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Need for Speed

Exploring Swedish High-Tech Subsidiaries' Innovation Process
in China

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Abstract

China has experienced an economic growth for many years, the Chinese market is dissimilar the Western market and therefore need to be approached in a different way. Major problems for Swedish subsidiaries are to understand the differences in the innovation process among different countries. Understanding the differences, firms can increase the success in their innovation process. Many Swedish companies have established subsidiaries in China and many of them started with just production, but have now established R&D activities.

This research has investigated how senior managers in Swedish subsidiaries in the high-tech industry perceive the differences in the innovation process between Sweden and China. The purpose of this qualitative study of nine high-tech Swedish subsidiaries has been to explore the innovation process in a Chinese context, by using a grounded theory method.

Throughout the study we discovered six characteristics that make the innovation process different in China. The innovation process is usually referred to as the process from idea generation to commercialization. In general, Swedish subsidiaries work with an iterative stage-gate model for their innovation processes, while their Chinese competitors focus more on commercialization of products and have an innovation process that is more linear. In China Swedish subsidiaries focus more on development than research. The Chinese market is changing fast and the overall pace in the innovation process is faster. At Swedish subsidiaries there are mainly Chinese employees and this have implications for the activities. There are less discussions and feedback among the employees, which is also a factor why the process in China goes faster and it is also common for Swedish subsidiaries to deal with a high employee turnover. The research also discovered due to the higher pace there are more trial and error and Chinese employees are more willing to take risk when they work in group.

Keywords: Innovation, Innovation Process, High-Tech firms

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“Inventions are flowers that grow out of the soil of freedom.”

Zhou Youguang

1. Introduction

The first part of this chapter will give an introduction to the topic and also the purpose of the thesis. After that the research question is presented together with the delimitations of the thesis. The last part of this chapter presents the disposition.

1.1 Background

China's fast growing economy and low labor cost is a competitive advantage. This has led to that many firms relocate their production or other functions of the firm to China. The establishing of production in China gives firm a chance of expanding overseas (Kosdrosky, 2003). Many Westerners believe there is no such thing as Chinese innovation but Chinese practice "copy and improve" which is on the borderline between innovation and piracy (Nie, 2011). For the economic growth of an economy, competition and innovations are extremely important but also other factors are important such as innovation capability. Innovations also help the economy to sustain the productivity growth and increase the competitiveness (Wonglimpiyarat, 2010). According to INSEAD's Global Innovation Index which measures innovation capability place China the 29th in the world. China is the first developing country in the index, which is explained by increased spending and employment in R&D (Dutta, 2011). The R&D activities in China are market driven and focus on development (Gassmann & Han, 2004). Many multinational corporations (MNC) have set up low cost research and development (R&D) in China to get access to the market (Dutta, 2011). The companies move activities into China to use their proximity and target the Chinese market (Dutta, 2011). The Chinese economy expects to continue its growth and this opens up a lot of opportunities for firms and also for countries which are involved in the trade with China (Wenzhong, 2008). China is a country which has a different structure, culture and way of doing business than Western countries and therefore need a different approach (Buckley, 2007).

Many companies are dependent on improving the existing business and in some cases also to create new products and services to survive the increased competition. New innovations are important for the whole economy since it enhances the competitiveness among the firms and also the firm's performance (Gopalakrishnan & Damanpour, 1997). Scholars have defined innovation as; the outcome of a new idea, product, method, or device. Innovations can also be applied to environmental change and change of the organization. The level of organization change includes innovations from new technical ideas or administrative ideas (Damanpour & Evan, 1984).

R&D in the high-tech industry is essential for the firms but there are a lot of differences among how successful firms are with R&D (Malecki & Bradbury, 1992). R&D is usually defined as a systematic way of creative work in order to increase the knowledge to create new applications (Zhang et al., 2012). Location is important for R&D. Other factors what can imply good R&D are interaction with other units in the firm and also access to technical and professional workers,

also the ability to attract qualified labor is an important factor. These factors are dependent on the geographical location and other local preferences. Therefore can local factors influence the firm functions (Malecki, & Bradbury, 1992). In the high-technology sector in China the differences are significant. Almost all the firms in the high-technology industry are located in eastern China and eastern China exports 98 % of China's all high-technology. Eastern China has access to the coast and is rich on resources and has emerged to the leading region of economic growth (Zhang et al., 2012).

1.2 Problem Description

A major problem for Swedish firm is to understand the differences in the innovation process in different countries. Since many Swedish firms want to move their activities to China it is crucial for the firm's success to know these differences (Teknikföretagen, 2010). According to Orr and Roth (2012) Chinese workers are not given the freedom and autonomy to be independent and can therefore not create new innovations.

"...China faces an innovation challenge."
(Buckley, 2007, p. 118)

The workers need to have the ability to make decisions on their own in order to be innovative. Another problem is that Chinese workers are not used to criticize each other and are therefore not questioning the work procedures. They are more used to do as they have been told and the hierarchies play an important part of it (Orr & Roth, 2012). With above reasoning it is important to highlight the differences to make it possible for Swedish MNCs to respond accordingly when R&D is transferred to the country.

1.3 Contribution

Based on prior research (Orr & Roth, 2012), China faces an innovation challenge and has not experience a true revolution. Rothwell (1992) mention that there is a lack of knowledge how innovative companies use the innovation process in different contexts. This is a challenge for Swedish subsidiaries in China. Our contribution is how these differences are perceived in a Chinese context and to examine these differences we will contribute to existing research by providing new theory. If Swedish MNCs get more knowledge of this area they can better understand these differences and how to approach them when they do business in China.

1.4 Purpose and Research Question

The purpose of this qualitative study of nine high-tech Swedish subsidiaries is to explore the innovation process in a Chinese context. To achieve the purpose of this study we need to answer our research question:

- What do senior managers in Swedish firms consider are the differences in the innovation process between China and Sweden?

1.5 Delimitations

The research will be geographically limited to eastern China and mainly the Shanghai area. Eastern China is a growing cluster for many high-technology firms that work with advance technology and therefore the study is limited to high-technology firms. According to the definition by OECD (2011), the selection of firms is based on only the first two categories; high-technology industries, and medium-high-technology industries. The focus on the thesis is high-technology, therefore firms in medium-low technology industries and low-technology industries do not meet that criterion. We will focus our research on Swedish firms with subsidiaries in eastern China. Another limitation is that we will only conduct the interviews with managers in these Swedish subsidiaries.

1.6 Disposition

The thesis starts with an *Introduction* which gives background information and problem description. The chapter also consists of contribution, purpose, research question, and delimitations.

In the second chapter a *Literature review* will be presented. The literature review is divided into several parts to clarify definitions and models. The chapter explains innovation and the innovation process.

The third chapter, *Methodology* describes how the study is designed. The methodology part also describes the research strategy and the research method, how we conducted the data and analyzed it. We will also argue for the strength and weaknesses of the methods we have chosen.

The data we collected are presented in the fourth chapter, *First order results*. First order results are based on data conducted through interviews.

Second order result is the fifth chapter. We will base the chapter on theory together with first order results.

Conclusions, the sixth chapter, we summarize our findings and the implications of them. Finally we make suggestions for future research.

The last two chapters consist of a list of *References* and *Appendices*.

2. Literature review

The purpose of this chapter is to present a literature review and also an outline for the paper. This chapter also provides previous findings and theories. The literature with a grounded theory approach is twofold. The first part, which is presented in this chapter, in order to gain an understanding of the phenomenon of study - the innovation process and the Chinese context. The second part, where the emerging data drive the literature search in an iterative process, here in strong connection to our first- and second order results.

2.1 Innovations

Innovation is according to Oxford English Dictionary:

“The action of innovating; the introduction of novelties; the alteration of what is established by the introduction of new elements or forms”
(OED Online, 2012)

Innovations are important for a firm to achieve a competitive advantage over the competitors. There are many definitions of innovations, but the common denominator of all these definitions are that innovation increases the firm value, new methods are used, and it includes renewal of products, services, and markets. Innovation is the whole process together with the outcome and not just the outcome. The activities in the process of generating innovations are varying and a firm can have various approaches to the innovation process (Crossan & Apaydin, 2010). Measuring innovation is a challenge many people have tried and failed. Governments have spent enormous amounts of money to succeed with this challenge but also failed and ended in confusion. There are many reasons why innovations are hard to measure; one reason is that the benefits of an innovation don't appear until sometime after the introduction on the market. Another reason is innovation often needs a time period for further development before it becomes widely adopted. One other reason is that it is hard to separate process from outcome and also that different firms measure the input or the output of the innovation. The contribution to an innovation is also hard to measure since firms don't know the contribution from different units such as; R&D, marketing, customer, demand, and suppliers.

For companies to become innovative they need to be good in R&D, but also in communicating and creating effectively networks. Innovations involve managing different circumstances where there can be a high degree of uncertainty, ambiguity, and risk (Dodgson et al., 2008). An initial test process therefore can help to support new ideas and at the same time creates structure in the firm (Hornsby et al., 2002). For many firms creating innovation is the most important factor for competing in knowledge intensive markets (Dodgson et al., 2008).

Innovations are often complex and very risky, the complexity defined as having emergent properties that are characterized of system with many contributors and that it is hard to predict the outcome. There are many factors that affect the level of risk. Some of the factors that affect the outcome can be; market-, technology-, business-, and investment uncertainty. Risk can be measured but not uncertainty, therefore managers often have a hard work to make the right decisions. Innovations outcomes are unpredictable and often very costly. Many firms, especially high-tech firms are pressed to reduce the cost on R&D and increase the return on investments; this is big challenges for these firms to deal with. For these firms to success they need to deal with complexity, risk, and learning in an efficient way. To overcome uncertainties in collaboration among different actors when developing product innovations, mutual trust and mutually codes for how to behave are needed for building trust among actors. (Dodgson et al., 2008)

For managers to understand where innovations come from is an important element for firms to increase their innovative capability. The search for new innovations is often a combination of integrating knowledge from different parts throughout the organization, but also to work with actors outside the firm. Those actors can be customers, consultants, suppliers, and universities. In order to do this, it requires managerial capabilities to create relationships were the actors trust each other. Networks and social capital within the firm is crucial for the firm's success, therefore managers need to deal and learn from different actor's way of working with norms, habits, and routines. All sources of innovation are important but the authors argue internal sources and customers are more important than competitors and suppliers. (Powell et al., 1996)

2.2 Innovation Process

The innovation process is usually referred to as the process from idea generation to commercialization. There are many practices and activities that create new sources of innovations. Due to the fast changing market and new technology firms try to come up with new ideas and innovations. The process of generating new ideas and innovations in an organization is complicated and not easy to apply. A firm must evaluate which ideas that can be successful and which ones to reject (Bernstein & Singh, 2008). There are many activities within the innovation process, some of these activities differ among firms. There are firms that have fewer activities in their innovation process and that is one reason why these firms have a faster innovation process (Buijs, 2008). Many high-tech firms try to speed up the innovation process, and a consequence of this are that these firms undertake the research and development efforts that are needed (Wang et al., 2010).

Crossan and Apaydin (2010) have separated the definition of innovation of new ideas into two dimensions, *innovation as a process* and *innovation as an outcome*. The process dimension has a structured way of working with innovations from ideation to adoption. Innovation as a process should answer the question *how*. The focus with the innovation as an outcome is the result of an

idea and should answer the question *what* or *what kind* (Crossan & Apaydin, 2010). Innovations are considered as a process with different stages from where new ideas are created (Crossan & Apaydin, 2010; Gopalakrishnan & Damanpour, 1997). The first stage, generating the innovation contains five stages. The stages included are idea generating, project definition, problem-solving, design and development, and marketing or commercialization. The second stage is adoption of innovation and is the process that affects organizational change. The adoption stage consists of initiation and implementation, initiation is about getting awareness and an attitude about the innovation (Gopalakrishnan & Damanpour, 1997).

2.2.1 Generations of Innovation Processes

There are many definitions on what an innovation process is, one definition is “An innovation process is as much a journey as a destination, the more we know about this journey the more rewarding it is likely to be” (Dodgson et al., 2008, p. 54). The innovation process helps firms to use their resources to take advantage of market opportunities. There have been numbers of different approaches that try to explain the innovation process, some of these approaches have been explained through categorizing different generations of thinking (Dodgson et al., 2008; Rothwell, 1992). Rothwell (1992) have divided the innovation process into five different generations. The first generation of innovation process was the research and push approach (Figure 1). This approach says that the innovation process is a linear process that begins with basic science and engineering and ends with launching new products on the market. This innovation process was common during 1950 to 1960.

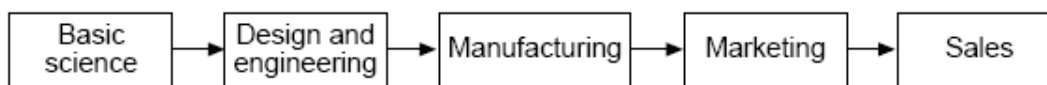


Figure 1: First generation of innovation process. (Rothwell, 1994)

The second generation innovation process was from early 1960 to mid-1960 and was also a linear model of the innovation process. The model focuses on the demand-pull, which means that the innovation was derived from market demand, which influenced the technology development. In this process managers focused on investments in marketing (Rothwell, 1992). The model sees the market as the source of new ideas for directing R&D activities (Rothwell, 1994).

The linear model of innovation was one of the first conceptual frameworks for developing and understanding the relationship between science and the economy. The model is very straightforward, it says that an innovation starts with basic research, then followed by applied research and development, and ends with production and diffusion in the society. The model (Figure 2) have been improved and criticized by several authors (Godin, 2006).



Figure 2: Linear model of Innovation (Godin, 2006)

The linear model has been described in many ways, it is considered that the model is based on formal knowledge (explicit knowledge) and that it has been developed through different R&D activities. The hypothesis of the model is that extensive prioritizing of R&D activities is related to a company’s innovativeness. The model emphasizes that basic research and technological knowledge and transfer are important for a company’s innovative capabilities (Johannessen, 2009). Each step in the process is important and the time each step takes is very much dependent on the company (Godin, 2006). Bush and Bloch (1990, p. 19) describe basic research as “Basic research creates the fund from which the practical applications of knowledge must be drawn. New products and new processes don’t appear full-grown. They are founded on new principles and new conceptions, which in turn are painstakingly developed by research in the purest realms of science”.

“Today, it is truer than ever that basic research is the pacemaker of technological progress” (Bush & Bloch, 1990, p. 19)

Applied research is when you apply existing knowledge to different problems which are part of the creation of a new product or process. Applied research and basic research have a strong connection and it is important that manager continually evaluate the research to see if the knowledge can be used. The development step is often a technical activity that tries to translate the research findings in to new products and processes. In this step the construction and design are elements that are done. The last step is about starting the production of the product or process, it is also about marketing the product so it can get adopted by the consumers. (Godin, 2006)

The linear model has been developed in different steps throughout time. The model has been subjected to massive criticism by various researchers that have been concerned about the simplicity of the model. Efforts to modify or replace the model have been limited with regards to the importance and simplicity of the model. There are several other models such as the models from Rothwell (1992; 1994) and Kline (1985) that describe the innovation process. These models have multiple feedback loops and looks according to Godin (2006) more like a modern artwork than an analytical framework. Despite that the linear model is relatively old, it is still useful in today’s societies for understanding the innovation process.

The third generation model focuses on both research-push and demand-pull. The emphasis in this approach is the feedback between the down/up- stream phases of the two earlier versions of innovation process. The biggest challenge for managers in this process is the investments in cross organizational communication and integration among different units within the organization (Rothwell, 1992). The third generation of innovation process can be regarded as a logically and sequential process there different functionalities are interacting with each other. It is also a complex network over communications (Rothwell & Zegveld, 1985). The fourth generation of innovation process can be considered as an interactive model. This interactive model focuses on collaboration among different units within the organization, but also to have close relationship with suppliers and customers. Alliances were also something that became more common during the 1980s this was a great way to collaborate with competitors and other firms (Rothwell, 1992).

