine to produce the new designs, and organized training for production operators.

However, as these activities were counter to the prevailing values and beliefs on production efficiency and certainty, conflict and resistance emerged in the

company, which temporarily disturbed the existing coherence between the organization's interpretative scheme and its structural arrangements. The weakened coherence further led to declining organizational performance – Beta did not manage to sell any new product from the two innovation platforms. Moreover, it experienced loss of customers, shrunk basic business and declining financial performance. Members of Beta became frustrated and disappointed about innovation. They started to question whether the effort to innovate was worthwhile and whether innovation was the right strategy for the company at all.

New coherence

The declining performance eventually pushed Beta's management to abort the innovation strategy and change the strategic focus back to consolidating operations in order to restore the prosperity of the basic business. The company's innovation attempt was regarded as inappropriate and therefore withdrawn. The management cut new product development activities and focused on the basic business and production efficiency, e.g., cost reduction, product quality, on-time delivery and customer service, etc. Innovation would not be considered until the company had managed to regain the health of the basic business. By doing so, Beta attained a new organizational coherence as it resumed its previous structures and returned to the same archetype where it used to be. Although Beta intended to change people's mindset and move out of its current situation towards becoming more innovative, this intention did not succeed and Beta eventually returned to its starting point. The new coherence was achieved with a reaffirmed interpretative scheme as members of Beta reconfirmed their core values and beliefs they had had before.

8.3.3 Case Gamma

Initial coherence

Gamma's dominant culture as its interpretative scheme consists of a set of values, beliefs and assumptions shared by a majority of the organizational members, including short-term profitability, balance, compromise, and being content with good enough.

These values and beliefs are embodied and supported by Gamma's structural arrangements. For example, the sales function is regarded as the most crucial

one and sales people enjoy high status in the company. They are also the project managers and take the responsibility of exploring new markets and new products. Seen as a bridge between customers and the company, sales people bring customer information and requests into the company and convey them to designers and production operators. Other functions are seen as support of sales. The design center is under the sales structure and design managers report to the sales director. The designers' job is referred to as "copy and paste", as they always follow sales people's instructions and do not have much impact on packaging design. Profit is the most important indicator of performance measurement and each function's performance measurement is associated with profitability.

Interaction

At Gamma, financial performance and market share had been stable for several years and the company was very satisfied with its current situation. Although everything seemed "good enough" and there was no need for radical changes, seeing "everyone else is doing innovation", Gamma's management realized that remaining in the same place would mean the company would be eventually "left behind". Hence innovation was seen as a way to maintain its profit level and market position and potentially stimulate new business growth.

Therefore after the innovation strategy was introduced into Gamma from headquarters, the management adopted it and formulated new values emphasizing new product development and design as well as being more proactive and open to different opportunities. The implementation of the innovation strategy further led to the initiation of the "Monthly Innovation Project", in which the company aimed to proactively search for opportunities rather than reactively responding to specific customer requests. Meanwhile, with an eye to the value of balance, Gamma's management chose to take a moderate approach to innovation with the aim of exploiting market opportunities for new products and simultaneously maintaining the traditional corrugated business as its core. The products developed in the "Monthly Innovation Project" were mostly significant improvements to the existing products rather than radical innovations completely new to the market.

New coherence

Accordingly, Gamma’s innovation attempt caused changes to some parts of the structural arrangements and temporarily disturbed the initial coherence of the organization. However, Gamma accepted and incorporated these changes into its existing structural arrangements, and at the same time slightly adjusted its interpretative scheme to assure its consistency with the structural changes. Therefore, a new coherence was achieved with both new structural arrangements and an adjusted interpretative scheme. The new interpretative scheme placed more value on innovation and design as well as being open and proactive to the market opportunities, which was reflected in the change in people’s way of thinking. Therefore, Gamma has changed from being tentative and uncertain to being more convinced and certain about innovation. The consistency between the adjusted interpretative scheme and structural arrangements also resulted in satisfactory organizational performance (including a desirable financial performance, stable market share and improved customer relations, etc.), which further justified the organization’s innovation attempts and demonstrated the viability of innovation. Seeing innovation as the “right way to go”, management decided to keep the innovation strategy and continue the innovation activities.

To summarize, according to the analysis presented above, it is the dynamic interaction between the organization’s interpretative scheme (the dominant culture of the organization) and the structural arrangements that results in different patterns of innovation dynamics. Three innovation dynamics are unpacked and summarized as follows in Table 8-4:

Table 8-4 Unpacking the innovation dynamics

		Alfa	Beta	Gamma
Innovation dynamics		Striding forward	Aborted excursion	Reorientation
Initial coherence	Interpretative scheme and value of innovation	Supporting innovation	Against innovation	Orthogonal to innovation
Interaction	The relationship between innovation practices and the interpretative scheme	Consistent	Counter	Parallel
New coherence	The innovation practices	Strengthened	Discarded	Continued
	The interpretative scheme	Reinforced	Reinforced	Adjusted

8.4 Innovation culture at the functional level

So far, archetype theory has provided a useful tool to help us understand the culture-innovation relationship. Greenwood and Hinings' (1988) concept of organizational track is used to understand the innovation dynamics. The three different patterns of innovation dynamics identified from the cases, i.e., striding forward, aborted excursion and reorientation are seen as organizations' different movements between or within archetypes. These patterns of innovation dynamics have provided empirical illustrations of archetype theory in studies of innovation. Moreover, Greenwood and Hinings' (ibid.) model of archetype movement provides an analytical framework to explain why the innovation dynamics exhibit different patterns. By mapping each of the innovation dynamics into three positions, i.e., initial coherence, interaction and new coherence, the model constructed in Figure 8-1 has helped to unpack each one by revealing the dynamic interaction between the organizational culture (the interpretative scheme) and the organizations' structural arrangements within each position, which results in different patterns of innovation dynamics.

Therefore, by unpacking the innovation dynamics, archetype theory has helped to open the black box of innovation culture and revealed the dynamics within the culture-innovation relationship. To answer the research question "*how does organizational culture influence innovation?*" instead of assuming a direct causal relationship between culture and innovation, the analysis suggests that *culture influences innovation indirectly by shaping the innovation processes into different patterns* (different patterns of innovation dynamics). And the dynamic interaction between organizations' innovation activities and the prevailing cultural values and beliefs as the organization's interpretative scheme is the key which decides the patterns of innovation dynamics.

However, there are two questions which the archetype theory does not explain or take into consideration. First, according to archetype theory, it is the tension between innovation activities and the interpretative scheme that causes archetypes to move between different positions, resulting in different patterns of innovation dynamics. When the organization's structural change does not fit its interpretative scheme, the innovation activities that cause changes to the structural arrangements will be discarded. Nevertheless, how the innovation initiatives take place in the first instance is not explained. For

example, in Case Beta, although innovation was counter to the prevailing organizational values and beliefs, when the innovation strategy was introduced into the company, Beta still made attempts to innovate and had been working on new product development for two years, although the innovation strategy was aborted in the end. If there is a strong dominant culture against innovation within the organization, how could innovation temporarily become accepted and even be implemented for a period of time?

Second, using the term of interpretative scheme, Greenwood and Hinings' (ibid.) model of archetype movements suggests that there is one set of values and beliefs constituting the interpretative scheme of the organization. Applying this model to understand innovation culture, the analysis conducted in the previous sections only takes into consideration the dominant cultures of the organizations, whereas it neglects the existence of subcultures. The empirical material has shown that different functional subcultures do exist and some of them are even counter to the dominant cultures of the organizations. Therefore, how do different functional subcultures play a role in the culture-innovation relationship? In particular, how do these subcultures interact with each other when people from different functional groups holding different values and beliefs encounter each other in innovation processes, and how does this interaction further influence innovation?

The key to these two questions lies in different levels of analysis. So far, as presented in sections 8.1 and 8.3, the archetype theory as a theoretical lens has helped to explain the culture-innovation relationship at the organizational level. However, to acquire a more thorough understanding, further analysis focusing on the functional level is needed. Members from different functions may share some overarching values and beliefs but also have their separate values due to their distinct educational backgrounds, job responsibilities and goals. As shown in the cases, the most crucial functions in the three companies are, respectively, design (Case Alfa), production (Case Beta) and sales (Case Gamma). Designers, production and sales people have been the key actors in the innovation processes. Their different values and beliefs lead to different reactions to innovation, causing tension and conflict between different functions, which become an obstacle to innovation.

As packaging design is the key in the new product development in the case companies, design centers have played an important role in the innovation processes. They also have subcultures distinct from other functions due to the

particular educational background, experience, tasks and goals of designers. The primary goal of designers is to find and exploit new opportunities for innovation and contribute to the company by creating value through innovative design. They are driven by problem solving, challenging and exploring new things and driven by intrinsic rather than extrinsic motivation. Therefore, designers share the values of innovation, creativity, openness, risk-taking and exploration, etc. which constitute an innovation subculture in the organization. On the contrary, the main goal of production is productivity and customer service. Actors from production need to keep the production flow from being interrupted and to make sure the customer orders are delivered on time and are of satisfactory quality. Therefore, they prefer standard products as well as simple and routinized production procedure with as fewer changes as possible. Hence, the central values of production include production efficiency, certainty, simplicity and stability, etc. Apart from design and production, sales is another important function in the case company and sales people are also key actors in the innovation processes. The primary goal of sales people is to seek profit and all the activities should serve for this goal and be associated with financial outcomes.

Therefore, a further understanding of the relationship between culture and innovation requires us to take into consideration different functional subcultures (in particular, design, production and sales subcultures in this thesis), examining how actors from different functions react to innovation differently, how their distinct values, beliefs and assumptions encounter and interact with each other when actors from these functions work together in innovation processes, as well as how these interactions between subcultures further influence the innovation processes. In particular, as innovation is the central value of the design subculture, the analysis here focuses on discussing how design subculture, as the innovation subculture, interacts with and adapts to other functional subcultures in the innovation processes. The analysis of the three cases is presented in the following sections.

8.4.1 Case Alfa – dominance of design

At Alfa, given the organization's emphasis on innovation and design, the design center is regarded as the most important function. Designers share the value of innovation, customer-focus, learning and risk-taking. Apart from sharing the belief that the whole organization is one big family like the rest of

the organization, designers also view the design center as a small separate family. Designers have their own routinized social events such as the “Friday breakfast” and other informal gatherings outside work. Many of them are not only colleagues but also friends. Within the design center, harmony, sharing, as well as caring and helping each other are highly valued. Designers also enjoy high status at Alfa. They are regarded as “smart guys” and are respected by members from other functions. These distinct features of the design center, e.g., its interior decoration, designers’ way of working as well as their friendly personal relationships make design center a small closed group in relation to other functions in Alfa. Both managers and other employees in Alfa are very proud of their design center and the design capabilities.

Since design is the dominant function in the company, the core values of the design subculture such as innovation, customer focus and risk-taking are also shared by members from other functions, which become a part of the dominant culture. Therefore Alfa’s dominant culture is an extension of the design subculture and driven by designers.

Although innovation has been Alfa’s business approach, the innovation strategy from headquarters increased its legitimacy. As management adopted the innovation strategy and started to innovate more aggressively, the designers received more power and legitimacy to work with innovation which had been considered as the right thing to do according to their values and beliefs. Therefore, the design center has been a driving force in implementing the innovation strategy at Alfa. The design manager and designers played an important role in the new product development process, from idea generation, product development to commercialization. They identified the opportunity of developing the Oyster Packaging, organized workshops to collect ideas, invited designers from the innovation center and other design centers, introduced a new material – “honeycomb” – which had never been used before by Alfa, communicated with customers and collected feedback to improve the product.

Sharing the central values of the design subculture, members from other functions and management were also very supportive of the innovation activities driven by designers. Management provided freedom to designers and allocated resources needed by the design team. Production adjusted the production schedule and machinery for new product tests. Designers,

production operators and sales people worked together in key account teams and supported each other in the new product development process.

Seeing the improved organizational performance through innovation, the implementation of the innovation strategy and all the innovation activities were demonstrated as the “right way to go” for the company. Alfa confirmed the innovation strategy and decided to invest more in innovation, which further reinforced design’s dominant status in the company. The core values of design subculture were reinforced and accepted by other organizational members.

8.4.2 Case Beta – dominance of production

At Beta, production is regarded as the most important function and has a set of values and beliefs widely shared and firmly endorsed within production constituting the production subculture. For example, production efficiency is highly valued which is reflected in the KPIs as volume and speed. Moreover, certainty, simplicity and stability are also highly valued. Besides, it is believed that the company’s competitive advantages are product quality and customer service rather than design and innovation, and therefore the company should focus on maintaining its core business – the traditional corrugate business.

The core values within production such as focusing on corrugated business, productivity and certainty are also shared by the majority of the organization including sales, finance and quality departments, which constitute Beta’s overarching culture. However, as the central value of innovation, design subculture is counter to the core values of production subculture. Nevertheless, the design subculture was surprised by the strong dominating production subculture which is shared by the majority of the organization.

When the innovation strategy was introduced into Beta, it provided legitimacy of innovation which was otherwise considered as inappropriate according to the prevailing values and beliefs driven by the production. And the management’s adoption of the innovation strategy also empowered designers and provided them with legitimacy in the organization to do what they had always wanted to do. The previously suppressed design subculture was temporarily released and designers became the center of the organization under the innovation strategy. Designers were very enthusiastic about the new

innovation strategy and immediately engaged in all kinds of innovation activities for developing the two innovation platforms. They adopted Shelf-Ready Packaging from another SCAP company and developed the Food-Safe Packaging by themselves. Workshops were organized in the design center for brainstorming and collecting ideas for product improvement.

However, as the new product development process proceeded, designers experienced resistance from the rest of the organization. The resistance was particularly strong from the production, as all these innovation activities were counter to the core value of production efficiency, simplicity and stability strongly held within production. The new design was like “flying to the moon” to production. The proposal of buying a new machine caused more doubt and skepticism among the production people who were not willing to participate in the training for the new machine, as it was considered to disturb their regular work schedule and cause extra work shifts during the weekend. Moreover, production was not willing to absorb the time for new product test into their productivity figures as it would be shown to be unexpected cost.

Innovation also encountered obstacles in other functions such as sales and finance. Sales people were not motivated to sell innovation because it was always difficult to get a good sales volume of new products with high price and convince customers to pay premium for the added value. Seeing that it was the traditional business that constituted the major part of Beta’s turnover and profit, the finance manager was not convinced by the two innovation platforms and considered that design and innovation was a big cost for the organization.

Under the strong dominant culture which was against innovation driven by production, designers did not manage to maintain the legitimacy of innovation. Seeing the non-commercialized new products and declining organizational performance, the management of Beta eventually abandoned the innovation strategy and started to focus on consolidating operations and improving production efficiency, which suggested that production regained its dominant position in the organization. Design thus lost the temporarily gained legitimacy and power to push innovation forward. Moreover, even the design manager and designers started to question innovation and accept that the company should focus on the traditional business. The temporarily

released design subculture was re-suppressed and the core values and beliefs of the production subculture were reinforced.

8.4.3 Case Gamma – dominance of sales

At Gamma, sales is the most important function and other functions are seen as supports. The core value in sales subculture – profitability – is also shared by a majority of organizational members and become a central value of the overarching organizational culture of Gamma. Besides, as the majority of the organizational members also share the value of balancing, compromising as well as being content with good enough, different functions in Gamma are rather balanced and there is no big power discrepancy between them. Although different functions sometimes have disagreements due to their different focuses and priorities, attempt is always made to find a commonly agreed solution which can be satisfactory to all the parties involved. And members of different functions always try to avoid conflicts through discussion and compromise. Management also plays an important role in balancing different functions and helping them reach consensus.

Since the innovation strategy had been introduced at Gamma and adopted by the management, more focus had been put on innovation and design. Under the new strategy, designers became more central in the organization and were very enthusiastic about innovation. Since the “Monthly Innovation Project” had been initiated, designers were more often involved in workshops and customer meetings than before. Instead of following the sales people’s instructions and doing “copy and paste” work, designers could make an impact on the new product development process and hence they felt more valued and important than before.