The fifth generation of the innovation process focuses on the importance of having a good strategy and technological integration (Rothwell, 1992). The approach also highlights the importance of networks and social capital within the firm and with different external actors. The strategy to be first on the market has become very important for many firms, especially for smaller high-tech firms, therefore the development phase and commercialization phase has increased its speed (Powell et al., 1996). The fifth generation of innovation process also focuses on integrating different systems and extensive networking. It is a further development of the fourth generation model but with a higher focus on speed and efficiency, especially in the development phase (Rothwell, 1994). According to Rothwell (1994) the innovation process is changing very fast and that it seems as leading companies are becoming even faster with commercialization. But also the innovation process is becoming more and more complex since firms try to network and integrate activities. The fifth generation model can be seen as a non-linear model/interactive model, which emphasizes on systems of different entities are important such as: R&D activities, structural links, tacit knowledge, interactive learning, tacit knowledge, the cultural context, social processes, regional and national innovation systems, and customer and supplier relations (Lundvall, 1992). The interactive model also says that different types of knowledge and the links among them are important, it also means that interactive learning is the key in the process. The learning process is of great importance for innovation activities and economic growth in a company. Companies are today more affected by customers and suppliers than they were before. To understand the interactive innovation process is often a complicated task, therefore many prefer the linear model of innovation process because it is less complex than the interactive model. The innovation process is extremely important for companies since it can determine the company's economic growth, but also improve their competitive position on the market. (Johannessen, 2009)

2.3 Different Phases of the Innovation Process

There are various models that explain the innovation process and the different activities and phases within the process. The phases usually involve idea generation, preliminary market and technical assessment, detailed market study and market research, business analysis, and marketing strategy determination (Rothwell, 1994; Veryzer, 1998). The development process itself usually approach the innovation process in different ways, the most common are the stage-gate model which run the different phases in parallel and the phase-review process runs the phases in sequence (Veryzer, 1998). The generic innovation process for product development starts with a mission and ends with the launch of a new product. The first phase in the product development process is concept development and it should be in-line with a company's mission and requires integration with departments in the company. The other stages are system-level design, detailed design, testing and refinement and production ramp-up (Ulrich & Eppinger, 1995).

Ideation

The focus of ideation is to turn the company's vision and passion into ideas (Blank, 2006). Ideation is the first phase and the R&D activities contain exploration of technology. This phase is often characterized by searching for solutions of problems. The technology research can increase the understandings of new technological feasibilities (Veryzer, 1998). The idea will later become a business plan which needs to be evaluated if the product or service concept is feasible. The new idea needs to take into consideration the technological knowledge and if it need more research. Therefore need the idea some research to get more information (Blank, 2006).

Research

The research phase examines how the technologies can be applied and if it is useful or not. Pre-screening is sometimes used to examine if there is any potential and let the project continues (Veryzer, 1998). The research phase investigates the features and benefits. It also investigates where the customers can be found using market research and interviews of potential customers. Later in this stage is the competitors and distributing channels discussed. Together with distributing channels are also the price, cost, budget, and schedule discussed. The company needs to know more about the competitors and how they can be different from the competitors (Blank, 2006).

Development

The next phase, development is the outcome of the research process, "everyone stops talking and starts working" (Blank, 2006, p. 2). This stage includes the product development process, a formulation of the requirements; choose of components and the specifications. The design of product which is developed with the specifications is being developed. Evaluation is also included in this phase and it decides if the project should continue or not after the specifications are developed further (Veryzer, 1998). The different functions in the company, for example

marketing and engineering start working with their activity after the specifications are set. The work progress is dependent on the delivery dates and cost of the development (Blank, 2006).

Prototyping

Prototyping focus on building a prototype. Before that the project need to pass a review. The phase includes conducting information from more sources to evaluate if the specifications are met, if not more research is needed. After that the prototype is tested to evaluate if something needs to be modified or redesigned, if not the prototype needs to go back some phases in the process until it meets or satisfy the requirements or the specifications (Veryzer, 1998). It often starts with a small group that tests the product and the specifications. Beta testers use and evaluate the product. The other departments in the company such as marketing and sales start with marketing plans and support material (Blank, 2006).

Commercialization

The process now shifts to commercialization and launch of the approved prototype (Blank, 2006; Veryzer, 1998). Commercialization is a complicated process, the aim of this process is to implement the technology where it can be used in the most efficient way and increase the profitability. This process often involves transfer of technology. The definition for technological transfer is the movement of technological capabilities. These transfers often occur within different units in the organization, but also through joint ventures and alliances (Dodgson et al., 2008).

There are a several different tools and techniques that can be used when transferring technology for commercialization. The so called commercialization map shows the main general principles for commercialization of technology. There are five stages in this process namely; imagining, incubating, demonstrating, promoting and sustaining. Between each stage is a gap, there are four gaps starting with interest gap, followed by, technology transfer, market and diffusion (Jolly, 1997), see Figure 3.

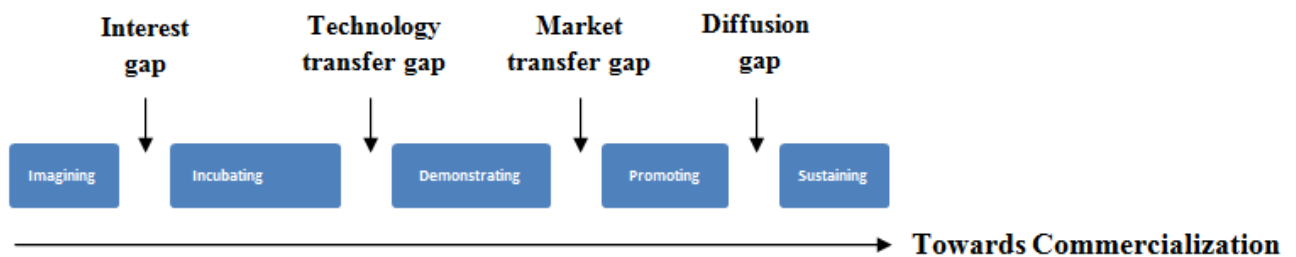


Figure 3: Commercialization map (Jolly, 1997)

It is important to know that the commercialization can fail at any of these stages or gaps, the commercialization process is very uncertain and risky. Therefore managers need to be focused on each phase. It is also important to mention that commercialization is an ongoing process, just

because the product has been introduced on the market the process of commercialization is not over. The market changes and so do the products. (Jolly, 1997)

2.4 Managing Innovations in a Chinese Context

According to a study which was conducted at 42 firms by Ren et al (2010), the study showed that half of the examined firms didn't have dedicated R&D. In China product innovation is most common, less common is process innovations. Many of the Chinese managers think they develop innovation that is new to the industry but almost none of them considered that they are developing products of world class (Ren et al., 2010). In China rewards are important as an incentive to develop new products, rewards are especially a factor of motivation for new innovate product development. Therefore should reward systems be part of the organization and integrated to the new product development innovation process. The two most common reward systems in Chinese firms for developing new product innovations are risk-taking and long-term oriented rewards. Long-term oriented rewards make the employees to better understand the innovation process (Wei & Atuahene-Gima, 2009). In the high-tech firms are the material rewards not a common incentive and will not encourage the employees to take on higher risk in innovation activities, because the employees already have a relative high salary. Instead non-material rewards will motivate the employees in the high-tech sector and increase technological innovations (Li et al. 2006).

The Chinese innovation environment tries to adapt the same conditions and support as in the West. In reality it is harder to get the same conditions as in West since it is harder to achieve transparent funding and the legislative environment is hampered by national conditions (Chang & Shih, 2004). Top managers are constrained by limited financial resources to be able to fund new innovation projects (Li et al. 2006). The firms usually finance the new technological innovations with their own profits (Ren et al., 2010). Moreover, managers in firms usually get directions from the top managers and the managers will therefore not have actual influence. That is why the managers will not have any incentives or motives to be involve in innovation projects. Lack of management system is another factor that hampers innovation and together with the legislative environment it is difficult to create an effective collaboration environment (Chang & Shih, 2004). The development of the firm is also affected by the lack of capabilities and methods in human resource management (HRM). The firm is pushed by top managers who want to increase the firm performance through technological innovations however they are often constrained by limited financial resources and also limited technical and marketing capabilities (Li et al. 2006).

Moreover, human capital is important for the high-tech firms to be innovative, increased human capital allows the employees to improve their skills and exchange knowledge between each other (Li et al. 2006). Due to labor shortage employee turnover has become a problem in many Asian countries. The organizational commitment is the most important factor when it comes to keep the

employees in the company (Khatri & Fern, 2001). Most of the technological innovations in China are developed in house and that require knowledge within the firm. Another common way to develop technology is collaborative R&D, it requires knowledge and is shared with partners (Ren et al., 2010). Trust is a factor that affects collaboration, in China people are scared of knowledge transfer and that should benefit the other part, thus the relationship to build trust is important in the Chinese innovation system (Chang & Shih, 2004). Control of employees characterizes the Chinese firms but control has different impacts of the innovations and should be evaluated before, if it motivates the Chinese employees or not. In the high-tech sector there non-material incentives motivates the employees are control of the process common (Li et al. 2006).

The ability of self-growth and independence in high-tech firm increases the capacity for technological innovations (Li et al., 2006). The capacity for technological innovation is also in China affected by marketing, how the firm use and transform marketing information to new products. The marketing interface has therefore a significantly impact of the innovativeness. The linkage to the marketing can help the managers with support from human resources to create reward system that is in line with the firm's strategy. The cross functional collaboration has an impact on the innovativeness which implies the importance of human resource management collaboration with marketing (Wei & Atuahene-Gima, 2009).

Moreover, what are different in China are the drivers of innovations. In China is the market power the driver of new technological innovations. This means that the customer demand is the power for a firm to be innovative (Ren et al., 2010). Nisbett et al. (2001) argues people from East Asia are more adaptive to change than Western people. They are more holistic and don't pay much attention to the use of categories and formal logic, instead they rely more on dialectical reasoning which means they are constantly evaluation things from different viewpoints. Western people are much more analytical and pay more attention to details and use more formal logic to get a deeper understanding of different objects. Ren et al. (2010) also mention other sources for new ideas come from the organization itself and competitors. Less important sources are suppliers, purchased technologies, and research institutions. The strategy many firms have is not to be the market leader, instead are they aim to be a market follower. The reason might be that the Chinese firms have low technological capabilities and associate the risk for the market leader with high cost. The low cost characterizes the way firms innovate, in some cases have Chinese engineers from Western MNC started up their own firms. They could offer lower price and almost the same quality.

3. Methodology

In this chapter we will describe and argue for our choice of methods, strategies, and how the research has been performed.

3.1 Research Approach and Method

There are many ways to perform a research, we chose qualitative method. The qualitative approach is a research method that aims of gathering information about different topics such as human behavior and social science. The method is extremely good when researchers try to get a deep understanding of the research topic. In a qualitative research the researcher asks specific questions and collects the data and processes it into different numerical measurements. In a qualitative research the researcher often asks more open questions and draws conclusions from the participant's answers. (Bryman & Bell, 2007)

In this paper we will use the qualitative approach since we believe that this method suits us and can provide us a picture of the whole situation. Therefore, we have based this thesis on semi-standardized interviews. In semi-standardized interview the researcher goes more in-depth. The reason why we chose the semi-standardized interview is because we wanted to go more in depth and interpret the results. Through the interviews we got to see the respondent's views on the topic and we believed by using semi-standardized interviews we got a good insight. We are aware a qualitative research needs to be objective and that validity and reliability are concepts that have to be constantly overlooked in order to create a thesis with high credibility.

We have used a grounded theory method (Glaser & Strauss, 2006) this method has helped us to analyze the data simultaneously to the collection (Bryman & Bell, 2007). The availability of previous research was limited and therefore we chose the grounded theory method. We have done a multiple case study at nine different companies, what these different companies have in common is they are in the same business (high-tech industry), but not competing with each other. All the studied firms are major Swedish multinational companies. We decided to use the grounded theory method since we had a few ideas about the innovation process in China and wanted to explore these phenomena. We aimed of discovering something new and contribute with new research that can be useful for companies that want to learn more about the innovation process in a Chinese context.

The advantage of doing a multiple case study is that we can identify similarities and dissimilarities among the different studied cases. This approach makes it easy to compare different findings towards the theoretical framework (Bryman and Bell, 2007). Since we mostly used "how" questions, this means that we will have a more descriptive approach. Case studies are in general very useful since they provide the researcher with a well proven method that helps the researcher to detect new insights in the theories (Eisenhardt, 1989).

We interviewed both Chinese and Swedish senior managers in China. The selected managers had experience from both Sweden and China, therefore we don't need a reference group. We believe this limitation will enhance the credibility of the paper. Figure 4 shows the overall research design, from phenomena to conclusions and since we use a grounded theory method the process is iterative.

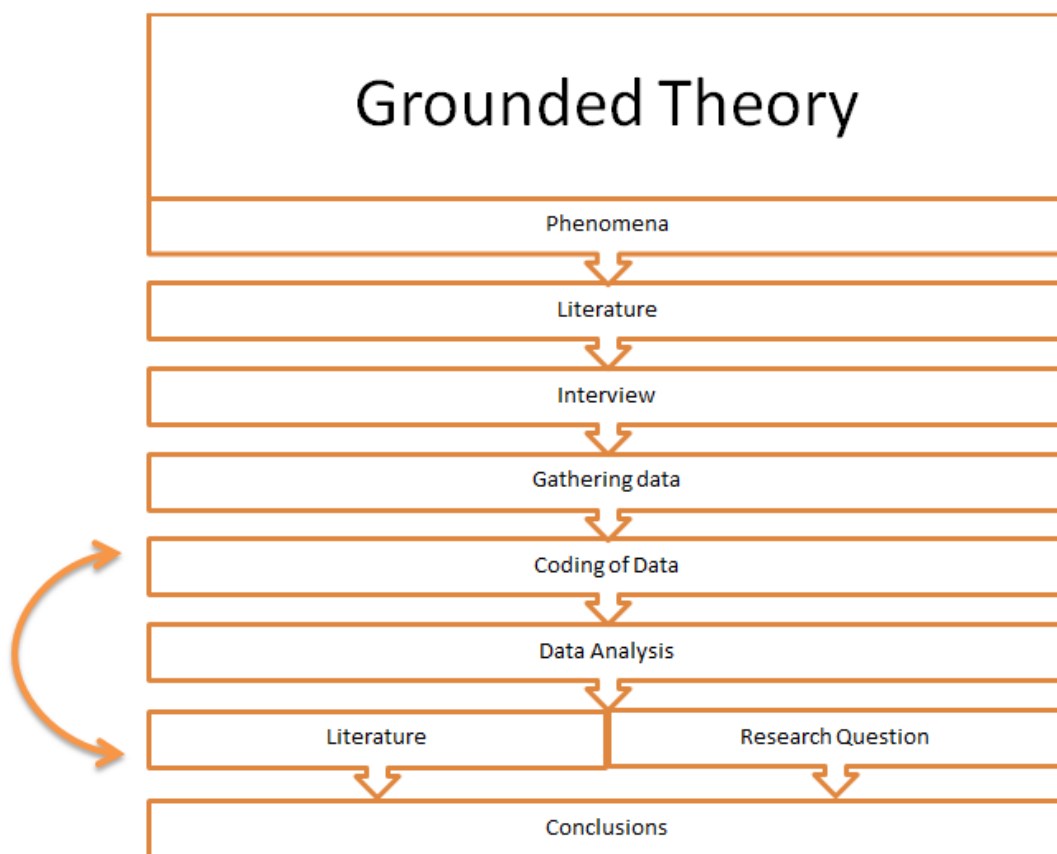


Figure 4: Master thesis research design.

The goal for this research has been to create new knowledge and deepen the understanding about the innovation process in a Chinese context. We have not searched systematically for secondary data, according to Saunders et al. (2000) secondary data are not collected by the researcher, instead has the data already been collected by other researchers. We have not searched systematically for secondary data since this takes too much time and resources. Instead we have used the “snowball” method which means we found secondary data such as articles. In these articles we search for other references that can support our study, this is an effective way to search for secondary data. The primary data we have collected through interviews with skilled managers. We believe this makes it easier for us to collect data and conduct a study where we can go deeper in our topic to see the underlying factors. We also see a clear advantage in

interviewing people with great knowledge of the innovation process, in order to form our own observations about innovation processes in a Chinese context. Since we interviewed the respondent face to face this reduces the risk of misunderstanding and short answers for questions since we asked follow-up questions.