Seeing the changed role of design and the rise of the status of the design center in the company, other functions started to accept the value of innovation and design and consider that innovation was the right thing to do in the company and were also engaged in the innovation processes. Especially as the dominant function at Gamma, sales played an important role in the innovation process from project initiation to the product commercialization. In the “Monthly Innovation Project”, sales people were asked to search for opportunities and collect ideas outside the company for new product development. As project managers, they took the responsibility of contacting

customers, collecting customer requests and bringing them to design and production, organizing customer meetings and workshops, being the bridge between customers and the company. At the same time, they constantly searched for new customers to sell the new products.

However, given the value placed on production efficiency, there was occasionally friction between production and design when the new designs were tested in the manufactory, as they often interrupted the production flow, causing reduced production speed and volume. Sharing the values of the dominant culture such as balance and compromise, production and design nevertheless managed to solve the problems through negotiation. Both parties compromised so that the design could retain its novelty and at the same time fit the manufacturing capability. Therefore this friction did not lead to further conflict. Gamma's management also played an important role in coordinating between different functions and solving the conflict between them during the innovation process. For example, management assigned time particularly for new product tests and trial production every day so that they would not disturb the regular production; it also provided production with flexibility so that the production schedule could be adjusted for new product tests.

The organization's collective effort on innovation resulted in satisfactory organizational performance, which further justified the viability of innovation. Gamma's management therefore decided to keep its innovation strategy and continue with its innovation activities, further providing innovation with more legitimacy in the company. The value of innovation, hence, became more accepted by other functions and the design subculture in which innovation was a central value was enhanced. Therefore the overall organizational culture became more focused on innovation than before.

8.4.4 Comparison and summary

As recalled from previous sections, one question remained unsolved when using the archetype theory to explain the culture-innovation relationship: if the central values and beliefs of the dominant organizational culture are counter to innovation, how does the innovation initiative take place in the organization in the first instance? To answer this question, I have switched the focus of analysis from the organizational level to the functional level by

discussing different functional subcultures and innovation, in particular, the dynamic interaction between different functional subcultures. Moreover, I take up the issue of how the design subculture as an innovation subculture in the case company interacts with other functional subcultures in the innovation processes.

First of all, the analysis has shown that an organization's overarching culture overlaps with the dominant functional subculture and is driven by the dominant function in the organization. The core values of the dominant subculture are also shared by other functions and therefore are also the central values of the overarching organizational culture. As shown in the cases, the dominant functions in three companies are design, production and sales, respectively. These three functions have distinct subcultures due to members' different educational backgrounds, experiences, job responsibilities, tasks and goals. The central values and beliefs of the three subcultures also constitute the major part of the overarching organizational cultures. At Alfa, the core values shared by a majority of the organizational members include innovation and design, customer focus, risk-taking and openness to external knowledge. At Beta, the value of production efficiency, certainty and risk aversion are widely shared and strongly held by organizational members. At Gamma, the overarching organizational culture endorses the core value of profitability which is also a central value of sales subculture.

When the innovation strategy from the headquarters was introduced into the three subsidiaries, it changed the focus of each subsidiary to design and innovation. Designers received legitimacy and were able to acquire resources to do what they had always considered the right thing to do – innovation. The status of design function was also raised and the design function became more central and important in the subsidiary. Therefore designers were empowered to be able to drive innovation in each subsidiary and even push other functions to innovate. At Alfa, after the management had adopted the innovation strategy issued from the headquarters, design became more focused and the status of the design center was reinforced although it had been the dominant function at Alfa. The design subculture was enhanced and became more dominant. At Beta, the dominant function was production in which the subculture was counter to innovation. After the innovation strategy was adopted, the previously suppressed design subculture was temporarily released and designers finally received the legitimacy to work with innovation which they had always been wanted to do. At Gamma, sales was considered as

the most valued function. However, because the organizational members also shared other values such as balancing, compromising and being content with good enough, the dominance of sales was not as strong as design at Alfa or production at Beta and different functions were fairly well-balanced. Under the innovation strategy, design and innovation nevertheless became more focused and the status of designers was also raised.

Therefore, it is the design subculture as an innovation subculture in the organization that allows innovation initiative to take place in the first instance and drives the innovation activities in the organization for a period of time. As can be seen from the cases, all three companies initiated innovation projects and engaged in all kinds of activities to develop new products. Designers at Alfa and Gamma received support from the management and other functions. Especially at Gamma, although disagreement sometimes emerged, with the value of balance and compromise, actors in Gamma were willing and managed to find a solution which could satisfy each party. And at Beta, even the dominant culture was driven by production, due to temporary empowerment and legitimacy, designers were able to make the innovation initiative happen. However, they encountered resistance and obstacles from the rest of the organization as the innovation process proceeded.

Finally, designers' dedication to innovation and the support from management and other functions led to organization-wide efforts of innovation at Alfa and Gamma, which resulted in satisfactory organizational performance. Alfa's focus on innovation and design was further legitimized. The design center at Alfa maintained its dominant position and high status, and the innovation subculture was reinforced. At Gamma, the satisfactory organizational performance confirmed Gamma's previous innovation attempt and demonstrated the importance of design and innovation, which strengthened the innovation subculture in the design center. Therefore, both Alfa and Gamma decided to continue with the innovation strategy. However, at Beta, the conflict between design and other functions, especially production, during the innovation processes led to declined organizational performance, which deprived designers' legitimacy from continuing with their work on innovation. Production regained its dominance of the company. Management was pushed to abort the innovation strategy, withdraw the innovation activities and focus on production efficiency, which further reinforced the production subculture. The temporarily released innovation

culture became even more tightly suppressed than before, as even the designers started to have doubts about innovation.

Therefore, the analysis suggests that an organization consists of a set of interlocked subcultures based on different functional groups, and some of them are more dominant than others. These subcultures can interact and adapt to one another when members from different functions encounter each other in the innovation processes. Innovation is thus influenced by this interaction which is a result of the shift in power relations between different functions. Accordingly, instead of the term “innovation culture” which indicates a single unified culture within the organization, the term “*cultures of innovation*” can reflect the inconsistency and heterogeneity of the organization. Therefore this term is more appropriate to be used to describe the actual situations in organizations and understand the relationship between culture and innovation.

The analysis in the previous sections can be summarized in Table 8-5:

Table 8-5 Cultures of innovation

		Alfa	Beta	Gamma
Before innovation	The dominant function	Design	Production	Sales
	Innovation subculture	Dominating	Suppressed	Balanced
During innovation	Innovation subculture	Enhanced	Temporarily released	Empowered
	Other functional subcultures and innovation subculture	Supporting	Colliding	Accommodating
After innovation	Innovation subculture	Reinforced	Re-suppressed	Strengthened
	Innovation attempt	Reinforced	Withdrawn	Continued

8.5 Discussion

So far, I have analyzed the culture-innovation relationship at both organizational and functional levels. In this section, I will further highlight and discuss some key findings from the analysis and compare them with previous studies.

8.5.1 A feedback loop from innovation to culture

The findings from the analysis in the previous sections have shown that an organization's cultures play an important role in innovation. Cultures shape organizations' innovation processes into different patterns and the interaction between different functional subcultures can also influence innovation. At the same time, the findings also suggest that the innovation outcomes perceived by organizational members can also influence their values and beliefs, suggesting a feedback loop from innovation to culture. This is a crucial characteristic of the culture-innovation relationship which has been neglected by previous studies.

Alfa

At Alfa, the feedback loop was seen as the improved organizational performance reinforced by the organization's dominant culture (interpretative scheme). In the beginning, the adoption and implementation of innovation strategy were considered as appropriate as they were consistent with Alfa's interpretative scheme consisting of the values placed on innovation, customer focus, risk-taking and openness to external knowledge sources, etc. The initial organizational consistency between the interpretative scheme and the structural arrangements remained intact. The organizational coherence led to improved organizational performance which further demonstrated the value of innovation and therefore reinforced the core values of the dominant culture. Seeing the positive outcomes from innovation, members of Alfa were motivated and encouraged by innovation. The headquarters' advocacy of innovation had provided Alfa with more legitimacy for what it had been doing. Therefore innovation had changed from a gut feeling of management to a legitimized business approach and strategy for the company. Both managers and other employees at Alfa became more confident about innovation, with an even stronger belief that innovation was the right strategy

and the company's "everyday business". The interpretative scheme was reinforced, which could be seen from management's decision to continue the innovation strategy and a series of actions were planned to strengthen the innovation effort in the future.

Beta

At Beta, the feedback loop was seen when the declining organizational performance pushed Beta's management to withdraw the innovation activities and resume the previous strategy focusing on the traditional business and production efficiency, which reconfirmed Beta's interpretative scheme. At the beginning, the innovation strategy was counter to the core values placed on productivity and certainty of the dominant culture. However, seeing the difficulty in searching for growth in the existing business, Beta's management decided to adopt the innovation strategy with the intention to escape from the competition and open a new market area. However, these innovation activities caused structural changes and disturbed the overall coherence of the organization. The disturbed coherence then led to declining organizational performance. Members of Beta became disappointed and regretted that the company had followed the innovation strategy. As the innovation attempt failed to bring the expected outcomes, it was realized that the company should focus on the traditional business instead of innovation. The interpretative scheme was reinforced through a series of actions such as abandoning the innovation strategy, resuming the previous strategy, withdrawing the new product development activities and focusing on production efficiency, cost reduction and service management, etc.

Gamma

At Gamma, the feedback loop was seen as the structural changes caused by the innovation activities resulting in adjustment to the organization's interpretative scheme. Initially, innovation was not contradictory to Gamma's interpretative scheme as the company highly valued profit and balance between traditional business and innovation. In order to maintain the profit level, the company needed to keep a balance between the traditional business and new product development. Therefore, Gamma employed a moderate approach to innovation in order to maintain the traditional business as its core. The changes caused by the innovation activities strengthened the existing structural arrangements of Gamma and further led to satisfactory organizational performance. At the same time, Gamma's interpretative

scheme was also slightly modified. Gamma's tentative innovation effort was confirmed and the value of innovation was demonstrated by the satisfactory organizational performance. Members of Gamma, thus, became more convinced and certain about innovation. The dominant culture was reinforced as the organization made the decision to keep the innovation strategy and continue investing in innovation.

To summarize, all three cases have shown that there is a feedback loop from innovation to culture as the dominant cultures as organizations' interpretative schemes are affected by the feedback from the organization's innovation attempts. In the cases, the organization's dominant culture was reinforced (in Case Alfa), intended to change but reconfirmed (in Case Beta), and slightly modified (in Case Gamma) based on the perceived innovation outcomes. Thus in the culture-innovation relationship, the forward arrow from culture to innovation and the backward arrow from innovation to culture suggest that culture and innovation mutually influence each other. As this mutual influence continues and reoccurs, the recursive interaction continues and these interactive loops constitute a spiral model of the culture-innovation relationship, which can be downwards (mutually weakening) and upwards (mutually reinforcing). And in this spiral model, culture and innovation are interdependent and alternate as the cause and effect. Because of the interdependence between them, focusing on one of them and attempting to determine unidirectional causality obscure the dynamic and amplifying nature of the spirals (Weick, 1979).

This feedback loop also shows that an organization's path dependency in the historical imprinting of organizational decision-making can lead an organization into a self-reinforcing mechanism, resulting in an organization's loss of flexibility and lock-in to their previous paths (e.g., Sydow, Schreyögg & Koch, 2009). And it also adds to Miller and Friesen's (1980b) argument that in the long run, innovative firms tend to be more innovative and conservative firms tend to stagnate.

8.5.2 Strong cultures and innovation

The existing literature has suggested that a strong culture where the values and beliefs are firmly endorsed by the organizational members (Schein, 1985; Gordon & DiTomaso, 1992) can be a hindrance for innovation (Nemeth,

1997; Boisnier & Chatman, 2003). A strong culture assures organizational commitment, high moral and desirable work behaviors and will therefore increase productivity and organizational performance (Denison, 1984; Gordon & DiTomaso, 1992; Kotter & Heskett, 1992), but can be an obstacle for innovation as it keeps the organization from initiating or reacting to change (Boisnier & Chatman, 2003). Members of organizations with strong cultures may resist change more vehemently, and change within organizations strong cultures can induce major conflicts and dissent (ibid.). However, the cases in this thesis have provided evidence that strong cultures do not necessarily hinder innovation or change.

According to Boisner and Chatman's (ibid.) definition, a strong culture is defined as an organizational culture in which organizations have a set of clear and coherent values, and members agree and care intensively about these values. Therefore a strong culture is described on two dimensions: sharedness (level of consensus, cohesion or dispersion) and intensity (members' demonstrated commitment to those values).

Alfa

According to these two dimensions, Alfa's family-like culture is considered as the "strongest" among the three cases, as the central values and beliefs are clear and coherent and members also demonstrate a strong commitment to those values and beliefs. Having innovation as a central value, Alfa's strong culture facilitates rather than hinders innovation. The company used an aggressive innovation approach and members from different functions supported each other in the new product development process. As Tushman and O'Reilly (1996) suggest, a strong overarching culture can facilitate trust and predictability as well as promote information and resource sharing, and therefore it can coordinate members of the organization and resources in the innovation process. Moreover, with the strong family-like culture, members of Alfa share the sense of belonging to a meaningful entity and the pride of being a part of the company. This pride-in-company, together with knowing that the innovation is important and valued in the company, provides incentive for innovation (Kanter, 1983).

Beta

Beta's organizational culture is not as strong as Alfa's. Although members of Beta have demonstrated a strong commitment to the core values and beliefs

of the dominant culture, Beta's culture was not as homogeneous and coherent as Alfa's. Different, even conflicting, values exist within different functions in the organization. Moreover, production efficiency, predictability and certainty have been valued highly and this was counter to innovation. Beta's innovation attempt therefore encountered obstacles and received strong resistance from the organizational members as it was not consistent with the core values of the dominant culture which were firmly endorsed by the organizational members.

Gamma

Gamma's organizational culture is the weakest among the three cases. Members of Gamma share a set of core values and beliefs which constitute the organization's dominant culture, while these values and beliefs were not held as profoundly and intensely as in Alfa and Beta. Members from different functions also share their own values and beliefs independently of each other. The dominant culture neither advocates nor downplays innovation. Consistent with these core values, Gamma's innovation approach was rather moderate compared with the aggressive innovation approach employed by Alfa and Beta. Although the innovation process was not as smooth as it was in Alfa, and organizational members did not show as much enthusiasm as those at Alfa, Gamma's innovation attempt neither caused any big conflict nor received strong resistance from the organizational members as they did in Beta.

Accordingly, strong cultures are not necessarily an obstacle of innovation; moreover, strong cultures where innovation is a central value can be a facilitator of change and innovation. This finding is consistent with previous literature which suggests that both the strength and content of culture (what the cultural values and beliefs are) need to be taken into consideration when discussing culture's influence on innovation (Hauser, 1998; Lee & Yu, 2004; Jaskyte & Dressler, 2005).

8.5.3 Subcultures and innovation

Previous studies have suggested that one way of fostering innovation in organizations with strong cultures is to allow subcultures to emerge (Martin & Siehl, 1983; Tushman & O'Reilly III, 1996; Boisnier & Chatman, 2003). Subcultures thus provide an advantage of managing innovation as they are

separate enough to allow creativity to flourish but still remain in the organization and thus are connected to the larger resources and coordination capabilities of an organization (Boisnier & Chatman, 2003). Organizations with strong cultures can remain flexible enough to change and adapt the external environment by having subcultures. In particular, subcultures characterized by creativity can foster innovation and adaptation to the environment by generating norm variations in the company (ibid.).

The cases in this thesis have shown that different functional subcultures exist in organizations. In particular, the design center and production have distinct subcultures. Members of these two functions have separate values, and at the same time also share the core values of the dominant culture of the organization. The central values of design subculture include innovation, risk-taking, proactivity as well as openness to the external knowledge sources, while production operators share values such as production efficiency, certainty, simplicity and stability. How different subcultures interact with each other and how this interaction influences innovation has been discussed in section 8.4. As shown in the cases, having innovation as a central value, designers have played a very important role in the innovation processes in all three cases. This finding is consistent with previous literature which suggests that organizations with strong cultures can foster innovation by stimulating subcultures where innovation and creativity are the central values (ibid.). Nevertheless, the findings have also shown that the extent to which innovation subculture can flourish and become a driver of innovation also depends on the power relations between functional groups.