3.1.1 Unit of Observation

Many researchers say managers are key people that shape companies and the strategies, they help top management to change strategies by influencing the enablers in the innovation process. These researchers also say most innovations are created from the organization and those innovations that seem promising are sent up to the top of the organization for further evaluation. Managers can use different tools to convince the organization to be more positive against organizational change and thereby allow innovative ideas to flourish within the organization. The innovations that are approved by the top management are then sent back to the middle management and their task is to communicate the ideas to the employees. Often the innovations are created within the firm but it has become more common for new ideas to come from outside the company. Many managers work close to their coworkers in order to refine ideas and measure their future potential. (Hornsby et al., 2002)

Managers often have a great knowledge of previous innovations and how to deal with different risks. They often get information from studying competitors and thought close relationship with vendors. This information can be communicated to the employees but that isn't the case in all organizations, very often managers are too busy and have a huge workload. Managers can also together with employees refine ideas by testing them at the same time as creating the administrative structure that is needed to foster new ideas. (Nonaka & Takeuchi, 1995)

Some research has shown the importance of management when it comes to facilitate the organizational performance. These managers create the social capital and trust that needs to exist within the organization to foster the innovation process. They manage to do this by constantly communication with their employees and top management, but also through rewards and by giving the employees support when they need it. If managers succeed with this, it can lead to employees that are more willing to take risks in order to create new innovations. The key is to create social capital and trust throughout the organization. When this work environment is created employees are less afraid of lose their jobs, reputation or to fail with a project, since they are encouraged to taking risk from their managers. (Nonaka & Takeuchi, 1995)

According to other researchers managers are extremely important for creating an environment where innovations and entrepreneurial activities can flourish. Another task that manager have is to create teams that can work efficiently and contribute with new ideas. This is not an easy task to deal with since the group needs good dynamic and different people with different skills, therefore managers need to very accurate when they create these groups. In multinational

companies it seems managers work on two processes at the same time. The first process is about integrating various activities and the aim is to achieve coherence and economical scale and scope. The second process is of entrepreneurial nature which means focusing on creating new businesses and spur innovation. To succeed with these processes middle and top managers need to be aware of how to create a good work environment. (Bartlett & Ghoshal, 1996)

Other researchers argue managers influence and shape the intensity of various entrepreneurial initiatives of their departments. There are also many factors that can limit managers to facilitate innovativeness, such as high workload. It is also important for managers and their employees that they get the time to be innovative and support from top management. (Birkinshaw, 1997)

3.1.2 Research Context

OECD (2011), Organization for Economic Co-operation and Development defines high-technology by how high the R&D intensity is. The classification is based on recent R&D performance to set a worldwide standard. Dependent on R&D intensity and performance firms can be divided into four industry categories; high-technology industries, medium-high-technology industries, medium-low technology industries, and low-technology industries. Firms that are considered high-tech can create a variety of products not only high-tech products but also products that are considered as low-tech. According to the definition by OECD (2011) are the following industries considered as high-technology: pharmaceutical; aircraft and spacecraft; office, accounting and computing machinery; and medical, precision and optical instruments. For high-tech companies new ideas and innovations are crucial since the high-tech industry is rapidly changing (Bernstein & Singh, 2008).

3.1.3 Research Problems

Throughout our journey we have faced several challenges. When you are out in the world and exploring, some of the fundamental things that you usually take for granted are not the same. We have used a grounded theory method and to collect all the data we have traveled around in eastern China. This has not been easy, just finding the way to go to these difference places have been tough. We have been traveling both with high-speed trains, taxi, buss, metro, and bicycle taxi. A few times we were unable to get a taxi in the morning, we had to wait 60 min before a taxi could pick us up and therefore we arrived late to one interview. Add communication to that and you get a complex situation since most people in eastern China have very limited English capabilities. The language issues we have managed through English-Chinese dictionaries, but also by taking photos of maps and pointing.

There has been culture crashes since Chinese managers have different views on different issues, such as appointments. It goes really fast to book a meeting with Chinese managers, it has been harder for us to book meetings with Swedish managers. Our last meeting with the tenth company got canceled one hour before the appointment when we were on the way to the interview. We

had to exclude the company from our research because of Chinese holidays and the interviewee was not able to book a new appointment in the near future. Another problem we have faced in China is the access and sharing of information. We used Dropbox and Facebook for communicating and sharing information, these applications are blocked in China. We managed to solve these issues by using different proxies.

3.2 Research Quality

We believe that the quality of the research is high since the respondents have contributed with their own experience and reflections within the topic. The relevant literature we have found in databases has been possible since we have used the “snowball” method and relevant keywords. To increase the credibility of our study we will discuss following academically terms namely; reliability, and validity.

3.2.1 Reliability

Reliability means to which degree research findings can be repeated and how carefully and systematically we have worked (Bryman & Bell, 2007). Since we have done a qualitative research this brings difficulties within external reliability. Every case we have studied is in some way unique and therefore it is hard to replicate that specific case. To increase the reliability in our paper we have made a well-structured literature review that is easy to follow and shows different theories in a good way. We have also aimed of making the interviews comparable with each other in order to see the differences. Before the interview we have sent the interview questions with a survey (Appendix 1 and Appendix 2) to the respondents in order to increase the validity since the respondents can prepare better for the interview. We think that this increase the quality of the study and reduces the chances of misunderstandings in the research.

3.2.2 Validity

Validity refers to what is being measured and what is relevant in the context, it is the integrity of the conclusions that are generated throughout the research (Bryman & Bell, 2007).

Internal Validity

According to Bryman & Bell (2007) internal validity relates to causality. We have increased the internal validity through working effectively with the literature review. Since we have formulated semi-structured interview questions based on the literature review we believe we have strengthened the internal validity.

External Validity

We think that we have increased the external validity since we have collected information from senior managers in high-tech firms, but also since we have done observations and interviews when we were living in China. When doing multiple case studies it increases the external validity since the findings can be used in other situations (Bryman & Bell, 2007). The interviews have

been tape recorded after approval with the respondent in order to increase the external validity. All nine interviews that were conducted have been processed and transcribed in order to increase the external validity. We have also used interview questions to ensure the questions did follow our focus and delimitations.

The interviews have been conducted in English so that the risk of misunderstandings and wrong interpretations has been limited. There is always a risk of misunderstanding when the interviewees' mother tongue is not English but we have considered the risk as low since all the companies require English as a business language. We have therefore sent the interviewees the data we have collected to confirm and avoid misunderstandings. After processing the data we have sent back a draft to all the companies in order to get an approval before the thesis was published. There were a few misunderstandings we had to correct, after that all the companies gave their approval to be part of the study. We also believe that we increased the external validity since we used a survey to double check the respondents' answers.

3.3 Research Procedures and Data Sources

We decided to do semi-structured interviews where the respondents were able to speak freely within the topic. The semi-structured interviews can be seen as a guided conversation where there are strict questions but the respondent can also speak freely within the topic (Bryman & Bell, 2007). A grounded theory method allows the researcher to modify the collection of data during the process (Urquhart, 2001). The researcher is therefore allowed to direct and redirect questions to collect the data. As a result the interview questions needed to be rephrased to get relevant data. This helped us to get a better insight in our research problem as it progressed.

To conduct interviews with high quality is a challenge for all researchers. The researcher needs to think on how the questions are formulated, this is important so that leading questions can be avoided. The language is also a challenge for the researcher, therefore it is extremely important that the respondents understand the questions and the researcher rephrase the questions if necessary (Bryman & Bell, 2007). We believe that we have managed to rephrase questions when necessary and adapted to the situation.

For us to mitigate the risk of losing information during the interviews we have used a digital recorder. Before the interview we have asked the respondent of their approval of using a recorder and everyone agreed on that. Right after the interviews we have processed and transcribed all the data so that our impressions of the respondent's body language and expressions are properly interpreted. The respondent's body language and expressions are important for the researcher to study in order to check the reliability in the answers. (Bryman & Bell, 2007)

The interviews lasted between 1.5 and 3 hours included informal discussion. The semi-structured interview helped us to go more in-depth and to confirm the answers from the respondents, we

have also used a multiple choice survey with 11 questions and compared the results from the respondents' answers. The survey was used for us in order to double check the respondents' answers. The multiple choice question can be seen in Appendix 2. The questions we have asked emerged when we studied the innovation process and its different phases. The questions we have used in our study are included in Appendix 1.

3.3.1 Case Description

We were able to conduct interviews at nine high-tech firms in China. The firms needed to meet our criterion, they are all high-tech firms with businesses in China. The firms we selected was not randomly picked, we picked firms that we thought had interesting business in China. We tried to include more firms in the study but not all of them were interested to be a part of the study. Table 1 shows a description of all the firms included in our study and Table 2 shows more detailed information about each firm.

Company	Description of Company
Alpha	Operating in the automobile industry
Beta	Operating in the food industry
Gamma	A producer of machines for the construction industry
Delta	IT company offering complex security solutions
Epsilon	A manufacturer of solenoids and ignition systems for small engine applications
Zeta	Developing and producing personal care products
Eta	Producer of parts and solutions for industries
Theta	Producer of vehicles
Iota	Focus on solutions for liquids and equipment

Table 1: Participated firms and company description.

	Alpha	Beta	Gamma	Delta
Location	Shanghai	Shanghai	Nanjing	Shanghai
Position	Engineering Department Manager	1. Manager Development 2. Project Manager 3. Project Manager	R&D Manager	Channel & Marketing Director
Date & Duration	March 20 2.5 h	March 29 4 h	March 26 2 h	March 14 1.5 h
Employees in Dept./China	4 launch team (400)	27	32 (400 Nanjing)	32
Type of Interview	Face-to-face	Face-to-face	Face-to-face	Face-to-face
Dept./Firm Years in China	2007	2008 (20 years)	2005 (1994)	1995
Interviewee nationality	Swedish	Swedish, Chinese & Chinese	Chinese/American	Chinese
Interviewee years in Firm & China/Europe	10 & 2	1. 2 2. 1 & 1 3. 1	12 & 3	7 & 1
Nationality of workforce	Chinese	Mainly Chinese and Swedish	Mainly Chinese	Chinese
Division	Technical Center	China	Construction & Mining Equipment	Channel & Marketing

	Epsilon	Zeta	Eta	Theta	Iota
Location	Suzhou	Shanghai	Shanghai	Shanghai	Shanghai
Position	General Manager	Director of Innovation Centre China	Manager Development Office	Head of Asia	1. Product Development Manager 2. Manager
Date & Duration	March 23 3 h	March 15 2 h	March 19 2 h	March 27 1.5 h	March 9 3 h
Type of Interview	Face-to-face	Face-to-face	Face-to-face	Face-to-face	Face-to-face
Employees in Dept./China	15 % office (130)	15-20 (187)	17 (4000)	1 (100 Technology)	20 (2000)
Dept./Firm Years in China	2004	2010 (1997)	2010 (1986)	1 (20 years)	1984
Interviewee nationality	Swedish/Australian	Swedish	Swedish	Swedish	1. Danish 2. Swedish

Interviewee years in Firm & China/Europe	7 & 12	27 & 2	5 & 1	25 & 1	1. 17 & 4 2. 17 & 1
Nationality of workforce	Chinese	Sweden, Philippines, China, and Malaysia	Mainly Chinese, Swedish, Italian	Mainly Chinese, French, Swedish, US, UK, Japanese, Germany etc.	Chinese Mgmt.: Danish, Chinese, French, German
Division	Technology Suzhou	Innovation Centre China	Global Technical Centre	Advanced Technology and Research	Product Center Asia

Table 2: List of firms and interviewees.

3.3.2 Analytical Approach

Grounded theory is one of the most used frameworks for analyzing data (Bryman & Bell, 2007). Grounded theory is a research method that differs from the traditional research methods where you start with a hypothesis or phenomena (Glaser & Strauss, 2006) and to develop theory about phenomena the researcher finds interesting (Bryman & Bell, 2007). We chose grounded theory since we wanted to research phenomena, in our case the innovation process. According to Melia (1996), grounded theory has been developed in two variants one by Glaser and the other by Strauss. The main difference is the method of coding, bottom up allows the data to speak for itself and is the method we used. The other one is top-down, using already defined categories. For our research is all the data of interest, therefore we use Glaser's definition of grounded theory. For that reason we analyzed all the conducted data; transcriptions from interviews, and the survey. Urquhart (2001) argues sometimes grounded theory puts away ideas and the researcher does not look at existing theory but this is not an exact description of grounded theory.

“The injunction about literature seems mainly designed to ensure that the researcher takes an inductive rather than deductive approach, and listens to the data rather than imposing preconceived ideas on the data.” (Urquhart, 2001, p. 107)

Grounded theory can be seen as a very complex iterative process and the first step in the research was to create generative questions to guide the research (Bryman & Bell, 2007). The next step for this paper was to search for data (Glaser & Strauss, 2006) and then search and link them to theoretical concepts (Bryman & Bell, 2007). We have according to Dey (1999) systematically collected data and analyzed it simultaneously throughout the research. This has helped us to determine what data we should collect and what we should focus on. This is a time consuming process, and in the beginning it often feels as there are no focus, after collecting data the researcher starts to create more focus (Bryman & Bell, 2007). We started the analysis by using

open coding method there we identified relevant concepts from the data. We used first order coding (Van Maanen, 1979). After that we used axial coding (Strauss & Corbin, 1998) to find relationship among the categories in order to put them together to higher-order themes. This was done in order to link the different phenomenon we derived from the data with theory. Figure 5 show the data structure and the general process. The figure show how the concepts emerged from the data, from representative quotations to perceived differences. The representative quotations and 1st order categories that are shown in the figure is the ones that we thought are the most characteristic for each 2nd order theme.

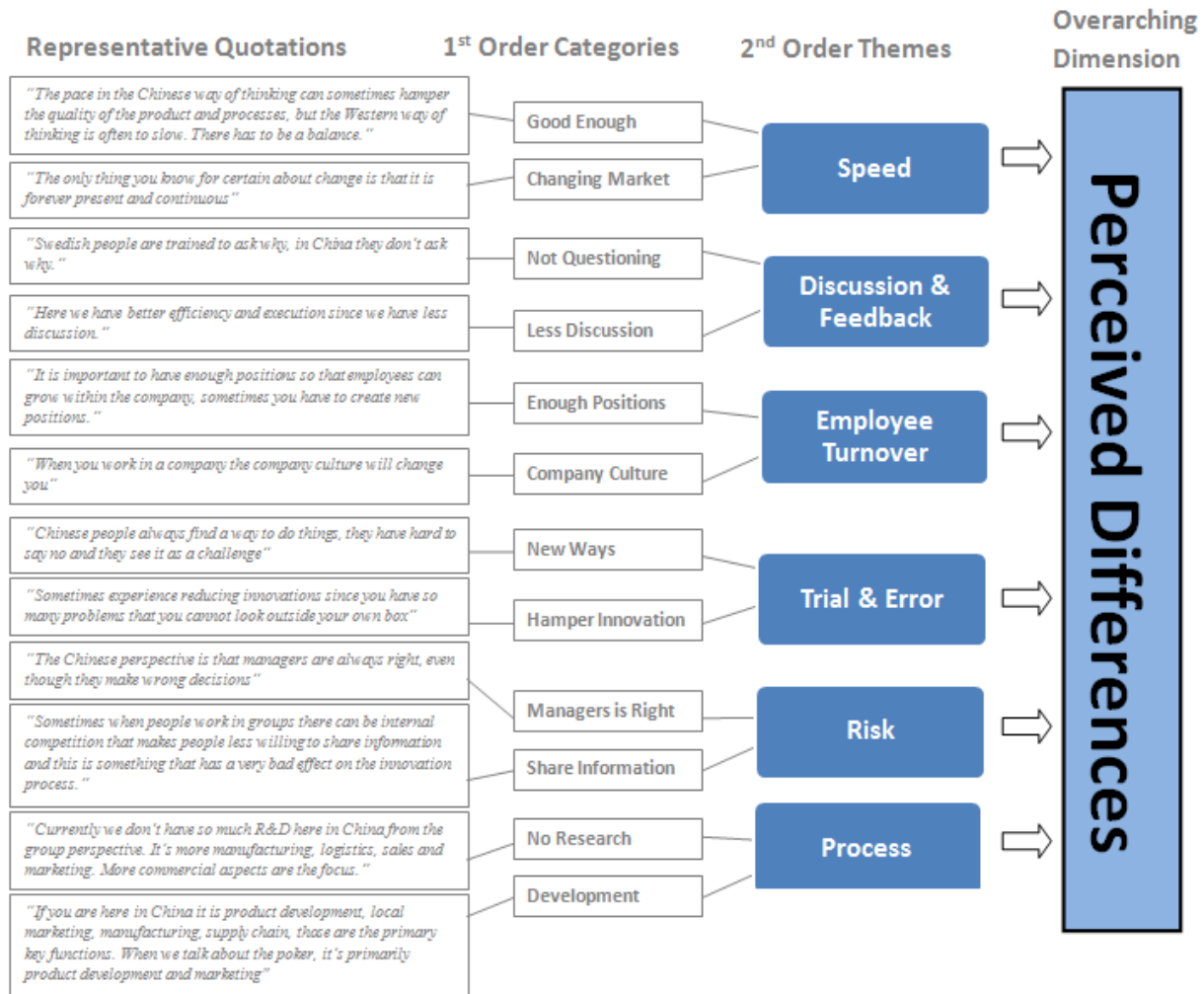


Figure 5: Data structure and coding of data.

Table 3 shows the rest of the data that has been used to analyze and codify the data. All the quotations that we have used can also be seen in the first order results.