In organizations where the subculture of the dominant function has innovation as a central value (i.e., in Case Alfa), this subculture can be a source of innovation, and the dominant function can also be a driving force of innovation in the organization. In organizations where the subculture of the dominant function contains central values that are counter to innovation such as risk aversion, certainty and stability (i.e., in Case Beta), subcultures in which innovation is a central value are very likely to be suppressed by the dominant subculture and therefore less likely to allow flexibility for the organization as the previous literature has suggested (ibid.). And in organizations with weak cultures in which several orthogonal subcultures coexist with the dominant organizational cultures (i.e., in Case Gamma), it is more likely and easier for the innovation subcultures to survive and flourish than in organizations which have strong and countering innovation cultures.

8.6 Concluding remarks

The analysis in this chapter can be divided into two parts. The first part explains the notion of innovation culture at the organizational level, in which the theories of organizational archetypes (Miller & Friesen, 1980a; Miller & Friesen, 1982; Greenwood & Hinings, 1988; 1993) and archetype movement (Miller & Friesen, 1980a; Greenwood & Hinings, 1988) have provided a useful theoretical lens to understand the relationship between culture and innovation. The key concept in this part of the analysis is “*innovation dynamics*” which refers to an organization’s movement between or within archetypes by means of innovation. That is, through innovation, an organization adapts to the changes in its internal and/or external environment by moving from its original archetype to another archetype in which it has a better fit with the environment. Three different patterns of innovation dynamics have been identified from the cases, namely *striding forward* (Case Alfa), *aborted excursion* (Case Beta) and *reorientation* (Case Gamma), representing different trajectories of innovation in which an organization’s innovation attempt has been strengthened, intended but withdrawn or continued.

Furthermore, an analytical framework constructed in Figure 8-1 based on Greenwood and Hinings’ (1988) model of archetype movement has helped to reveal the mechanisms of innovation culture. According to this framework, I have unpacked each of the innovation dynamics by mapping the organizations’ movements into three different positions: *initial coherence*, *interaction* and *new coherence*. Through the lens of archetype theory, the analysis suggests that it is the dynamic interaction between the organization’s prevailing values and beliefs (the interpretative scheme) and the structural arrangements changed by the innovation activities that causes an organization’s movements between positions.

When innovation activities as new practices are introduced to an organization, they cause changes to the selective parts of the organization’s structural arrangements, which can temporarily disturb the existing coherence within the organization. In order to restore the coherence, the organization retains its innovation activities if these are consistent with the interpretative scheme and discards those inconsistent with the interpretative scheme. Therefore, this part of the analysis suggests that instead of being seen as a direct cause of innovation outcomes, culture seen as the organization’s interpretative scheme

influences innovation indirectly by shaping an organization's innovation processes into different patterns.

As summarized above, at the organizational level, archetype theory has provided a useful theoretical lens to understand the culture-innovation relationship. However, focusing on the organizational level, archetype theory fails to explain how the innovation initiative that causes structural changes that are not consistent with the organization's interpretative scheme can take place in the first instance. Besides, as archetype theory refers to the interpretative scheme as a set of prevailing values and beliefs within the organization, using archetype theory to understand the culture-innovation relationship only draws attention to the overarching organizational culture. When taking the subcultures into consideration, archetype theory is insufficient and less helpful in explaining how these subcultures influence organizational innovation. In other words, archetype theory has helped to unpack the black box of innovation culture at the organizational level. However, to acquire a more thorough understanding of the concept of innovation culture, further analysis needs to be conducted at the functional level, and this has been done in the second part of the analysis.

This has revealed the dynamic interaction between different functional subcultures and how it influences an organization's innovation. It suggests that the dominant culture of the organization is driven by the dominant functions. They possess power in many aspects of the organization such as decision-making and resource allocation and therefore play an important role in different organizational practices and processes. Hence the subcultures of these dominant functions have a considerable influence on innovation. If the subculture of the dominant function contains a central value of innovation, this dominant function can be a driving force of innovation in the organization; the value of innovation is likely to flourish in the organization and also be shared by other organizational members. If the subculture of the dominant function contains core values that are counter to innovation, it is likely to be shared by other organizational members and can cause an organization-wide resistance to innovation. Even if other functional subcultures may contain innovation as a central value, these innovation subcultures can be suppressed by the dominant subculture.

Hence, the second part of the analysis suggests that instead of the term "innovation culture" which indicates a single unified culture within the

organization, the term “*cultures of innovation*” is more appropriate to use in studying the relationship between culture and innovation, as it takes into account the inconsistency between functional groups and the heterogeneity of the organization.

Moreover, both of the two levels of analysis suggest a dynamic rather than static relationship between culture and innovation. The dynamics within the culture-innovation relationship has two aspects: (1) the dynamic interaction between the organization’s prevailing values and beliefs and its structural arrangements, and (2) the dynamic interaction between different functional subcultures.

Finally, I want to clarify that I am not making the claim that the three different patterns of innovation dynamics identified in this thesis excludes all other possibilities. Given the different types of environmental changes and the complex world of innovation, such a claim is clearly too arbitrary and ambitious. As the aim of this thesis is to extend our understanding of the relationship between culture and innovation, the three patterns of innovation dynamics identified from the cases should be seen as empirical illustrations of archetype theory in the context of innovation. Nevertheless, the analysis in this chapter also highlights the shortcomings of archetype theory in the context of innovation, as it can only assist in analyzing the culture-innovation relationship at the organizational level while is insufficient to explain how subcultures at the functional level influence organizational innovation.

Chapter 9 Conclusions and Contributions

Starting from a discussion on the innovation culture literature, I have raised the argument firstly in Chapter 1 that the existing literature has not provided a sufficient understanding of innovation culture, a term used to refer to the culture-innovation relationship. Therefore, with the aim of extending our understanding of innovation culture, the research question to be answered in this thesis is: *how does organizational culture influence innovation?* In Chapter 2, the argument raised in Chapter 1 is further elaborated by a problematization of the current literature on the culture-innovation relationship. Following this, I have then proposed an alternative perspective on innovation culture which can be more fruitful for understanding the culture-innovation relationship in Chapter 3. From this perspective, theory of organizational archetype (Miller & Friesen, 1980a; Miller, Friesen, & Mintzberg, 1984; Greenwood & Hinings, 1988; 1993) is regarded as potentially helpful to understand the concept of innovation culture. Later, I have presented three cases in Chapters 5 to 7 and analyzed the data in Chapter 8. It is now time to conclude the thesis by summarizing the main conclusions and contributions. The managerial implications and directions for future research will also be discussed.

9.1 Conclusions

The aim of this thesis has been to extend our understanding of the concept of innovation culture by answering the research question – *How does organizational culture influence innovation?* After all the discussion and analysis, so far, how much more do we know about the culture-innovation relationship? As an answer to the research question, this thesis suggests that

culture influences innovation in an indirect way by shaping innovation processes into different patterns; the culture-innovation relationship is dynamic and interactive in which culture and innovation mutually influence each other; and instead of an innovation culture, there are cultures of innovation in an organization. And this extended understanding of the culture-innovation relationship can be further illustrated as follows:

Indirect rather than direct

Instead of directly causing certain innovation outcomes, culture influences innovation indirectly by shaping an organization's innovation trajectory that is conceptualized as "*innovation dynamics*" in different patterns. The innovation dynamics can be described on the following four dimensions: (1) motivation for innovation, (2) innovation activities, (3) innovation outcomes, and (4) reflections and future measures. And three different patterns of innovation dynamics have been identified from this thesis, namely *striding forward*, *aborted excursion*, and *reorientation*; these are summarized in Tables 8-1 to 8-3 in Chapter 8. Moreover, the different patterns of innovation dynamics are a result of the dynamic interaction between organizational culture and the organizations' innovation activities that cause changes to the organizations' structural arrangements. When the innovation activities as new practices are introduced to the organization, they cause changes to the organization's existing structural arrangements, which can temporarily disturb the initial organizational coherence between culture and the structure. In order to resume or maintain the coherence, if the structural changes are consistent with the organization's prevailing values and beliefs, the innovation activities that cause these changes will be maintained; if the structural changes are not consistent with the prevailing values and beliefs, they will be discarded. These dynamic processes have been summarized in Table 8-4 in Chapter 8.