Speed

<u>Representative Quotations</u>	<u>1st Order Categories</u>
“We always try to shorten the development time, we try to work smart”	Another way of working
“We can sometimes feel that the development time is too long.”	Slow Process
If you think about it, you can copy products really quick, that is easy, but do Chinese people come up with new innovations. I don't think so. Copying products is not innovation. They do things faster since they already existed. For instance how many American people have got the Nobel Prize, about 50. How many Chinese people have got the prize, none.”	Copying Products
“If you think about it, you can copy products really quick, that is easy, but do Chinese people come up with new innovations. I don't think so. Copying products is not innovation. They do things faster since they already existed. For instance how many American people have got the Nobel prize, about 50. How many Chinese people have got the price, none”	Copying Products
“The adaption and acceptance among Chinese people is much faster than compared to the Western people”	Adaption
“When people say that Chinese people not are innovative, I believe that is wrong. They are innovative but in a different way. Of course they copy products but they do it very efficient manner and adapt to the local context. Who says that what we think is right?”	Different Mindset

Discussion & Feedback

<u>Representative Quotations</u>	<u>1st Order Categories</u>
“In general people liked being told what to do in China and this hamper their innovation capabilities.”	Hamper Innovation
“The educational system in China is more examination oriented. What I mean is teachers, professors will deal with examination. They tell you what to memorize, if you look at examination, Chinese students are very good. They have very high scores. But once you talk about something hands-on they are very poor. Professors tell students to follow the book. The Chinese educational system doesn't encourage people to innovative thinking. Basically if you tell Chinese people what to do, they will do a really good job. But if you ask them to do something that is hands-on they cannot since they cannot think for themselves. That is a big problem with the Chinese education system, start from kindergarten all the way to university. The Western educational system is more hands-on, students are given problems and have to think for themselves and come up with solutions. They also do much more experimentation in labs that is not the case in China.”	Not Questioning
“When we are working in groups there are often a lot of discussions, even if the company is working with standardized products that have been around for over 100 years. But the language is a barrier since most of the European people don't speak Chinese and some of the Chinese employees have limited English capabilities. This affects the discussions especially when it comes to product details then people prefer to switch to their own language”	Language Barrier
“The whole idea with Confucius is not to question people and just copy and try to do what other already has done. Because Chinese people here are not trained to create new ideas. I'm sure that this great big country with all these people can be can be innovative but they need some help to do things in a different way”	Not Questioning
“For managers in China it's very important to have a strong leadership so that people listen and do as they are told”	Strong Leadership
“I think there are more ideas in Sweden for instance than here and that is probably a culture thing”	History

“Sometimes is hard for the Chinese employees to express themselves in English, therefore they sometimes hold back the feedback or critic”	Hold back Feedback
“Chinese people are more flexible and prioritize differently, for instance if someone has an idea or a problem they arrange a meeting right away”	Prioritizing
“You have to build trust”	Build Trust
“Young Chinese engineers has problem leading projects where there are senior engineers working. The age is not an issue, it used to be in China but that has changed, people have more respect for hierarchy”	Hierarchy
“The ideas must be discussed and shared shouldn’t be kept alone. That’s the beauty of having a small team.”	Sharing Ideas
“For instance when you give feedback to people here, they always say the same thing, thank you; I’m just doing my job.”	Feedback
“The key to success in China is to have good relationship and communication with end customers and partners.”	Communication
“It’s very much bottom-up because managers cannot have ideas, they cannot have innovative ideas because they are doing management.”	Bottom-Up

Employee Turnover

<u>Representative Quotations</u>	<u>1st Order Categories</u>
“It’s art to manage people”	Manage People
“In China people work 2-3 years at one place and then move on, they think they have good experience and consider themselves as experts. In the Western world people work 5-20 years at the same place. So there is a difference. Chinese people say that they want challenges and a good resume, but in fact they only want more money and nicer positions. Especially young people switch between companies since they want higher salary so they can afford to buy a house, car and other luxury products. I don’t think that Chinese people are more ambitious they just want more money”	Move Between Jobs

Trial & Error

<u>Representative Quotations</u>	<u>1st Order Categories</u>
“It’s the same in China, failure is the mother of success.”	Failure
“Many times people need to be 100% sure to launch products, but in China if the quality is good enough it is acceptable to launch the product.”	Commercialization

Risk

<u>Representative Quotations</u>	<u>1st Order Categories</u>
“In China you paint a picture of something it’s not the same as the real world, but Western people draw the picture just as the real world. This also explains in some way how Chinese people do business”	Different Way of Thinking
“Innovations should be done in small teams, the group has to take some risk and the employees must be given the freedom to be innovative. The managers shouldn’t interfere too much but must ensure the team has the necessary resources and support to succeed”	Freedom

Process

<u>Representative Quotations</u>	<u>1st Order Categories</u>
"We have a product development department it's not R&D. That is a strategic decision since we don't want to have basic research here, just development here."	No research in China
"That is one step to be more innovative in the development, so we are moving in more in more to development"	Moving to Development
"We focus on the last three phases in China; quotation/business case preparations, product and process validation, and commercialization/launch"	Last Phases in the Innovation Process

Table 3: Additional Supporting Evidence.

Some of the advantages with this research method is the grounded theory captures the complexity of the subject and is a very good technique when it comes to generating new theories. There are some disadvantages with the method, it takes time to conduct and there is a risk of fragmentation, which means loss of the context. (Bryman & Bell, 2007)

4. First Order Results

The aim of this chapter is to provide the reader with primary data of the Chinese innovation process. The findings are gathered through primary data from nine different cases.

4.1 Alpha

Company Profile

Alpha is global company operating in the automobile industry, they develop and produce safety components. Alpha got a business license in China 2007. The department in China focuses more on applications and product launches than on developing new products. The studied division has about 300 operators and 100 white collar employees. The product launch team is small, with four engineers, two of them are project leaders and are responsible for the long term planning, a five-year plan. The interviewee has worked for the company for more than ten years and has experience in the automobile industry and has worked in Sweden.

Alpha is a global company, the department is mostly influenced by Alpha's American department since the launch of the plant was mostly done with the department in the USA and they are connected to their databases. Hence, almost all the employees are Chinese. They try to copy some of the basic work processes from the US to compare the results among Alpha's different plants. The biggest difference in China is the culture, language, and the way people think according to Alpha. A very big part of the difference is the language. It is argued that the manager sometimes can ask questions in three different ways just to make the employees to understand. It is especially hard with new employees since the manager need to learn how to talk to them. Furthermore, it is argued that it is less discussions in the Chinese department but the communication is easier if there are Chinese employees on the upper management. In general the English skills are higher between the managers than between the blue color workers. The company culture at Alpha encourages discussion among employees. The cross-functional teamwork is very important, but is not as developed as in Sweden. It is more the manager who gives direction and telling what to do, but it also depends on the type of meeting. For the boss it is therefore easier to make decisions faster. In the Chinese culture employees don't want to lose the face is another problem at Alpha, people can say yes if they mean no and they don't tell the manager if they have a problem. Therefore the manager needs to have more control over the employees on what they are actually doing. The so called micro management is not a problem to work with in the department. Most of the work is individual based, but they still work in teams.

The Chinese employees in general are very ambitious and always look for opportunities. Sometimes it is hard for a project leader to address people to do anything since they are not considered as a manager since only the manager can give orders. People in China have more respect for authorities, if the boss says anything they do it without questioning it too much. This

means that the manager doesn't have to negotiate with people in the same sense and that is a huge difference. In Sweden there is a lot more discussion of things before moving forward, in China the manager has to check step by step and also investigate the things the manager said was understood in a correct way since usually the employees misunderstand the instructions. According to Alpha it often works better when a Chinese manager explains to their employees. Things can be done quicker in China, in Sweden it is more negotiating, discussion, and planning more common. Chinese employees don't necessarily see change as a bad thing and have a different mindset to be more adaptive to change.

Innovation Process

The innovation process at Alpha is a standardized process, the processes and the products are the same since they are global company. Alpha works with a suggestion system to generate new suggestions in China, it is easier to get suggestions and take care of the ideas than in Sweden. Every team on team level shall go through the suggestions on a weekly basis and evaluate them. It can be improvements, improving the office, products, testing, or prototyping. These suggestions will later be prioritized by managers, the suggestion system is a global way of working for Alpha. There are also differences between Western and Chinese people in their way of working.

“The adaption and acceptance among Chinese people is much faster than compared to Western people”

Another more unstructured way of generating ideas is ideas from the managers who can give suggestions of improvements. The innovation process is standardized stage-gate model their tollgates need to be bypassed before next phase can start. The tollgates in the innovation process are; project idea, concept phase, design, product and process validation, and launch. Before the project it is an idea phase which is the first step for new innovations, a special team is discussing new concepts and new ideas.

“We focus on three phases in China; quotation/business case, preparations, product and process validation, and commercialization/launch.”

The launch team has as purpose to launch new projects, the product itself is developed globally, mainly in US and Europe. After the product has reached the maturity stage in the development process the Chinese department try to get the products as fast as possible to investigate it and understand the product.

“That is one step to be more innovative in the development, so we are moving in more in more to development.”

They also need to buy the lines and to do production preparations. This should be done in accordance with the project specifics. The Chinese plant has supplies both from the Chinese domestic market and the Asian region. The plant is at the moment not working with new innovations, the Chinese market is not at the moment driving new innovations.

In China they are not afraid of trying new things and it is good to try new things according to Alpha. In China it is more go and solve the problem instead of waiting several weeks to perform a test. Alpha tries to give the employees freedom to come up with new ideas. Most of the requirements for new innovations come from the company's customers, and are often focused on cost, weight, and size. The plan is to start up prototyping capabilities to be able to stop building prototypes on the production lines and to improve the efficiency and be more innovative.

“Sometimes experience reducing innovations since you have so many problems that you cannot look outside your own box”

Alpha has a reward system where people who hand in an improvement get recognized on a monthly employee meeting. It is discussed that it is very Chinese and done in a more systematic way than in Sweden, the employees get flowers and a picture with a nice frame. That is something that is done more in China. In China the manager need to find people who have done a good job and celebrate it once a month with presents for good performance and behavior. Alpha have individual targets connected to the salary that employees should reach in the end of the year, while in Sweden, the target level is at team level since it is more teamwork in Sweden.

It is argued that the market is growing fast for the company and they don't want to miss market opportunities or market demands. There is uncertainty but there are also great returns. The speed is faster in China and to handle this, decisions are often taken earlier in the process here in China. Another risk is that the company spends money on investments earlier in China, but investing to late can also be a risk according to Alpha since they can miss business opportunities. Alpha's business is the same in China as in other parts of the world but the experience and knowledge among the employees in China is lower than in more mature markets where Alpha operates. The management needs to understand and give employees a chance and not control everything. Alpha tries to train people to be more opened and also allows the employees to do mistakes without getting punished. Sweden is better at planning which is explained by more discussion and therefore it is easier to foresee and make future plans. The Chinese employees like to do it directly or not at all, they are trying to be more innovative in the development by involving the Chinese employees earlier in the innovation process.

The company tries to work more standardized with more standardized concepts and not adapt and scale down or make low performing products for their Chinese customers. Some of the new technologies that were launched in China had different requirements, but every product is

customized to the customer because of different shapes and therefore Alpha needs to tailor made the product for each customer, but based on a global concept.

The Characteristics of the Innovation Process in China

The standardized work process has made it easy for Alpha to operate in new markets, but it is discussed that it is more individual work in China compared to Sweden where there are more group work.

“When you work in a company the company culture will change you”

The turnover rate is much higher in China than in Sweden according to Alpha. They also mention the general employee turnover in Shanghai is about 10-20% in engineering departments, in the production it can sometimes be as high as 50%. The standardized work process has helped Alpha to deal with high turnover rates, but it is still a problem especially since the department is growing. They try to keep the employees with training, promotions and money but also to plan new open positions a few years ahead in the company. The individuals are not taking much risk, instead it is more top-down which the managers want to change so more ideas come from lower management, since the targets are customer driven and need to be fulfilled. Quality in the safety business is important, and that is a factor that drives the automotive industry. Alpha has the confidence in their innovation process and their products, but is constantly observing what happens among competitors and in their field of business.

4.2 Beta

Company Profile

Beta is multinational company operating within the food industry. They work closely with the customers and are oriented towards food safety. The interviewees have worked for Beta for many years. The interviewees were mainly Chinese and two of them have worked both in Sweden and China. Beta delivers products to the whole world and since customers and suppliers are to a high extent located in China or Asia, R&D proximity is essential for success. The low labor cost was the second factor that made them establish business in China.

Almost all the employees are Chinese at Beta. It is argued that the management style is different in China, compared to Swedish where the work system is more flexible. The way Chinese work in is general more top down, the top management set the key directions and the employees follow the execution. In Sweden, it is more bottoms up. They think in more dimensions how to execute, the performance on new ideas. Chinese focus more on execution and not on how to effect the company's direction.

“Here we have better efficiency and execution since we have less discussion.”

One interviewee has worked for the company more than six years and the reason the person likes the company is because he gets new challenges. Beta work as a matrix organization and it is sometimes hard for the Chinese employees to understand it and to understand who is in charge. It is a challenge to get best output. A Western manager needs to develop him/her to adapt to the Chinese way of thinking and acting. It is argued that China has many people and there has to be strong leaders and listen to everyone's opinions take too much time. Too much discussion will lose the employees' energy and also moral. For a manager at Beta it is especially hard to work with new Chinese employee in team since they will not answer open questions. Instead the manager needs to remove the confrontation with the individuals and first let them discuss in different groups. The work environment at Beta is today much more open and allows managers to have face-to-face discussion.

Normally Beta has less structure and discussion, instead they try to talk over the phone, over a coffee or during teatime and this help Beta to share information quickly. The managers are supposed to make a decision and give employees direction, more top-down. At Beta they work in group, the difference here is to follow the decision execution and it is more efficient because of stronger executing. Because of the way they work it is hard to know where the project leads, therefore it is not hard to criticize people and point out that they are not doing the right things.

Innovation Process

Beta is cooperating with universities to get more input and to create better solutions. They have guided students to present solutions for some of their products. At Beta employees will get rewarded if they file a patent, this is part of a global reward system. The reward is monetary and the person will also get a certificate. It is discussed that the money is an important factor that drives the employees and to motivate the employees the reward should not be less than 500 Euros or less than a month salary. The employees are encouraged to try new things and to tell the truth and not hide problems. The organization doesn't have many failures and the management is not expecting the employees to fail with projects, but if someone is not doing a good job the person should report to the manager about the problem and get more resources and time. Normally the employees will correct the work if someone criticizes them but they will not defend themselves, they want to know what to do better.

"It's the same in China, failure is the mother of success."

Beta has a website for idea generation and the employees think that they have much input in the process since the employees are encouraged to deliver their voice to the manager and to the project. The person can report an idea and a team will review it. It is argued that the employees feel hampered because they think that they can do more than they are asked to do and this affects the motivation. Beta has a lot of incentives to grow, but since the R&D team is very small in China it is hard to know what is happening in other parts of the company. They think that they don't can influence Beta's strategy. It is hard to speed up the innovation process without getting

a negative impact. Beta tries to minimize the risk, but too much review can lead to missed business opportunities and this slows down the time to market. It is also argued that the decisions that are taken by the top-management includes business risk and is not the same risk as the employee takes.

For some projects new ideas are created within the project and Beta encourage the employees to speak to the managers. This resulted in a new idea from the project team that could turn around the project and make new business for Beta. They think that discussion and feedback promote and encourage the employees at the company instead of just follow the decisions.

“It’s very much bottom-up because managers cannot have ideas, they cannot have innovative ideas because they are doing management.”

In China Beta test and develop different types of machines. They try to standardize the process and work exactly the same as they do in Sweden. The process is a stage-gate model with tollgates from idea to commercial global release. The process is not allowed to move on further before the each stage is completed. The first tollgate is concept and project definition, after that design. Next tollgate is building a prototype to confirm that the project is working and to the right cost. Next tollgate is product validation and it is the last step before commercialization. The tollgate is about industrial validation, performance criteria, and target of costs. The last tollgate is commercialization, and Beta argues that this phase is faster in China. If something not working out or has the right cost the project is stopped. In order to speed up the process Beta has sometimes taken two tollgates at once to take a shortcut. The strategy is to shorten the lead-time to market. They have a project called half the lead-time with double quality.

“We always try to shorten the development time, we try to work smart.”

Beta is trying to get input from the market and work closely with customers. The process can change or canceled if new ideas are presented. It is discussed ideas and concepts are better at Beta in Sweden since they have more experienced workers. In China it is harder but there is potential, since the organization is very small the company sometimes needs to fly in knowledge from Sweden. Chinese workers often work more focused and intense to shorten the lead-time.

The Characteristics of the Innovation Process in China

Beta works closely with the customers and is developing global products. There are more job opportunities in China, people work harder since they want more money. If Chinese people work harder they can find other jobs and it is unusual to stay more than three years at a company. The reasons people change among companies is to increase the salary, but also because of social pressure from family and friends. Moreover, the management style at Beta is different and it depends on the manager. The organization has a Swedish style of management since the manager is from Sweden but it is more top down in China. In Swedish culture, people are given the

freedom of self-improvement by motivating themselves to get capabilities. Newly graduate Chinese students have limited work experience since they have a very theoretical education. It is discussed by just following the execution you don't have to think much and this lower the chances to make mistakes, but this will also hamper the innovativeness. In Sweden you have to agree with many parties and that takes times but lower the risk to make mistakes.

4.3 Gamma

Company Profile

Gamma is a firm which produces different types of machines that are used all over the world. The interviewee has been working several years in the US, China and Sweden. The company has all the R&D functions in China in order to support the business, it was argued the company has moved from low cost labor to low cost engineers. The interviewee was born in China, and has studied both in China and in the UK and lives now in US. It is further argued, the main challenge for Gamma is to manage people.