Dynamic and interactive rather than static and unidirectional

Instead of portraying the culture-innovation relationship as a static linear model which suggests a unidirectional causal link from culture to innovation, this thesis proposes *a spiral model of the culture-innovation relationship, which suggests a dynamic interactive relationship between culture and innovation.* Composed of a forward arrow from culture to innovation and a backward arrow from innovation to culture, this spiral model suggests that culture and innovation are interdependent; they alternate as cause and effect and therefore mutually influence each other. In particular, this model highlights the feedback loop from innovation to culture, which has been neglected by

previous studies. This feedback loop suggests that organizational members can reaffirm, reinforce or even modify the shared values and beliefs based on the perceived changes from innovation and judgment about them. In this way, culture influences innovation, and innovation in turn influences culture, and so on. This recursive interaction continues and these interactive loops result in a spiral model of culture-innovation relationship, which can be a downwards (mutually weakening) or upwards spiral (mutually reinforcing).

Cultures of innovation rather than innovation culture

Last, but not least, compared with the term “innovation culture” which suggests a single unitary culture within the organization, the term “*cultures of innovation*” can be a more appropriate term to use when studying the relationship between culture and innovation. Instead of a single unitary culture, organizational cultures are composed of a set of interlocking and sometimes conflicting subcultures based on the functional groups. These subcultures as well as the interaction between them can also influence innovation. In particular, subcultures in which innovation is a central value – referred to as the innovation subcultures – can be an important source and a driver of innovation in organizations, especially those with strong cultures. However, to what extent these innovation subcultures can flourish and drive innovation also depends on the dominant function of the organization and power relations between different functions. If the subculture of the dominant function contains innovation as a central value, this innovation subculture can be a source of innovation and the dominant function can also be a driving force of innovation in the organization. If the subculture of the dominant function contains central values that are counter to innovation, even though there are innovation subcultures existing in the organization, they can be suppressed by the dominant subculture and are therefore less likely to flourish and become a driver of innovation.

9.2 Contributions

This section sums up the contributions of this thesis. First, I discuss the contributions to the innovation culture literature – which is the major contribution of this thesis – by revisiting the arguments raised at the beginning and comparing the findings with previous studies. The

contributions to innovation management literature and organizational archetype theory are also discussed.

9.2.1 Innovation culture literature

By answering the research question: *How does organizational culture influence innovation?* this thesis has made major contributions to the innovation culture literature by extending our understanding of the culture-innovation relationship. In Chapters 1 and 2, I have argued that the current understanding of the culture-innovation relationship provided by the existing literature is limited and insufficient. Often used to refer to the culture-innovation relationship, the term innovation culture has been seen as self-explanatory and taken for granted. It assumes a unidirectional causal relationship between culture and innovation and portrays the culture-innovation relationship as a static linear model. Moreover, the term innovation culture also indicates that there is a single unitary culture within the organization (Hurley, 1995; Kitchell, 1995; Ahmed, 1998; Claver et al., 1998; Hauser, 1998; Hurley & Hult, 1998; Martins & Terblanche, 2003; Lau & Ngo, 2004; Jaskyte & Dressler, 2005; Khazanchi, Lewis, & Boyer, 2007; Dobni, 2008; Valencia, Valle, & Jiménez, 2010; Herzog, 2011; Tienne & Mallette, 2012).

By identifying and describing the characteristics of an innovation culture, previous studies imply that innovative companies are those possessing certain cultural characteristics (Ahmed, 1998; Martins & Terblanche, 2003; Dobni, 2008). In these studies, the culture-innovation relationship captured by the term of innovation culture has been treated as static. This thesis, in contrast, reveals the dynamics within the culture-innovation relationship. This dynamics includes two aspects: (1) the dynamic interaction between the organization's overarching culture and the structural arrangements, and (2) the dynamic interaction between different subcultures in innovation processes. First of all, at the organizational level, by proposing the concept of *innovation dynamics* and a framework (Figure 3-3) to unpack the innovation dynamics, this thesis has described the dynamic interaction between the organization's prevailing values and beliefs and the structural arrangements in the innovation processes, suggesting that it is because of this dynamic interaction that the innovation dynamics exhibits different patterns. Secondly, at the functional level, this dynamics is seen in the interaction between functional

subcultures when members from different functions encounter each other in innovation processes. And this dynamic interaction associated with the change of power relations between functions can also influence innovation, as the dominant subculture as well as the subcultures which entail innovation as a central value play an important role in innovation processes.

Moreover, this thesis has provided an explanation for the assumed causal relationship between culture and innovation. The concept of innovation culture in the previous literature has been defined in a self-explanatory way and therefore taken as given (Hurley, 1995; Dobni, 2008; Herzog, 2011), whereas how culture influences innovation has not been explained. Using the theory of organizational archetype as a theoretical lens, this thesis proposes the concept of “innovation dynamics” and constructing a framework based on the model of archetype movement (Greenwood & Hinings, 1988) to unpack these innovation dynamics, suggesting that culture influences innovation by shaping the organization’s innovation processes into different patterns. It is the dynamic interaction between organizational culture and the structural arrangements that result in the organization’s innovation processes exhibiting different patterns.

This further suggests that culture’s influence on innovation is less straightforward than depicted in previous studies, as considerable research efforts have been made to draw direct correlation between culture and innovation outcomes usually measured by an organizations’ financial index, assuming that certain cultures can directly lead to superior innovation performance (Dwyer & Mellor, 1991; Hurley, 1995; Kitchell, 1995; Jaskyte & Dressler, 2005; Valencia et al., 2010).

Previous studies have depicted the culture-innovation relationship as a static and linear model which suggests a unidirectional causal relationship from culture to innovation (Hurley, 1995; Kitchell, 1995; Ahmed, 1998; Martins & Terblanche, 2003; Khanafiah & Situngkir, 2004; Jaskyte & Dressler, 2005; Dobni, 2008; Valencia et al., 2010; Tienne & Mallette, 2012). This thesis proposes a dynamic spiral model of the culture-innovation relationship. By highlighting a feedback loop from innovation to culture which is neglected in previous studies, this spiral model suggests that culture and innovation alternate to be cause and effect and mutually influence each other.

In addition, in describing different functional subcultures and how they influence innovation, this thesis also contributes to the existing innovation

culture literature by drawing attention to the inconsistency and heterogeneity within organizations. The concept “innovation culture” assumed in much of the literature to date is often considered as representing a single and unitary culture within the organization (Kanter, 1983; Hurley, 1995; Kitchell, 1995; Ahmed, 1998; Claver et al., 1998; Hurley & Hult, 1998; Martins & Terblanche, 2003; Lau & Ngo, 2004; Khazanchi et al., 2007; Dobni, 2008; Valencia et al., 2010; Herzog, 2011; Tienne & Mallette, 2012). By describing how members from different functional groups interact with each other, how conflict emerges when subcultures encounter each other during the innovation processes and how organizations deal with the conflict, this thesis presents the dynamic interaction between subcultures and how it influences innovation. Hence, it extends our understanding of the culture-innovation relationship by highlighting the role of subcultures.

Above all, this thesis has contributed to the innovation culture literature by opening the black box of innovation culture and revealed the mechanisms of the culture-innovation relationship.