“It's art to manage people”

Managing people is hard since everybody is different and to manage people in a good way you have to know everybody. Everybody thinks and acts differently and managers need to understand these differences. It was also argued there is a lot of politics within Gamma and it is hard to handle.

It was also discussed what differences there are between the Western world and China. In China it is a very communistic view on how to do things. This mean one person makes the decisions and don't consider feedback to the employees. This is seen in Gamma as well even if it is a subsidiary they have Chinese way of thinking. Especially among Chinese bosses tend to neglect people, in the Western world it is much more democratic. According to Gamma managers have to listen to people and their ideas, this is not always the case in the company. Another observation according to Gamma, the Western manager has tendencies to respect their employees but in China the managers don't respect their employees. It was argued that Chinese management has reflections on the Chinese political system and that Chinese managers sometimes treat people bad. The positive side of the Chinese way of working is the faster pace, when neglecting people and don't discuss things it goes faster. The democratic system in the Western world can sometimes be very inefficient.

At Gamma they also see tendencies managers try to speed up the processes and neglect some quality issues, this is something Gamma work hard to prevent. According to Gamma there are people that can be innovative, but since they are dictated and given guidelines to follow, they don't think for themselves.

“In general people liked being told what to do in China and this hamper their innovation capabilities.”

The philosophy at Gamma is to give people the freedom to be innovative but in reality this doesn't work every time. It was argued Chinese people are afraid to lose their jobs and therefore they always follow what the managers decide to do. The Chinese structure is very much top-down, even if Gamma is a Swedish subsidiary in China there are Chinese tendencies of working, the Swedish way is more bottom-up. In Gammas organization in China there is mainly Chinese employees, but there are several managers from Europe as well. In general Gamma work very much in groups, they encourage people to work in groups. The case in China is many Chinese people have a tendency to work alone and not sharing information. At Gamma they allow people to criticize each other, but in a good way. In China because of the educational system Chinese people tend to work more efficiently when they work by themselves, but this disconnects with the group target. This is something Gamma tries to work on. How Chinese people work is very much affected by how they are taught in school.

“The educational system in China is more examination oriented. What I mean is teachers, professors will deal with examination. They tell you what to memorize, if you look at examination, Chinese students are very good. They have very high scores. But once you talk about something hands-on they are very poor. Professors tell students to follow the book. The Chinese educational system doesn't encourage people to innovative thinking. Basically if you tell Chinese people what to do, they will do a really good job. But if you ask them to do something that is hands-on they cannot since they cannot think for themselves. That is a big problem with the Chinese education system, start from kindergarten all the way to university. The Western educational system is more hands-on, students are given problems and have to think for themselves and come up with solutions. They also do much more experimentation in labs that is not the case in China.”

Chinese people have a tendency to cover mistakes, at Gamma they don't want people to cover their mistakes, they want employees to make mistakes and learn from it. But some of the Chinese managers sometimes criticize people just to make them look good in front of others. They basically say that blue collar workers are stupid and foolish, and they are smart. The hierarchy in China allows people to be disrespectful against other people. It happens at Gamma but not in the same extent as in Chinese companies owned by the government.

Innovation Process

It is discussed Gamma try to follow the same processes as they have around the world. They work a lot with standardization. There are a lot of guidelines on how to work, this is effective but sometimes the company needs to do things differently since there are differences among countries. In the past Gamma had different ways of drawing the products, they had different signs but now is the process standardized. If new ideas are created in China, they have to report

the ideas to the top management and then get the founding. The company needs to standardize the products and processes since they need to think about the aftermarket, they cannot have too many variants of spare parts. In general things goes faster in China but at Gamma it is sometimes slower since they are new and still try to build competence and get experience. The reason according to Gamma the speed in China is higher because Chinese people copy products.

“If you think about it, you can copy products really quick, that is easy, but do Chinese people come up with new innovations. I don’t think so. Copying products is not innovation. They do things faster since they already existed. For instance how many American people have got the Nobel Prize, about 50. How many Chinese people have got the prize, none. What Chinese people are very good at is coping products really fast, but it’s not new technology. One reason why they can do things fast is that Chinese people are using a different strategy. In Sweden you build a road, maybe 50 people are working on the project, in China there are 50000 working on the project. It’s a difference. Once again Chinese are good at copy but are definitely not innovative.”

It was also argued an innovation is a new thing that is new to the world. Even if China has a lot of high speed trains the technology is very old, the Germans had the technology already 50 years ago. There are many Chinese that can work in different projects but they can have a job for one week and then move on to something else. In the Western world there is much more stability. The Western world also has more experience and knowledge, what we now see is the catch up effect. In China it can go really fast since the technology already exist, the Western world has to take it slower since they need to make sure that they take the right decisions. It was also argued Chinese people don’t take more risk since copying products is not considered as risky. Especially among consumer products the catch up effect is really high. In other areas it is much slower.

“Some things are really hard to copy for instance the satellite, US had one in 1950, China has one now 60 years later. They can steal some information but not all, some things you cannot copy. In that way Chinese people are really slow”

At Gamma they see some obstacles they have to deal with, one aspect is the cost of their products. Since their products are rather expensive and their local competitors can do the same thing cheaper and faster. They cannot compete on the same cost level with these local competitors therefore they need to compete on quality. But it was also argued that they need to create a better balance in their cost but still provide more than good enough products. Gamma doesn’t use any reward systems for the employees but the interviewee push for approval of a reward systems. It is further discussed these systems will be approved within a near future since there need to be incentives for employees to be innovative. It was discussed Gamma has the resources to be innovative but not enough competence. It takes time to build these competences. The turnover of employees has not been a problem for Gamma yet, but they are aware that it can

be a problem and therefore they monitor the salary in the industry. Often people switch company after 3 years, this is due to the fact China grows fast and there are many companies that need new knowledge.

“In China people work 2-3 years at one place and then move on, they think they have good experience and consider themselves as experts. In the Western world people work 5-20 years at the same place. So there is a difference. Chinese people say that they want challenges and a good resume, but in fact they only want more money and nicer positions. Especially young people switch between companies since they want higher salary so they can afford to buy a house, car and other luxury products. I don't think that Chinese people are more ambitious they just want more money”

Gamma is working very hard on continuous improvements and operates exactly in the same as other units in the rest of the world. They use a stage-gate process and this is according to the company very efficient but sometimes it takes too much time. The stage gate process includes steps such as; pre-study, feasibility study, and prototyping. It was also argued that it is very important to continuously monitoring the processes and measure so the company reaches its goals.

The Characteristics of the Innovation Process in China

According to Gamma they don't consider themselves to work as a Chinese company, but since many Chinese people work in the company there are many tendencies of a Chinese way of working. According to Gamma they would like to see more trial and error within the company, which is more the Chinese way of working. They would also like to have fewer guidelines in some cases in order to speed up the commercialization process. Since Gamma is a Swedish subsidiary they have many guidelines, compared to Chinese companies which not have it. In Chinese companies it is very common to just fire people if they make mistakes or if the managers just have a bad day. That is not the case in Gamma. It was also argued that many Chinese companies are very good at commercialization and that is something Gamma can learn from by operating in China.

4.4 Delta

Company Profile

Delta is an IT company that offers complex security solutions. The company is driving the shift in the security industry towards digitalization and is a global market leader in this area. All the employees at the department are Chinese.

The competition is huge in this business therefore Delta has set up a three years plan how to compete. It is argued that the employees at this department are not good at giving feedback. There are some feedback through emails and short meetings.

“One difference compared to the Swedish organization is that in China you often don’t have so many layers in the organization. That could be one reason why there is less feedback in China than in other European countries”

The ideas that are generated in the company mostly come from the top management, around 80 % only 20 % come from lower management. This is a common situation in China since the manager is the person that takes the decisions and people follow him and do as they are told. When people work in groups it is often the person with highest position that makes the decisions. It was also argued that Chinese people are more willing to take risk when they work in a group than individual. This is due to the Chinese culture, since if people work in a group they share the responsibility if the project fails but if you work alone you have to take all the responsibility. It is also discussed that in general Chinese people are more risk taking when they work in a group but most Chinese people prefer to work alone. When Chinese people work in a group there is not a lot of discussions since the culture don’t encourage that. Delta would like to have more discussions since they believe it can generate more good ideas. Another culture aspect is:

“In China you paint a picture of something it’s not the same as the real world, but Western people draw the picture just as the real world. This also explains in some way how Chinese people do business”

Moreover, Chinese people follow their feelings and Western people often follow processes step by step. Chinese people often try different things in order to see what works, it is a trial and error culture. When people succeed in the organization by improving products and processes they get monetary rewards from Delta.

Innovation Process

It is discussed that Delta is struggling with creation of innovations mainly since they don’t develop products in China, but also since it is hard for the Chinese managers to convince the headquarter that they want to develop new ideas. However, they try to be innovative by making changes in the so called channel. This is the only way for them to be innovative, other units within Delta is much more innovative. Delta doesn’t sell directly to the end customers, but through different distributors, both national and sub-distributors. This is called the channel, they try to change the structure by developing the sub-distributors to become national distributors. This is a risky process since often the sub-distributors don’t have enough or right resources. However, they are more committed than the national distributors.

The strategy is to develop sub-distributors for a few years and then promote them to national distributors, but they have to prove their competences first. The managers also say that it is hard to convince headquarter that the company should focus on the sub-distributors, since the company has had problems with sub-distributors in other markets. Furthermore, it is discussed

that Delta gets feedback from customers and the information is always transferred back to headquarter. In 2010 the department transferred some good ideas based from the Chinese market to headquarter. After that it took 18 month to launch that idea and it has to go faster or else the company will miss market opportunities. Since China is a huge market Delta need to have a good relationship and communication with end customers and all different kinds of partners, this is very important for their success in China according to Delta.

“The key to success in China is to have good relationship and communication with end customers and partners.”

Also the changes in the channel are important for the Delta’s success, but also a strong leadership. It is argued that they have too many layers in the channel and right now they are trying to decrease these layers and thereby also increase the marginal in the supply chain. For instance, they are trying to work in a structured way if a sub-distributor do well Delta will promote them. The pace in China is really fast and they have to speed up or else they will miss market opportunities. There have also been some failures in the past, one example is in 2008, the company focused on new technology, but the market was not mature, therefore they failed.

“The pace in the Chinese way of thinking can sometimes hamper the quality of the product and processes, but the Western way of thinking is often to slow. There has to be a balance.”

The Characteristics of the Innovation Process in China

It is argued that Swedish people are more open to new ideas and are self-motivated, in China there is a difference mainly because of the cultural background they are not as open. The speed is also an issue, in China competitors can deliver new products within three months, for Delta this takes up to 12 months, sometimes the Swedish process is to slow. One reason why it goes faster in China is that people work twice as hard. Traditional Chinese people don’t like change but they do as they are told. Chinese people in general don’t like to take risks, but it differs among people, in the Delta’s department they try to balance risk.

“For managers in China it’s very important to have a strong leadership so that people listen and do as they are told”

It is argued that the workload in China is sometimes too high. Sometimes the employees have to choose among different projects and then they often go for the less risky projects, this is also depending on what type of preferences employees has to risk. Moreover, there are many opportunities in the Chinese market and that it is sometimes hard to recruit good people. In general Chinese people tend to move among companies very often because they don’t want to miss opportunities. This has however been a problem at Delta a few years ago, for instance they changed boss every year. This is not the case now since Delta has a strong leadership and a

strong company culture which has prevented the turnover of employees. Many of Delta's competitors develop good enough products to low costs and for Chinese people good enough quality is acceptable since it works, it is not the best products but it works. The competition is a challenge Delta has to deal with. At management level it is argued that there are thoughts on scaling down products, less features, but still has the same quality. Delta doesn't want to jeopardize their brand and recognition since it has taken a long time to get acknowledged on the Chinese market, but they still have to spend a lot in marketing since there are so many competitors both local as national.

4.5 Epsilon

Company Profile

Epsilon is a high technology company with focus on manufacture of solenoids and ignition systems for small engine applications. Its customers are manufacturer of professional hand held outdoor machinery and the automotive industry. Epsilon is a manufacturing company, with no marketing or sales activities in China. The research and development are performed in Sweden and the industrialization and manufacturing in China. Epsilon sources the dominant part of its components and materials used within the manufacturing process from within China. The operations started year 2004 and Epsilon began production one year later. Today the company has about 130 employees. The reason for setting up the operation in China was to take advantage of the lower cost of manufacture. At a later stage the company has also taken on the role of providing a "window" towards the Chinese market for new business opportunities and enquires from potential customers for other products within group companies. The interviewee has an engineering background and has worked in Sweden for several years and in China since year 2000.

The biggest difference in China compared to Europe is the culture and the huge population. It is argued that the cultural complexities are not that easily detected at the initial view of an operation in China, it takes some time for a visitor to realize how complex the culture is and how deep rooted it is. All the employees are Chinese, except the interviewee but the organization way of working is heavily influenced by the Swedish way, but the values employees have are Chinese. Most of the values are depending how people are taught in school, in China it is more of one way communication and less interaction with teachers and lecturers. Epsilon is trying to promote to have a dialog but it is often hard for new employees to adapt to this change. The employees are focused to do a good job and are also proud of what they are doing.

"For instance when you give feedback to people here, they always say the same thing, thank you; I'm just doing my job."

Moreover, another culture difference is the language barrier. Even if the English is quite good it is not for certain employees understand everything in a conversation or a written message. The

experience is that many Chinese finds it quite difficult in writing reports in English and the reports are often very brief. It is mentioned that direct communication is an effective way of communication, but since Chinese people don't ask too many questions there is still a risk of misunderstandings. Therefore Epsilon tries to take the Chinese values and background into consideration when they hold meetings. It is often difficult to receive feedback on parts for manufacture from Chinese suppliers as they will not always reveal a concern that something is not understood within a specification/drawing. Similar, they will not always reveal the fact that they do not have the capability to manufacture a particular part as they are afraid of losing a business opportunity. As a result the company has a principle of not sourcing if there is no feedback from the supplier, the feedback loop is very important. What is also very important is that your sourcing organization must know the processes of the suppliers and convince yourself that they have the right capabilities.

“You ask for something and get something else”

The culture at Epsilon is open, they call it the Swedish way of working. They don't want people to be afraid of saying anything and feedback are viewed as good since it makes the employees more involved, but also to provide a better understanding of the work and thus the efficiency within the operation.

Innovation Process

When Epsilon works on new products it usually takes around two years to launch.

Epsilon seeks to be the industry leader in a fiercely competitive business environment. The company works very close to the sales and marketing in Sweden and there are many opportunities in China and the rest of the world for the company's line of products and Epsilon's business in China is therefore fast growing. Epsilon works with standardized processes. The processes are compliant with ISO 9001 and TS 16949 (special for automotive industries) quality system. Epsilon maintains its quality systems and processes in order to ensure the quality. Epsilon works with continuous improvements in the manufacturing processes. Since the customer focus is very high they work in all operations according to a control plan and work instructions, therefore clear instructions are essential to avoid misunderstandings. If something goes wrong employees can go back in order to check if they have missed a step in the process. The company has a strong process culture. They have a quality insurance process. The process is very controlled and contains different steps, the last step is called End of the line testing. Working strictly in accordance to processes can at time be frustrating when it comes to the time it takes to make that change according to the company. For example, if they need to change a supplier they must first find a supplier that meets the requirements and then perform a strict verification process. The customer makes the final decision to approve the change or not and only then can a change be introduced.

Some competitors have similar quality, and the quality aspect is an important in order to be invited to a commercial discussion with the customers. The quality of product should be same in China as anywhere else in the world. They take a low risk and according to the quality system it is not allowed to take any risks since Epsilon have a chain of decisions. The supplier cannot change or modify anything in the process after the specifications are set and approved by the customer. It is discussed that in every organization there are people with development potential and you have to take care of those people and give them opportunities to grow. Epsilon has also implemented a reward system, the more operations an employee can perform at correct quality and quantity the more money the employee can earn. It is important to provide development opportunities for people in the organization or else they may leave too soon. The ideas come both from top and low management but the top management must provide an environment that allows for new ideas. In China it is not so many questions, the employees do as they are told. Epsilon have a suggestion box but don't get many suggestions on improvements, most ideas come from line leaders.

"I think there are more ideas in Sweden for instance than here and that is probably a culture thing"

Epsilon is in the front edge in their industry and understands that there is a risk of being copied but has the ambition to stay a leader of the technology development. It is argued that the overall speed in China regards to innovations will speed up. In the future Epsilon has thoughts about to further strengthen the engineering activities in China in order to be closer to the suppliers and customers.

"The only thing you know for certain about change is that it is forever present and continuous"

The Characteristics of the Innovation Process in China

The turnover of people is quite low in the office but in manufacturing the turnover of people is higher. Many people in the manufacturing process are young females and they come from other provinces. Epsilon employs people from age 18 and upwards, often when the female workers reach the age of 20-24 they move back to their hometown to get married. To lower the turnover Epsilon is also trying to recruit employees that are married and from the local area. The reason behind the high turnovers in the manufacturing is also because people are moving into the city to earn money and to save to the family, if they find another employment opportunity that provides a higher earning potential they may leave. The basic salary is not most important for the factory employees, the most important thing is if they can work a high degree of overtime to maximize their income. The low turnover in the office is argued that it is because of the good work environment. Some of these people have worked for the company for over seven years and the

possibilities and chances to learn more things in the organization has made them grow and stay. Usually people stay three years and then move on to new opportunities outside the company.

Epsilon tries to source as much as possible of its material and components from within China; the lead-time is longer and the cost is typically higher if the material is purchased from overseas. The quality is not allowed to differ for locally sourced material and Epsilon will never compromise on quality.

4.6 Zeta

Company Profile

Zeta is a global multinational company, it develops manufactures and sells personal care products. The interviewee has long experience working for Zeta, primarily in product, material development, and project management. The person has for the last 10 years managed R&D units around the world and started up the first R&D center in Asia 2001, and since 2010 located in China. Before Asia our interviewee worked in Sweden and it was argued that it was challenging since the decision making takes longer there.

The department is multicultural and consists of employees primarily from Sweden, and China. The culture clashes have not been many but sometimes difficult for the European part of the company to understand how development work in China can be so fast. At the same time it is hard for the department in China to understand why it sometimes takes so long for Europe to reply e.g., come back with feedback and questions. It is argued that the atmosphere is extremely open and the culture promotes dialogs, interactions and with discussion.

“The ideas must be discussed and shared shouldn’t be kept alone. That’s the beauty of having a small team.”

The difference with China is that the decision making is really fast. It affects that the development and innovation projects go faster. The reason behind this is that Zeta tries to take shortcuts and the process is not dependent on a specific structure. The shortcut that is taken is usually to minimize product testing and to launch products even if it is not 100 % perfect. If any issues occur after launch, Zeta is organized for doing necessary corrections and fine-tuning since Zeta work very close to the market and with the customers, plus commitment from management. Most ideas come from the market i.e., via consumer insight and many of the requests of innovations or development comes from the market. The department work is insight driven, meaning they translate or transfer the insight into concepts and solutions. But Zeta also gets ideas from other units since they have cross functional collaboration. The market is explored with salespeople together with marketing people. Zeta tries to be out of the office as much as possible and instead visiting consumers, customers and suppliers to get insights, ideas and inspiration for new innovations. The employees have a lot of freedom and failing are part of the innovation

process. Feedback meetings are common in order to get a discussion and dialog what is going on in the organization. The management is supportive and everything is done concurrently.

Innovation Process

Zeta has two kinds of innovation systems; one is more focusing on incremental innovations, a stage gate process called “Chess”. They also have a process that more drives innovations called “Poker”, the Poker process is executed in small teams and is more risky since they use trial and error to succeed with different concepts. In both processes marketing has merged with development so marketing is part of the work from the beginning. The other primary key supporting functions in the process is; product development, local marketing, manufacturing, and supply chain.

“Innovations should be done in small teams, the group has to take some risk and the employees must be given the freedom to be innovative. The managers shouldn’t interfere too much but must ensure the team has the necessary resources and support to succeed”

It is more challenging to work with innovations with a stage-gate process but sometimes necessary e.g., when heavy investments are required. Innovations are described as to commercialize successfully new concepts or ideas, without any commercialization there are no innovations. Zeta has an ideation system and all ideas are evaluated and the good ones are rewarded with a gift or even money. Zeta tries to change the reward system into recognition e.g., to publish a picture and an article on the web page. This new reward system will be used to encourage and promote innovations. In China the process is faster since less people are involved in the decision making process. In Europe more people are involved in everything and that slows down the speed in the process. The difference in China is that the department works mainly with development in the R&D process. Research is concentrated to Sweden.

“If you are here in China its product development, local marketing, manufacturing, supply chain, those are the primary key functions. When we talk about the Poker, it’s primarily product development and marketing”

Most of innovations are incremental, about 70 % and the rest 30 % is new innovations. The department is quite new and works with everything but need to be in-line with central R&D in Europe regarding budget and objectives. The central R&D in Europe is big and has the expertise in most technical areas and the Chinese department can use it for technical management support. The department is new and everything is not implemented, for example is the SAP system not integrated and they use instead Excel sheets which they send to other departments, the access of information is therefore limited. Since the department is small everybody must have a few projects they are responsible for and there is a short time line to gathering everybody to have an idea generation, workshops, or reflect of what they are doing can sometimes be tough. This is because the people are located at many locations, in China and a few in South-east Asia, and

most in Europe. The biggest challenge for any organization is size, the bigger the organization, the less flexible it will be for innovation; as there are too many channels to filter through. The ideas to innovations are mostly created in teams but also individuals come up with ideas. Zeta is also doing annually tests on the competitors and tests the competitors' new products to examine if they have done any changes. So far they have not had any serious problem with competitors copying their products. It needs to be a balance between tests and quality, sometimes people focus too much on quality and the idea never gets launched.

“Many times people need to be 100% sure to launch products, but in China if the quality is good enough it is acceptable to launch the product.”

This way of shortcut enables a faster launch, also steps in the stage-gate process are removed to enable a faster speed, since they have less information and project meetings with people. The testing part is more focused on qualitative testing to investigate if Zeta goes in the right direction. They are trying to bring the concept to launch as fast as possible. Zeta tries to inform the employees that it is nothing wrong to take a risk or fail, so long as it is calculated and failure is part of innovation.

The Characteristics of the Innovation Process in China

It is argued that many of employees would like to be managers within two years and that is a challenge for Zeta.

“It is important to have enough positions so that employees can grow within the company, sometimes you have to create new positions.”

Not many have left the company, they are quite loyal and the company has grown from 10 to 200 employees in a few years. It is discussed that Chinese people would like to work for an international company, they like especially the work and management style since the company provides them with a lot of freedom, training, and personal development. The company has a lot of discussion even among departments and they try to minimize the silo thinking and instead involve everyone. The work is divided both in teams and individual, but many developers do a lot of things independently. They need to do a lot of trials and error by themselves, compared to Europe where they have more people and work in a more structural way. Since the department was created in China it was necessary to adapt to China way of working and not necessarily adapt to the “Swedish” way of working.

4.7 Eta

Company Profile

Eta is a global company which produces parts and solutions for the industry. The interviewee has worked for Eta for many years. The person has a background in research and has worked for

several different companies in different positions. The person also has a PhD in robotics, in China he is responsible for a product development department. The reason for Eta to do development in China is the close relationship with the customers and understanding of their needs. This is a requirement for providing customized solutions.

It is also discussed that there are differences between working in Europe and China, the biggest difference is the demography. People in China are soon considered an expert, after five years in Sweden you are still a junior. There are so many smart Chinese people but they often lack experience, this is both good and bad. Mobility is a factor that is the same. Just like in Europe, people tend to move more frequently among different jobs when they are young compared to then they get older. According to Eta the biggest challenge is to recruit the right people that have the knowledge and experience. The company has several development offices in Europe, but in China they have chosen to concentrate to one location. They communicate with all the departments in Europe and this means a lot of communications, some of these offices are understaffed which makes it hard to communicate. It is also argued that feedback differs between upper and lower level.

“Young Chinese engineers sometimes have problems leading projects where there are senior engineers working. The age is not really an issue, it used to be in China but that has changed, people have more respect for hierarchy and expertise”

In China there is a larger power distance, in Sweden everyone talk to everyone during coffee breaks this is not the case in China. According to Eta most of their innovation ideas come from the engineers, and sometimes from management. Therefore, it is also important that the work environment is good, so Chinese people dare to say what they think.

“You have to build trust.”

Eta try to transfer the Swedish mentality, people should be more open and share information with one another. Teamwork is an important factor for a firm to be innovative. The culture differences are argued to be smaller than what people think, on the surface it may look different but people are quite similar, the similarities are much stronger than the differences according to Eta.

“When we are working in groups there are often a lot of discussions, even if the company is working with standardized products that have been around for over 100 years. But the language is a barrier since most of the European people don't speak Chinese and some of the Chinese employees have limited English capabilities. This affects the discussions especially when it comes to product details then people prefer to switch to their own language”

According to Eta, there has to be more European people that speak Chinese both in China and in Europe, to improve the communication with their customers.

Innovation Process

Eta has the traditional stage gate system as they are using in Europe, the difference in China is the pace. They have the same processes for documenting and collecting data and the innovation process is the same, except they don't do research, just development. It is speculated that one reason why the Chinese people are faster is that they don't have agendas as the European employees have.

“Chinese people are more flexible and prioritize differently, for instance if someone has an idea or a problem they arrange a meeting right away”

This is not the case in Sweden, one person has to send an email about a meeting and then everyone has to agree on the time, this means that the lead-time is much longer. There is faster decision making in China, sometimes too fast and they don't have problems with changing the plan or meetings. At Eta they like this attitude and would like to see more of that in other units in the organization. In general Chinese people are really good at following instructions that are clear but it is also argued that freedom and empowerment are good to create an innovative organization. Eta has rewards system for innovation, but they are aware of the risks of those systems, since people sometimes wait to publish those ideas to next year since there are limitations for how many ideas the employees can get rewards for.

It is also discussed that the Eta's organization needs to speed up since their competitors are faster. Chinese companies are very good at cost innovation, they work close to the customers and provide a variance of products to customers, but with a low capital investment. They are good at achieving mass production at low cost and that is a major competitive advantage. Eta doesn't want to jeopardize their brand by doing fast commercialization as competitors are doing and they are aware that this is a disadvantage from an innovation perspective. Innovations that are generated in the company are published as reports in a global database and are available for all business units. Eta is most successful in doing incremental innovations but sometimes there are radical project innovations. The ideas often come from the experts in different fields.

Most of the new innovations come from solving a specific customer's problems, the solution is then replicated to other customers, and published on the global database. The process for innovations in Eta contains of the stages; research, create technology, prototyping, development, product design, manufacturing, and launching. There are also feedback loops among all the steps, this is very important for Eta in order to control the process and change features if necessary. In China Eta have a more focus on development than at research. Since the company is decentralized there are many advantages but also disadvantages such as harder to communicate among organizations. Therefore, Eta tries to do something different in China, the

organization is much more centralized in China, which can also explain the faster pace at Eta's department. They plan to build a technical center with laboratory, testing, engineering services, solutions, and product development. All these functions are expected to be in the same area, but the advantages will be seen first after a few years according to Eta.

The Characteristics of the Innovation Process in China

It is argued one difference operating in China is the speed, but also the competitors, they are in general small and have nothing to lose. They take more risk and Eta cannot do that in the same way since they have a brand to think about. Ten years ago the company didn't think speed was an issue, today they know that they have to speed up and learn from the competitors. Another issue that is different between Europe and China are the expectations of the product's appearance. In Europe Eta's products are considered as engineering products, their product performance is important, life-length, strength, robustness. How it looks doesn't really matter as long as it works. In China products have to be beautiful with a nice box and shiny. This is customer value in China, at Eta they believe that this is a mismatch because Chinese people think if the product looks good, it is good and is not always the case.

It was argued that Eta doesn't have a high turnover, in general they have had 8% turnover while other companies have had around 20%. There is a high internal turnover, but not many people have left the company. The office in Shanghai is only a year old and they are not sure of why the turnover is so low. Eta is in the growth phase and approximately 40% of the people in the department are the first year on the job. This is a risk since many of these people will make mistakes as beginners, but the company manages this risk through design reviews etc. The risk employees leave to competitors is something Eta sees as an important risk that can affect the firm in a negative way. It was also discussed companies need to be careful when they bring new technology to China since intellectual property rights are not respected in the same way as in Europe. The Chinese competitors are willing to take that risk and copy Eta's products. For instance if someone leaves Eta in European and join a competitor the competitor usually know the same things as Eta. But Chinese competitors have much more to win, therefore they take that risk. The Chinese market is unique because it is very competitive, Eta is the market leader and has less than 10% of the market. In other markets where Eta or another company is the market leader, they often have at least 25% of the market share. The Chinese employees are often very ambitious and work very hard, one reason for this is that they have much more to win. In Sweden, students graduate and get a job, if they don't graduate they will get a different job with similar pay and guaranteed health care. In China if you work hard and develop your skills and competence, you can make 10-50 times more money and you can pay for health care for your family whenever needed.

4.8 Theta

Company Profile

Theta is a company that produces vehicles. The company has started to increase their activities in China to be more innovative, the department in Shanghai began to operate in August last year. The interviewee had over 20 years of experience at Theta and great knowledge of the innovation process. The company has joint ventures in China due to requirements from the Chinese authorities.

It was argued that Theta continuously develops the innovation network since they believe that is an effective way of working. Currently they don't have much R&D activities in China, they focus more on to assist technology and simpler solutions. In China the Theta focuses more on marketing, sales, manufacturing, and logistics activities. The main R&D focus is still in Europe and the US. The Chinese market is emerging and all Theta's global competitors want a piece of the market. It was also discussed that there is still a big lack in knowledge of advance technology in China, however they have a lot of knowledge of frugal innovations and that is something Theta can learn from. Among people in China there is a lot of energy and willingness to speed up things. There are many challenges for Theta in China, the biggest challenge is to create an effective network, where the company collaborates with different partners such as universities. At the moment Theta have collaborations with two universities, one in Shanghai and one in Beijing. To create a network often takes time and according to Theta the company is slow in the beginning but tries to speed up. At the moment there are mainly Chinese people working at Theta in Shanghai, there are some key people with other nationalities. Since they just started up the facility there have not been many innovations yet, but it will come according to Theta. It was discussed that the management style in China is a bit different compared to the Swedish style. In Sweden the management style is flatter, the employees can always go talk to the managers, and the managers often try to support and supervise the employees. The style among some Chinese managers are more hierarchical and don't give feedback as Swedish managers are doing. It was argued employees in Theta's department need to question the managers since they are not always right.

“The Chinese perspective is that managers are always right, even though they make wrong decisions”

New ideas often come from employees that are very ambitious. Theta tries to create a good work environment where innovations can flourish, they are using different sorts of innovation frameworks. These frameworks are a good tool for creating new ideas and the frameworks are further development from IBM's concept of generating new ideas and are called innovation jams. The innovation jams are events there people brainstorm and that works well for the company since it is a way to connect people with one another. At an event there can be over 100

new ideas, Theta look at all ideas and evaluate them, then they downsize the number of ideas to just a few. It was discussed that often the person that comes up with the idea drives the idea. This is an area where the company would like to see more Chinese people to participate, at the moment the Chinese input is very low. One reason for this is the language barrier. It was also argued that Chinese people are less innovative than European people since they have not learned to work with innovations. This has to do with the Chinese culture, history and education system.

“The whole idea with Confucius is not to question people and just copy and try to do what other already has done. Because Chinese people here are not trained to create new ideas. I’m sure that this great big country with all these people can be innovative but they need some help to do things in a different way”

Theta also tries to reward employees since they believe that it will stimulate the innovation process, the company has so far not had a problem with high employee turnover.

Innovation Process

Theta tries to have the same processes, methods, tools for stimulating ideas all around the world. In China the company believes that they don’t have enough resources to be innovative, therefore they try to invest in China. Theta works both with radical and incremental innovations so that new product and services can be launched on the market. A way to do this is to work with joint ventures but there are also rules for how many joint-ventures a company can have in China. The company also works with smaller innovation projects, these projects are top management often not always aware of in the beginning, but if new ideas have a potential the top management is involved. It was argued that the innovation process has many different steps, but often they get feedback from customers that have a problem or want to improve something. The importance in the process is to get the funding for starting the project. Within the company there has been a lot of discussion that they want to do more things and faster in the pre-study. They are also work with setback engineering so they can work with different concepts at the same time. Many of the ideas are modified throughout the innovation process and particularly the product development is very formal. It was also argued that the company doesn’t work as telecom or pharmaceutical companies since they often work with many different projects at the same time, Theta focus very early on a few concepts and then take the consequences when they have to adjust different features.

“Currently we don’t have so much R&D here in China from the group perspective. It’s more manufacturing, logistics, sales and marketing. More commercial aspects are the focus.”

There is a lot of pre-study and testing, some of the local competitors are not doing the same processes as Theta, they are doing more trial and error and many of the competitor’s products are not really completed but they are cheap and the customers decide what has to be modified along

the way. Theta cannot work in this way since they have a brand to protect. There was also a discussion that IPR issues are a very big problem in the Chinese market which is a disadvantage. But during the last years there have been more and more patents submitted and approved in China and Theta see this as a maturing phase in China. It is also argued that Theta is very careful on what type of technology they dare to bring to China. That is hard since there are expectations from the Chinese society that more advance things has to move to China.

It was also discussed that the Chinese customers have low willingness to pay for more advance products, but Theta see that this is about to change. They work hard to promote the customer to buy a more engineered product since it will pay off in the long run. The company sees the joint ventures as an important step to reach customers with lower cost preferences. It was also discussed in China the managers have to be clear when to give directions but also have to respect people. The Swedish management style works in China, but managers have to be very clear when it comes to instructions. According to Theta Chinese people are more open than what people think, for instance some of the Swedish managers give messages to the secretary that then spreads the stories. By doing in this way managers don't have to talk directly to employees, you cannot criticize people in public in China because of the face. But Theta also thinks that those rules are true for the Swedish work environment as well. Theta tries to give feedback in groups since it is much easier to provide comments.