9.2.2 Innovation management literature

Strong cultures, subcultures and innovation

This thesis also contributes to the innovation management literature by adding to the discussion on strong cultures, subcultures and innovation. First of all, although previous studies have suggested that strong cultures can impede innovation within organizations (Nemeth, 1997; Boisnier & Chatman, 2003), this thesis provides evidence that strong cultures are not necessarily an impediment to innovation; moreover, strong cultures in which innovation is a central value can be a facilitator of innovation. Secondly, in line with the previous studies (Martin & Siehl, 1983; Tushman & O’Reilly III, 1996; Boisnier & Chatman, 2003), this thesis highlights the role of subcultures in stimulating innovation in organizations especially those with strong cultures. In particular, consistent with Boisnier and Chatman’s (2003) work, this thesis shows that subcultures in which innovation is a central value – referred to as innovation subcultures – can provide ground for creativity and innovation to emerge and flourish and therefore be a driving force of innovation in the organization. Moreover, this thesis also adds to the previous studies by suggesting that the extent to which these subcultures can flourish and drive innovation also depends on the power relations between subgroups

within the organization. If innovation is a central value shared by members of the dominant function, this value is likely to be shared by members from other functions and therefore become a prevailing value of the organization. Therefore this subculture can provide ground for innovation to flourish and the dominant function can be a driving force of innovation in the organization. In contrast, if the central value within the dominant function is counter to innovation, due to the power relation between subcultures, the innovation subculture has little legitimacy or resources to drive innovation in the organizations and is likely to be suppressed.

By describing the inconsistency and conflict between different functional groups in the innovation processes, this thesis also supports previous studies by providing evidence that subcultures can be an obstacle to cross-functional collaboration in innovation processes (Dougherty, 1992a). According to Dougherty (ibid.), members of different functional departments have different “thought worlds” which keep them from synchronizing their expertise. That is, people from different functions have different interpretative schemes, which is the major barrier to cross-functional collaboration in innovation processes and therefore inhibits effective innovation. In addition, Dougherty (ibid.) argues that the barriers of different thought worlds cannot be overcome unless aspects of organizational context which foster separation are also overcome, indicating that as long as functional departments exist, these interpretive barriers remain. However, she further suggests that the organization level of interpretative dynamics can facilitate the collective action of different functions. This thesis adds to this argument by showing that the conflict at the department level due to the different interpretative schemes of functional groups can be eased by an overall organizational culture which places high value on consensus and compromise. This integrative culture can encourage members from different functional departments within the new product development projects to communicate with each other to reach mutual agreement. Moreover, this communication process can also be utilized as a way to improve the products, as during the communication members from different functions challenge each other and push organizational members to the boundaries of their knowledge and expertise, which helps to find the most optimal solution for the customer.

Innovation in large established companies within mature industries

This thesis also adds knowledge to studies on innovation in established companies within mature industries. Mature industries are usually considered

as having disadvantages in innovation (Warren et al., 2000). Most studies on innovation have focused on companies within industries engaged in developing new technology (Eisenhardt & Tabrizi, 1995) or in the growth phase of their development (Cardinal, 2001), whereas those within mature industries are often considered as less innovative and hence have received little attention. Besides, researchers are also pessimistic about established companies' abilities to innovate as they face challenges in balancing their explorative and exploitative activities (Christensen, 1997). By means of a case study from the corrugated packaging industry, this thesis has made an empirical contribution to studying innovation within mature industries. Moreover, according to previous studies (Utterback, 1994), the number of innovations decreases as industries mature, suggesting that companies within mature industries innovate less than those within emergent industries. This thesis nevertheless shows that established companies within mature industries do not necessarily innovate less or lack innovation capabilities compared with small and agile companies within emergent and high-tech industries. They do innovate and some can even make aggressive innovation attempts. Therefore this thesis provides support to McGahan and Sliverman's (2001) study which suggests that the general level of innovation is not necessarily lower in mature industries than in emergent industries.

In addition, from a culture perspective, this thesis has also explained why large established companies within mature industries face innovation challenges. Previous studies have identified some innovation impediments in companies within mature industries such as a lack of internal resources and funding for radical innovation and a lack of individuals and groups actively stimulating and facilitating innovation processes (Warren et al., 2000). This thesis suggests that the organizational culture that embodies the central values such as tradition, risk-aversion and stability can be an obstacle to innovation for companies within mature industries. Moreover, it also suggests that culture is the main reason behind all the above-mentioned innovation challenges facing companies within mature industries, as all these activities associated with innovation are considered inappropriate according to organizational members' mental-map and are not consistent with the organization's interpretative scheme. This finding is supported by Dougherty and Heller's (1994) study, which suggests that the activities of product innovation were illegitimate in large mature firms, as they violated prevailing norms and there was no shared understanding to make them meaningful. Furthermore, the "aborted excursion" in different patterns of innovation

dynamics identified in this thesis shows that large and mature companies do not necessarily lack the ability to innovate but face the problem of sustaining innovation (Dougherty & Hardy, 1996). In addition, although Dougherty and Hardy (*ibid.*) argue that one of the main reasons is that innovation never had strategic support or power in the first place and was ignored and invisible in the organizational context, the finding of this thesis points out that companies do realize the importance of innovation and have provided support to innovation. However, these efforts were temporary as they were inconsistent with the organization's prevailing values and beliefs. Therefore, although continuous innovation is supported by an organization-wide commitment (*ibid.*), this commitment requires shared values and beliefs that support innovation to make it meaningful.

9.2.3 Archetype theory

This thesis also contributes to organizational archetypes theory, as it has provided an empirical illustration of archetype theory in the context of innovation. The theory of organizational archetypes has played an important role in studies on organizational change and strategy (Miller & Friesen, 1980a; Miller et al., 1984; Greenwood & Hinings, 1988; 1993). Previous studies on archetypes have touched upon innovation, for instance, Miller and Friesen (1980b) suggest that the momentum in organizational adaptation also exists in innovation – that innovative firms tend to become more innovative and conservative firms tend to stagnate. Miller and Friesen (1982) further discuss two types of companies – entrepreneurial and conservative – that innovate differently. They follow two distinct patterns of innovation because of different strategies. However, these conceptual papers did not illustrate or explain these patterns of innovation by using archetype theory. By identifying three patterns of innovation dynamics from the cases and presenting and analyzing the empirical material based on the framework of archetype movements (Greenwood & Hinings, 1988), this thesis has provided an empirical illustration for archetype theory in innovation.

Moreover, this thesis highlights the shortcomings of archetype theory in studying culture and innovation – it is helpful in explaining the culture-innovation relationship at the organizational level whereas it is insufficient when taking into consideration various issues at the functional level, e.g., the functional subcultures. As the key for archetype movement is the tension

between culture and structural arrangements, archetype theory does not explain how the innovation initiative takes place in the organization in the first instance when it is inconsistent with the organization's interpretative scheme (organizational culture). Besides, as the concept of interpretative scheme refers to a set of prevailing values and beliefs within the organization, using the archetype theory for understanding the culture-innovation relationship only considers overarching organizational culture while it fails to take into consideration different subcultures. The findings of this thesis further suggest that in organizations where the dominant culture is counter to innovation, it is the subculture in which innovation is a central value that provides the ground for innovation initiative to happen and can be a driving force of innovation in the organizations.

9.3 Managerial implications

Based on the conclusions and theoretical contributions discussed above, this thesis also provides practical knowledge for people working with innovation management. Needless to say, organizational culture regarded as an important influencing factor of innovation has aroused considerable interest from both researchers and practitioners in recent years, as seen in the extensive studies on culture and innovation in innovation management research and strong advocacy of innovation culture in corporate documents and consultancy reports, which makes the term innovation culture almost become a cliché. This rather over-heated discussion on innovation culture also provides over-simplified and even misleading messages to innovation managers about how to utilize culture and what to expect from it in innovation management. This thesis, despite emphasizing the role of organizational culture in innovation management, nevertheless calls for more attention and a deeper appreciation of how to utilize culture to help with innovation management in organizations.

Based on an assumed causal relationship between culture and innovation within the notion of innovation culture, as a practical implication, most previous research provides managers with tools to measure an organizational culture and a recipe for cultivating an innovation culture. These implications thus suggest that managing innovation through culture is a quick and easy way, as it is about ticking boxes on a checklist, e.g., setting an innovation

strategy, designing an organizational structure as well as other measures driven by the top management. And these measures will eventually lead to superior innovation performance most often measured by financial index. However, this top-down approach to innovation such as adopting an innovation strategy does not assure the success of innovation, as they only change the organization at the structure level. At an invisible level, innovation challenges and even requires adjustment to the organizational members' values, beliefs and assumptions, which certainly cannot be achieved within a short period of time. Therefore, culture should not be seen as a "quick fix" for the innovation problems facing organizations.

Besides, the finding of this thesis also suggests that culture's influence on innovation is less straightforward than has been portrayed in previous studies. Instead of directly leading to innovation outcomes, culture influences innovation in an indirect way by shaping an organization's innovation process into different patterns. All these have implications for innovation practitioners who, rather than expecting to harvest innovation outcomes through culture within a short period of time, learn that managing innovation through culture is a long-term project and too much focus on short-term financial outcomes can keep the process from moving forward.

Besides, this thesis has suggested that subcultures in which innovation is a central value can be an important source of innovation within organizations, especially those with strong cultures. And the functions in which people share innovation as a central value play an important role in innovation processes. Yet, management has to provide grounds for those innovation subcultures to flourish, which requires empowerment and support from the management for these functions. Only by doing so can these functions have the legitimacy to influence the rest of the organization and drive innovation within the organization. In this thesis, the design centers of the case company have been a driving force of innovation. The design subculture entails the value of innovation, openness, risk-aversion and learning, etc., and the designers and design managers have played an important role in innovation processes. In particular, within organizations in which design is the dominant function and designers enjoy high status (e.g., in Case Alfa), the design manager and designers exert the most influence on innovation in the organization.

Furthermore, although subcultures can be a driving force of innovation when they contain innovation as a central value, different subcultures can also

inhibit innovation by preventing effective collaboration between functional groups in innovation processes. To overcome this obstacle caused by different interpretative schemes of members from different functions, management needs to create a common ground for people from different functions to communicate and reach a mutual understanding between them. This thesis suggests that cross-functional collaboration is one way to overcome this obstacle. Cross-functional teams built for new product development can provide a context for members from different functions to communicate with each other. And a formally assigned project leader with clearly defined roles and responsibilities can coordinate between different functions as well as between functional departments and top management. In addition, top management also plays an important role in facilitating communication between different functions especially when conflict emerges. And the support from top management can also provide project leaders with more legitimacy to fulfill their responsibilities.

9.4 Limitations and future research

Finally, the limitations of this thesis will be discussed here, which also suggests some possible direction for future research. First of all, given the richness of the concept of culture and various ways of studying it, I have nevertheless restricted myself to study values, beliefs and assumptions. As the focus of this thesis is the culture-innovation relationship, I have chosen to study the selected innovation projects and organizations' innovation activities within these projects. Hence, organizational culture in this thesis refers to *organizational members' values, beliefs and assumptions around these innovation activities* rather than the whole organizational culture in a broader sense. Therefore, this thesis can be seen as *adopting a cultural perspective on innovation*. Moreover, due to the short-term availability of the case company and limited time frame of a PhD project, the possibility for conducting a long-term qualitative study was remote and the time spent on each case during the field work was limited. However, future research can open up different perspectives on culture and aim to conduct a longitudinal study within one organization.

Secondly, as a single, albeit embedded, case study, the conclusions drawn from this thesis are to some extent limited to companies with similar

characteristics, i.e., large established manufacturing companies operating in mature industries. As organizations become larger and more mature, how things should be done becomes institutionalized, which brings greater culture inertia (Tushman & O'Reilly III, 1996). And therefore the organizational culture associated with previous success can become an obstacle to change and innovation. Besides, subcultures are more likely to emerge along the differentiation process as organizations grow and mature (Schein, 2010). In contrast, small organizations in a growing phase have fewer traditions and institutionalized routines. They are also more likely to have overarching dominant cultures instead of a net of interlocking subcultures because of the lower level of functional differentiation. In addition, different characteristics of mature industries and emergent industries also influence the way in which organizations innovate. All of this may lead to a different relationship between culture and innovation. Therefore, to further extend our understanding, future research endeavors can be made to further explore the culture-innovation relationship within small companies in their growing phase and operating within emergent industries.

Thirdly, this thesis has focused on product innovation and chosen to study selected new product development projects. The reasons for this choice include the importance of new product development as suggested by the literature (Dougherty, 1992a; Eisenhardt & Tabrizi, 1995; Chandy & Tellis, 1998; Veryzer, 1998; Danneels, 2002) and the focus on product innovation in the case company. Future research can entail studying culture and other types of innovation, e.g., process innovation and management innovation. For instance, previous studies have suggested that as companies enter a mature stage, they tend to focus more on process innovation than product innovation (Kanter, 1983). And mature companies tend to improve their current performance (exploitation) rather than exploring new technologies (exploration) (Tushman & O'Reilly III, 1996; Christensen, 1997). The empirical material of the thesis has provided evidence of process innovation in the case company as a way of improving production efficiency and effectiveness. In SCAP's corporate strategy, apart from with innovation, Lean was also one of the transformation themes¹⁰ by which the company aims to

¹⁰ See the four transformation themes in SCAP corporate strategy in section 4.3.1, including "High-performing system", "World-class sales and marketing execution", "Driving an innovation culture", "Lean" and "Appropriate assets".

achieve its strategic goals. As a way of improving production efficiency, Lean seemed to have received positive feedback from some parts of the organization, especially production. However, it also received complaints from the design centers and designers were not very enthusiastic about it. Hence, for different types of innovation, members from different functions can have different views and reactions, because they have different “fit” with members’ values, beliefs and assumptions, which can be interesting for future research to explore further.

It can also be seen from the case that knowledge external to the company has been an importance source of innovation especially radical innovation in organizations in mature industries. In this thesis, the ideas of radical innovation are closely connected to the deep insight of the external environment such as customers, competitors, markets, the industry and the wider institutional environment. Besides, the design centers of other subsidiaries as well as R&D centers at the headquarters have also been important sources of ideas for innovation. These external sources are important not only for identifying opportunities and searching for innovative ideas but also for supporting innovation by providing companies with the necessary resources and competence complementary to their own during innovation processes. This requires management to establish and manage the linkage to its external environment in order to tap different knowledge as a source of innovation, which is important in open innovation (Chesbrough, 2003). Therefore future research can further explore how companies within mature industries can utilize these external sources of knowledge to engage in open innovation and develop radical innovation.

Finally, this thesis also highlights the shortcomings of archetype theory in the context of innovation regarding the level of analysis. As shown in the thesis, archetype theory has provided a useful tool for explaining the culture-innovation relationship at the organizational level, whereas it is insufficient for addressing issues at the functional level. This calls for attention from archetype theorists and can be a possibility to further develop and advance archetype theory.

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Appendix I – Abbreviations

EPP: Expanded Polypropylene

EPS: Expanded Polystyrene

FMCG: Fast Moving Consumer Goods

FSP: Food-Safe Packaging

KPI: Key Performance Indicator

OTIF: On Time In Full Delivery

SRP: Shelf-Ready Packaging

FSP: Food-Safe Packaging

Appendix II - Interview Guideline

Personal information

- Department, position, job responsibility

Values, beliefs and assumptions

- What is considered as innovation in SCAP?
- What is the goal of the company? What kind of role does innovation play in achieving this goal?
- What is the relationship between traditional corrugated board business and innovation?
- What is the organizational structure?
- How is performance measured in the company? What is (are) the most important performance indicator(s)?
- People's attitudes towards risk?
- When facing a problem, are you encouraged to give a try to every possible solution? To what extent are mistakes tolerated?
- Industry: how do you perceive the corrugated packaging industry? What is innovation in this industry?
- Customers: do they require innovation from the company?
- Who is taking (should take) the leading role in innovation processes in the company (e.g., designers, sales, management, etc.)?
- What is the role of management in innovation processes?
- Corporation between different functions in innovation processes (design, sales, production, etc.)
- Is there any difficulty in innovation processes?

- What are the incentive and motivation for innovation?

Innovation activities:

- What did the company do in order to innovate, e.g., invest in new machines and design tools, initiate new product development projects, etc.?

Innovation outcomes:

- What are the outcomes of innovation (both tangible and intangible)?

Reflections and future measures

- What are the reflection and learning from innovation practice?
- What is the company going to do next in innovation?