“Sometimes when people work in groups there can be internal competition that makes people less willing to share information and this is something that has a very bad effect on the innovation process.”

It is important in China to build trust in groups, but also to make sure people dare to provide their own ideas. It was further discussed managers have to be very careful when expressing their thoughts since the mindset among Chinese people are not to challenge the managers. It is also okay to fail with tasks in Theta, but people have to learn from their mistakes, if someone repeats to fail the company takes actions.

The Characteristics of the Innovation Process in China

In Sweden people are trained to work with problems and solutions.

“Swedish people are trained to ask why, in China they don't ask why.”

It was argued that a combination of the Chinese speed and the Swedish strategies to attack problems would be a good combination. In China it is more common to take shortcuts and many companies can launch different concepts within three months. Theta sometimes believes they stay too long in the development phase, therefore it takes more time to commercialize products. The company tries to learn from the Chinese way of working through reverse engineering and

frugal innovations, and according to Theta this is something the company has to become better at to lower the overall cost.

4.9 Iota

Company Profile

Iota is a global company with a focus on equipment and solutions for liquids, they have 16,000 employees, spread all over the world. Iota established their business in China as early as 1984. The interviewees have experience from both the European market and the Chinese market. The product development department in China is not considered as a R&D department. It is a consequence of a strategic decision since Iota doesn't want to have the basic research in China, only product development.

“We have a product development department it's not R&D. That is a strategic decision since we don't want to have basic research here, just development here.”

Most people are Chinese but on the product management is more European. They are a global company that is affected by global implications. They can sometimes think that the development time is too long, for example Iota has 45 sales companies around the world and it can take time to coordinate this. It is about having a global versus regional focus. At Iota the local information and decisions part is really fast. The departments within the innovation process, such as marketing and sales are involved in the decision making process. They made choices and it was easy to fast get feedback from different departments within the organization. It speeds up the innovation process. Iota wants to encourage the employees to give feedback and to have a discussion with their colleagues. If someone comes with an idea of change something within the company, the person is often expected to be involved and to help out with development. They have developed a process to improve the performance on how they work in small steps. It encourages the employees to improve the process. The philosophy at the company is the more they are involved, the more they are driven and interested in the project. It is discussed that the team size, especially the small team size gets the feedback more immediate and since everyone knows each other successful feedback can encourage the employees. Feedback can both be positive and negative, but should make the employees more motivate and able to work smarter. However, feedback doesn't change the innovation process itself, but if something is done differently it will increase the motivation.

Feedback is one value in the company, to have a feedback culture. Every year a performance development dialog takes place between the manager and employee. The aim is to develop people and to give constructive feedback how to do things better. According to the company it is possible for the employees to give input in the innovation process.

“Sometimes is hard for the Chinese employees to express themselves in English, therefore they sometimes hold back the feedback or critic”

Otherwise is the attitude to discussion and collaboration at Iota very open, the department work daily among sales, product development, and operations. It is further explained that the higher level of people involved in a meeting, the more the managers have to be clear. It is also argued that Iota needs to have more open discussion to new ideas, and move on faster in the ideation work. From a culture perspective it is not hard to criticize people in the organization. The company works in small teams and for the managers are the process more direct than in Sweden. The similarities with Sweden and China are that the managers would not start to criticize someone heavily in meeting because of a mistake. The culture in the company is described as a mix between European and Chinese culture. It is argued that the history in China has made them more individualistic, the difference is that it is more collectivistic in Sweden and because of culture differences people need more guidance in China. Therefore the managers need to be clearer and to make sure that they understand the task, repeating the instructions for the task is helpful. Another difference in China is people work more, but Iota wants the employees to have a life outside the work. In China it is more willingness to do things differently, Chinese people always answer yes if they are asked to do anything. This can lead to other directions but with a high work pace it is not a problem to start all over again since the work is more trial and error.

“Chinese people always find a way to do things, they have hard to say no and they see it as a challenge”

Innovations Process

Iota had problems with products in one of their segments, they were losing market shares and they succeeded to identify the problem by talking to customers. Next step in that process was to prioritize among those products and also scale them down. Iota limited the functionality in order to reach different cost levels. In this specific process they were focusing on cost innovation, since the customers was not willing to pay the prices they had before. The learning from this process, according to Iota was certain features need to be removed and other features have to be balanced. It is all about what the customers want, one example is Iota usually use the best steel in their products, but if customers do not need that, they use steel that suits the applications while maintaining quality. Iota’s perspective on development in China is products can always be modified and they use an iterative process because the market is constantly changing and the company has to adapt.

“We can sometimes feel that the development time is too long.”

The customers demand new products that have better functionality or less functionality, it is a question about what the customer is willing to pay. But Iota doesn’t want to compete with the low cost brands since they have less good quality and they have a brand to think of. The

identification phase is really fast in China, according to Iota they can go out and meet ten customers in a short time, the information flow and the decisions are also very fast in China. It has worked well for Iota, but also since they have a formalized process to work with innovations. When new ideas are generated in the firm, those people are expected to be involved in the whole process, Iota also tries to reward their employees when creating new ideas. The rewards can be recognition but also financial rewards. It is further argued that Iota is good at using feedback since they want the employees to develop themselves.

The Characteristics of the Innovation Process in China

Iota says that it is important to understand the customers' need and what to do from an ideation point of view. Iota doesn't think that they work like Chinese entrepreneurs, which mean try and fail, try something completely different and then succeed. It is discussed Iota work in a more in European way, which gives them a high success rate. From a Chinese perspective, it is argued that they are too slow.

“When people say that Chinese people not are innovative, I believe that is wrong. They are innovative but in a different way. Of course they copy products but they do it very efficient manner and adapt to the local context. Who says that what we think is right?”

Iota says that there are always high expectations on the development phase and that it has to go fast in China, sometimes too fast. There are also different time-perspectives, different units think differently, for instance sales think in quarter, marketing in six months. This has been problematic and they describe it as a learning process.

They have also seen that many Chinese companies have a work process that is extremely fast from idea to realization. But also that Chinese entrepreneur is very good at testing products and if they don't work they go back and try it again, it is an iterative process as they see it. Within the organization they have several systems and processes that they have adapted to the Chinese context, but in general they don't believe that there is such a big difference from China as it is in the European organization. The key to success is according to Iota to adapt and understand the local context. They would also like to see more of the Chinese pace and the willingness to change in other units in the organization. Iota means that they have to speed up in order to be competitive. One other observation they have seen is that Chinese people have a different way of looking at risk, they see it more as an opportunity to make their life situation better. They also believe that many people exaggerate the differences between China and the rest of the world. Another observation is Chinese people are more willing to take risk when working in a group, this is probably because of the culture of lose “face” which means lose the status according to Iota.

A problem Iota has in China is a higher employee turnover than in Europe but otherwise normal versus other Chinese firms, which means that competences are coming and going in the firm.

They try to use rewards and to increase salaries to keep the employees within the organization. Chinese people are very much driven by responsibility, learning, and status. Iota think that Chinese people try to change job every third year because it is part of the culture. It is discussed that the key to make the employees stay longer than three years is to create a good work environment.

5. Second Order Results

This chapter will analyze the first order results with existing theoretical findings and new theoretical findings in order to draw implications of the perceived differences.

5.1 Innovation Process

Consistent to the theoretical framework is the innovation process a complicated process. According to the definition by OED Online (2012) innovations are something new or different than before. All the companies in the study have a standardized process which they used to manage new ideas. Zeta is the only firm which stresses they work with radical innovations, the other firms mainly work with incremental innovation. Gopalakrishnan and Damanpour (1997) argue incremental innovations and radical innovations are equally important, the main difference is incremental innovations reinforce the existing capabilities while radical innovations fundamental change the activities. Crossan and Apaydin (2010) claim innovations are important for the growth of the company and Covin and Miles (1999) state a firm need entrepreneurial philosophy and acting which can lead to new innovations and Stevenson and Jarillo (1990) states entrepreneurial behavior can emerge in the firms. The managers need therefore to create a good work environment (Bartlett & Ghoshal, 1996) since entrepreneurship is an ongoing process (Block & MacMillan, 1993). The process and the aim of the outcome can differ among the companies. By looking at each firm it is discovered that the stage-gate model is the most common method when working with innovations. Working with innovations as a process is according to Crossan and Apaydin (2010) a structured way of working. Ulrich and Eppinger (1995) describes the generic innovation process as a common process which starts with concept and ends with product launch whiles Veryzer (1998) describes the stage-gate model as the most common process. What are coherent among the firms are the phases in the process which starts with a new idea. According to Rothwell (1992) need a firm good strategy and technological integration. It is of importance to understanding the technology and how company's vision can create new ideas (Blank, 2006; Veryzer, 1998).

Martins and Terblanche (2003) describes in their research the dimensions that shape culture. The dimensions can describe organizations and culture, but also how the dimensions affect the creativity and innovation in an organization. The first dimension, the employees must understand the organization's mission and vision. The next dimension is the focus on the external environment and its customers and the balance to the internal environment. The organization needs also to focus on the effectiveness and how it is dependent on the organizational structure. Moreover, the image of the organization to the outside world is another dimension that shapes the culture. Management processes and how decision making and innovation processes take place is the next dimension. Employee needs and objectives is the sixth dimension and it states that the perceived needs and objectives for an employee should be the same as the real. The

culture is also dependent on the relation between managers and employees. The final dimension is about how the employees perceive the leadership.

Martins and Terblanche (2003) continue to describe the support mechanism as a factor which is important to create innovations and creativity in an organization. The support mechanism should be a part of the work environment. Factors as rewards and recognition are mechanisms that the environment should include. Other support mechanisms an organization need to have to be creative and innovative is to have resources, time, information technology and creative people. Behavior that influences the creativity and innovations is affected by the values and norms. Tolerance for failure and rewards for success are key drivers for developing innovations and creativity. The culture should not punish mistakes, instead let the employees generate new ideas and learn from both mistakes and success. To be able to generate new ideas the organization must support risk taking. The creativity and innovativeness is hampered if managers have too much control and don't let the employees experiment. (Martins & Terblanche, 2003)

Competitiveness as organizational behavior encourages the organization to debate new ideas and to give constructive critique that will support the creativity and innovations. That is why organizations need support for change since both debating and change that is good for the organization will increase creativity and innovations. To be able to change to the better the organization need to have tolerance of conflicts and to understand different individuals. With a mix of individuals will the ideas be perceived and processed in many different ways and that will create an innovative culture. In order to debate the organization need to have a culture that is supportive to open communication and to have communication that is transparent and trustworthy. The factors that shape a creative and innovative organizational culture are interaction, interrelationship and interdependence. They are all dependent on the people in the organization, the technology and the connection with the external environment. A good mix among all these factors can create and also hamper the environment in the company that supports creativity and innovations. (Martins & Terblanche, 2003)

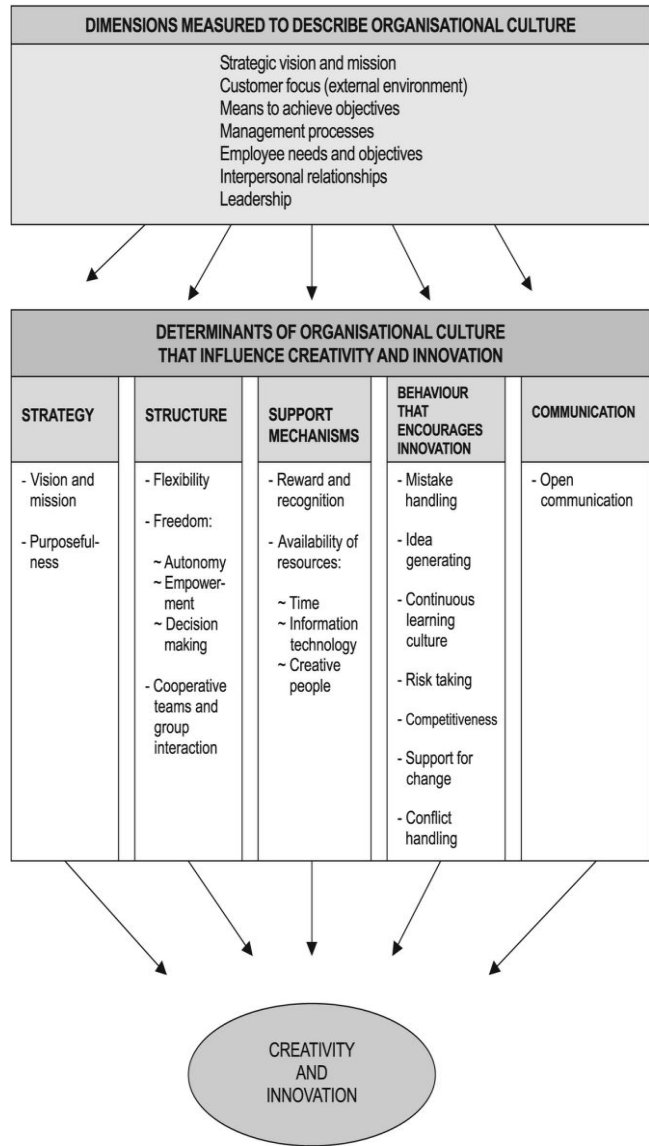


Figure 6: Dimension of organizational culture. (Martins & Terblanche, 2003)

Figure 6 describes how organizational culture affects the creativity and innovation in an organization. The model is made by Martins and Terblanche (2003) and includes the dimensions that can describe the culture. The dimensions are also influencing the determinants of organizational culture. The five determinants are strategy, structure, support mechanisms, behavior that encourages innovation, and communication. They are either promoting innovation and creativity or hindering it. The strategy should promote an innovation strategy which encourages the development of new products and services. The structure is defined as how the organization's values shape and influence the creativity and innovations. An organization can use a flat structure, autonomy, and work teams to promote innovations. Factors in the organizational structure that hampers innovation is mostly associated with the hierarchical structure and are rigidity, control, predictability, stability, and order. The organization needs

instead cooperative teamwork, freedom, and flexibility as cornerstones in the organizational structure. (Martins & Terblanche, 2003)

Moreover, what is significant in the study is most of the operations in the innovation process are not performed in China. The product development, the stage after ideation and research according to Blank (2006) are mostly done in China. In general the basic research and ideation are done in other parts of the world and later stage such as commercialization is done in China. Gopalakrishnan and Damanpour (1997) discuss basic research often have synergies with idea generation. Bush and Bloch (1990) claims basic research is the fund from which knowledge can be used. Figure 7 shows which phases is performed in China for Swedish subsidiaries in China.

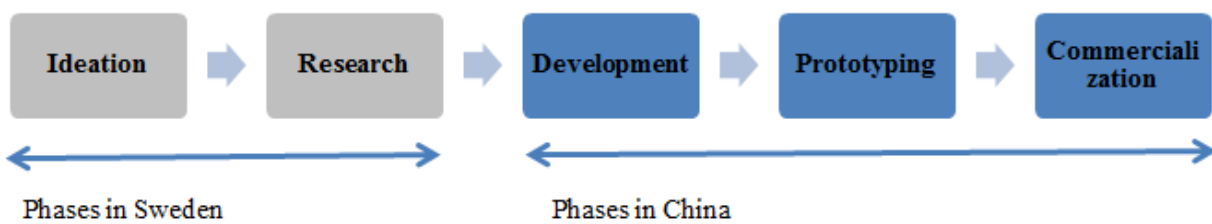


Figure 7: The innovation process for Swedish subsidiaries in China.

All the studied firms except Epsilon say the innovation process in China differs with the Western innovation process. Ren et al. (2010) states it is not common to have dedicated R&D in China. According to Chang and Shih (2004) is the legislative environment different in China and it is therefore hard for companies to use the same procedures as in West. All the firms are working in the same way as they do in other markets, but they try to adapt to the Chinese context. Chang and Shih (2004) claim Chinese firms import technology instead of developing by themselves. According to Godin (2006) the innovation process starts with basic research. The studied firms argue that they don't do basic research in China since it is not in-line with their strategies, they focus more on development and commercialization in China. It was discussed among the firms that Swedish firms have more complicated innovation processes than Chinese firms. According to Johannessen (2009) the fifth generation innovation process is a more complicated iterative process. Many of the firms say the customer's preferences differ in China compared to the Western world. According to Theta a big challenge in China is to convince customers good quality will pay off in the long run. To meet some of these challenges firm need to "play", this expression, means that firms need to be creative, focus on knowledge and development. Prototyping is also an efficient way to be innovative, firms need to be creative and think "outside the box" (Schrage, 2000). All the firms get feedback from customers and partners in order to improve products or services. According to the firms this is a great way to get input from the Chinese market. Ren et al. (2010) discuss the market power is the driver of new innovations in China.

According to Johannessen (2009) companies need to have following factors in mind if they want to be innovative.

Culture: The culture in a company can be seen as the values the company has, the culture has a high impact on the learning process in the organization. (Johannessen, 2009)

Structural links: Structural links mean that the information flow and the communication processes internally and externally are working in a satisfying way. Many researchers have argued that the communication and the information flow are important for the internal work environment. (Johannessen, 2009)

Competence: To build competence in a company is an essential part for companies if they want to be innovative. High internal competence is a key to create innovative solutions. (Johannessen, 2009)

Management: When people think of management they often think of leaders that can carries out ideas. How managers act is important, rewards and strategy formulation are key factors for managers to think of when leading companies. (Johannessen, 2009)

Customer and supplier relations: The customers and suppliers often have a lot of knowledge that they can share with companies these relationships are essential for company's success. The customers often have the information about how to improve products, this helps companies to create more incremental innovations. (Johannessen, 2009)

Many researchers have sought to identify some of the key variables that can affect company's innovativeness. Some of these researchers have noted some factors that affect the innovation process. There is no agreement among researchers on which factor that is most important, however it seems that most researchers agrees that there are factors that can affect innovativeness (Hornsby et al., 2002). Below you can see a short summary of the factors.

Management Support

This factor indicates the willingness of managers to promote and facilitate entrepreneurial activities within the organization. The support can takes many different forms such as; providing resources, expertise and institutionalizing entrepreneurial activity within the organizational system (Hornsby et al., 2002). Innovations are dependent on the firm's surrounding environment and also the corporate culture (Afuah, 1998). The innovation strategy is dependent on the culture and can be limited or hampered because of the culture in the firm.

Work Discretion

Work discretion is about having a supportive organizational structure. The structure need to provide administrative mechanisms were different ideas can be evaluated, chosen and

implemented in the organization. The structure of the administrative system is very important since many companies often have plenty of ideas but don't know which one to choose. Work discretion also means that the workers have the discretion so that they can make their own decisions in their work. Many researchers say that organizations should allow the employees to make their own decisions and the freedom to be innovative. They also say managers should avoid criticizing the employees when they try to be innovative. (Hornsby et al., 2002)

Rewards

How to use rewards are extremely important for organizations in order to foster innovativeness. Companies need an effective reward system that spurs entrepreneurial activity; this system must consider some aspects such as goals, results-based incentives, feedback and individual responsibility. There is research that emphasizes that rewards can enhance management willingness to take risks. Rewards may serve as an incentive for employees to motivate them more to generate new ideas. (Hornsby et al., 2002)

Time Availability

This factor sees the time availability as an important resource for employees. The time availability is an important factor for the employees since if the employees have more time to create and improve ideas it can lead to new innovations. For organizations to foster new ideas it requires that the employees are given the time to be innovative. Therefore time constraints and too high workloads are not always the best methods to create an innovative organization. Often the time availability can affect the risky behavior among the employees, if they have more time to be creative they often take less risks (Hornsby et al., 2002).

We have tried to get an overall view of the reality in the Chinese innovation process. As found in our research the following factors below are the perceived differences that have emerged from the data.

5.2 Faster Pace

The studied firms have approached the market in different ways. What is most coherent in the study is the Chinese market is different from other markets. Some firms are using the same processes as they do in other markets, others tries to adapt to the local context. Godin (2006) argues the time of the process is dependent on the company. Although the firms are working in different high-tech industries some firms have easier to adapt to local contexts while others are struggling and focusing more on standardization. The studied firms also say that their Chinese competitors work fast and the time to market for those firms are much faster than other firms in Europe. Buijs (2008) state that there are many activities within the innovation process, some firms have less activities in their innovation process and that is why these firms can work faster. Ren et al. (2010) discuss the market power is the driver of new technological innovations in China. All studied firms have a majority of Chinese employees. It is discussed Chinese employees influence the work process by having a faster way of working. Literature indicates

culture affects the creativity and innovation in an organization. Martins and Terblanche (2003) argues the effectiveness of innovations must be a balance between the market and the company's internal environment.

Chinese employees work in a different way compared to how Western companies work according to Chang and Shih (2004). The studied firms have mostly Chinese employees and that affect the organization, the Chinese culture is different compared to many Western cultures and that also effect the organization. Moreover, literature emphasizes the employees need to have time availability in order to be innovative. Hornsby et al. (2002) argues that time constraints and too high workload will not help the organization to be innovative. Theta highlights they don't have enough resources in order to be enough innovative on the Chinese market, but they don't agree speed is the biggest advantages on the Chinese market, also Gamma and Epsilon disagree. Beta sees a tendency towards speed but it is not as clear as the other companies. Time is an important factor for creating new innovations and according to Wale (2012) fast commercialization will increase the market share. Instead of focusing on perfection, Chinese companies are good at innovate by commercialization. The strategy Chinese firms' use is to speed up the innovation process in order to launch products on the market. By having this strategy the innovation process is shorter since the products are tested on the market and not fully developed (Wale, 2012).

Many foreign companies have or are trying to establish business in China (Chang & Shih, (2004). Among the studied firms there were some firms that were very early on establishing their business in China. Some firms have just started their business in China, but what it is coherent among the firms is the Chinese market is constantly changing and companies need to adapt fast to the changing conditions. What is coherent among most of the studied firms is that they consider that their innovation process is too slow. The innovation process has shifted focus to higher speed and efficiency, the development time is faster (Rothwell, 1994). Most firms argue their Chinese competitors are faster to the commercialization phase, which often leads to competitive advantages. However it is further discussed the speed in this phase can sometimes be too fast and that can lead to quality issues. Powell et al. (1996) argue high-tech companies need faster development and commercialization speed to launch the products as fast as possible. Wang et al. (2010) argue in order to speed up the innovation process high-tech companies undertake needed research and development. Many of the studied firms think that they have to speed up their innovation process, some of them are trying to learn from the Chinese way of working by being present on the Chinese market. What many of these firms have learned is they sometimes can take shortcuts, skip a phase or do two in parallel in order to speed up. It is discussed by Veryzer (1998) in stage-gate models it is common to run different phases in parallel. The development phase seems to be one phase where many shortcuts are taken. It is discussed by Rothwell (1994) time is an important factor for creating new innovations and fast commercialization often increases the market shares. It is discovered, in China many customers

just want good enough products. All the studied firms are trying to convince their customers that quality will pay off in the long run. Many of the firms focus on their brand and they don't want to commercialize products too fast since it can jeopardize the brand.

It is argued among the firms that Chinese companies are extremely good at copying products. The Chinese market is constantly changing and there is a lot of competitors, what the firms see now are the catch up effect. Lai and Zaichkowsky (1999) argue the Chinese competitors are getting more knowledge through copying products, this has led to more advanced engineering among Chinese people. According to Eta and Iota this is the reason why the pace in China is faster since Chinese companies copy products and it is easier than to develop the products themselves. There is quarrel among the firms, if Chinese people are innovative or not. Gamma argues Chinese people are not innovative since they just copy products. Theta and Iota discuss Chinese people are innovative but in a different way, they copy products but they do it in a very efficient manner and adapt to the local context. Some of the studied firms are impressed by Chinese people and their way of working and believe there is much to learn from Chinese people's way of working. It is discussed by Lai and Zaichkowsky (1999) that Chinese companies are good at copying various kinds of products and to violate intellectual property rights, usually the technology is copied to achieve knowledge and to understand the technology itself. According to Alpha things go much faster in China, in the Western world there is more negotiating, discussion, and planning. They also mention that Chinese people don't necessarily see change as something bad since they have a different mindset and are more adaptive to change. This is also in-line with theory, Nisbett et al. (2001) argue that Chinese people are more adaptive to change than Western people.

5.3 Discussion and Feedback

It is argued by Martins and Terblanche (2003) there are factors that shape an innovative organization and those are interaction, interrelationship and interdependence. They are all dependent on the people in the organization, the technology and the connection with the external environment. A good mix among all these factors can create and also hamper the environment in the company which supports creativity and innovations. What is argued among the studied firms is that there is less interaction among Chinese people since they prefer to work alone. Boeddrich (2004) mention interaction increase the success rate of an idea since more people can contribute. Interaction will therefore provide the idea with more insights and knowledge that can increase the potential of the idea. Westerman et al. (2006) state change and conflicts creates new innovations in the organization. It is argued among Beta less discussion creates better efficiency and execution. This fact counteracts Johannessen (2009) and Rothwell and Zegveld (1985) which state innovativeness need communication throughout the organization. Also Dodgson et al. (2008) argue innovative companies use communication and effectively networks to create good R&D. Furthermore, to contribute with new innovation the company needs to coordinate with other units.

Beta also mentions ideas come from the bottom of the organization and not much from the top management since the top management focus more on managing the organization. Hornsby et al. (2002) claim management is responsible for fostering entrepreneurial activities within the organization. The managers should also allow the employees to make their own decisions and not criticize the employees in order to be innovative. It was also discussed by Gamma that Chinese people prefer to be told what to do and this can hamper their innovation capabilities. Gamma explained the educational system in China is very much examination oriented and this has implications for the Chinese people's innovation capabilities. Chinese people are very good at memorizing facts but struggle to come up with new innovations. In schools the professors tell the students to follow the book, the Chinese educational system doesn't encourage people to innovative thinking. Martins and Terblanche (2003) claim the organization need cooperative teamwork, freedom, and flexibility to promote innovations.

Delta argues in China there are less organizational layers than in Western companies and it is one reason why there are less feedback among employees in China. What is significant different according to Rothwell (1994) are the innovation activities, they are more complex since it now includes more networks. Epsilon discussed when you give feedback to Chinese employees they always say the same thing; thank you but I'm just doing my job. Epsilon argues more ideas are coming from the Western world than from China and the reason is simply because of China's history. According to Iota, Eta, and Delta the key to success in China is to have a good relationship with suppliers and partners. Johannessen (2009) writes good relations with customer and supplier are key factors for organizational innovations. According to Epsilon it is very hard to find good suppliers in China, often Chinese suppliers don't say anything even if they know it will not work. As a result from this Epsilon is not sourcing if there is no feedback from the supplier, the feedback loop is very important. It was also discussed many Western companies ask Chinese suppliers for one thing and get something else.

According to Delta it is important managers have a strong leadership and tell employees what to do, but also to build trust within the organization. Li et al. (2006) claim control of the employee characterizes the management in China. At Zeta they try to discuss new ideas and managers encourage employees to share ideas among each other. Chang and Shih (2000) argue lack of management system hampers innovativeness. What furthermore is significant is the language barrier. Epsilon, Eta, Theta, and Iota argue Chinese employees sometimes have problems expressing themselves. Iota states the employees therefore hold back feedback or critic. According to Alpha it is easier for the employees if a Chinese manager can explain in Chinese. Epsilon has a suggestion box where employees can post improvements but according to the company they don't get many suggestions. Chang and Shih (2004) states trust affects the collaboration in China and Li et al (2006) states control of employees characterize the Chinese firms. The innovation process is becoming more complex for firms, this has implications for

high-tech firms. Since the process involves a larger number of actors and unpredictable change. The scale and scope of scientific information will increase and firms need to process more and more information. Firms organizational structures will change through time and collaboration with external parties will become more common at the same time as complexity increases within processes and innovations (Dodgson et al., 2008). Alpha argues the managers need to control the employees since they can say yes even if they don't understand. Moreover, Eta also mentions the language barrier, often when it comes to products details the Chinese employees switch language and that effect the discussions. It was also discussed by Epsilon direct communication is an effective way of communication, but since most Chinese people don't ask too many questions as they should, there is a big risk of misunderstanding. According to Alpha, Epsilon, Theta, and Iota it is very important to give clear instructions. At Alpha the managers often let the employees repeat the instructions in order to make sure the employees understood them.

It was discussed by Eta that Chinese people are flexible and good at prioritizing, if someone has a new idea or a problem a meeting is arranged very fast. Eta also says young Chinese engineers have problems leading projects where there senior engineers are involved. The age is not an issue for young Chinese people but the respect for hierarchy, therefore they have problems leading projects. Theta argues the Swedish employees are trained to ask why, their Chinese employees don't do this, they also mention that Chinese people don't question managers.

5.4 Employee Turnover

According to Beta it is considered as art to managing people since people are different and act in different ways. It was argued in order to manage people you have to know people very well. Powell et al. (1996) argue managers need to understand where the knowledge within the organization comes from and how to integrate it in the organization. All the studied firms have experienced problems with high employee turnover in China except Theta and Eta. Johannessen (2009) mentions competence and different types of knowledge and the exchange among individuals are important for a company in order to be innovative. A company needs to build competence to secure the growth and also the innovativeness. To cope with high employee turnover most of the studied companies have a reward system and tries to increase the salaries on regular basis. Martins and Terblanche (2003) mention an innovative organization should have rewards and recognition as incentives for the employees. Wei and Atuahene-Gima (2009) mention risk-taking and long-term oriented rewards as two of the most common reward systems when developing new products in China. Long-term oriented rewards are more useful for a company since the employees better understand the innovation process. Most of the firms argue in order to lower the employee turnover rate companies need to create a good work environment. Afuah (1998) claims the environment shapes the corporate culture and is needed for the company growth. Chang and Shih (2004) argue lack of management system can hamper the innovativeness in an organization.

Khatri and Fern (2001) state employee turnover is a problem in Asia and this is because of labor shortage. Most of the firms see tendencies Chinese people leave the company within 2-3 years. Hornsby et al. (2002) state managers should support the employees. According to Khatri and Fern (2001) the organizational commitment is a factor that can decrease the employee turnover. The managers should also promote and encourage the employee, using rewards as incentives to strive the employees to generate new ideas. The reasons according to most of the firms why Chinese people leave the organization are because they want to increase their salary and search for new opportunities. In general the studied firms say the employee turnover is higher in China than in other of their departments around the world. Li et al. (2006) mention human capital is important for high-tech firms. Powell et al. (1996) state networks and social capital within the firm is crucial for the success of a firm. Epsilon argues the low turnover in the office is because of the good work environment.

According to Epsilon one way of lower the employee turnover is to recruit married people and people from the local area. Gamma argues it is very common for employees in China to change among companies, especially for younger people since they want to increase their salary. Epsilon claims for blue collar workers the salary is not the most important factor, the most important factor is the ability to work overtime to maximize the income. It was also argued by Gamma that the Chinese people consider themselves as experts just after a few years while in many Western firms people work for 5-20 years and are then considered as experts. Gamma also mentions Chinese people are much focused on increasing their wages and to get nicer positions. Li et al. (2006) discuss non-material rewards will motivate the employees in the high-tech sector since the salary is relative high. There are also many job opportunities in China and that is also a reason why many Chinese people switch among jobs. Beta discussed another reason why Chinese employees change among jobs is the social pressure from family and friends. Most of the studied firms are aware that status in China is very important. Chinese employees want to get nicer positions and if they don't get this they were often leave the company. To deal with this Alpha and Zeta tries to make sure that they are able to create new position in order to make the employees stay within the company.

5.5 Trial and Error

All the studied firms are doing a lot of testing before launching new products except Delta and Zeta. According to Veryzer (1998) is the research the second stage of the innovation a lot of pre-study and testing, but many of their Chinese competitors are not doing this. Afuah (1998) discuss the firms need to recognize innovations with potential. This is time consuming since a lot of factors need to be considered. Instead Chinese firms are doing more trial and error and launch products on the market, even if the products are not completed. Theta's competitors let the customers decide what has to be modified when the products are launched. Theta argues they cannot work in this way since they have a brand to protect. It was also discussed by Zeta that there has to be a balance between testing and quality, many Western companies focus too much

on quality and that can lead to products never get launched. They also mention that Chinese competitors often launch products very fast and with good enough quality to a reasonable price. Dodgson et al. (2008) argue high-tech firms are pushed to reduce the cost on R&D and increase the return on investments. It was argued among the firms that many Chinese companies launch new products which are not ready for the market in order to have a faster market launch and therefore increase market share. This fact counteracts literature that stresses testing makes the company innovative. Hornsby et al. (2002) stress if the company not tests the product they are not innovative and Schrage (2000) stresses prototyping is an efficient way to be innovative. What is significant different in the study is these companies have a different strategy and that is to test the products on the market and let the market decides what features which has to be changed. Eta claims Chinese companies often scale down products in order to reach different cost levels, this is called cost innovation among the studied firms.

According to Gamma they would like to see more trial and error within the company, which they say is the Chinese way of working. Veryzer (1998) claims companies use prototypes to test and to evaluate the product. Iota argues in China the customers have different preferences and willingness to pay for quality. Ren et al. (2010) state the low cost characterizes the way Chinese firms innovate. For instances if Gammas customers are not willing to pay for the best material they use other material to lower the cost. Hence, Hornsby et al. (2002) discuss the managers should give opportunity and remove organizational boundaries in order to avoid standard operations which can hamper the innovativeness. At Iota they are doing a lot of trial and error since the market in China is constantly changing. Rothwell (1994) claims companies use fast prototyping and simulations since the innovation process becomes more and more complex.

It was argued by Alpha sometimes experience reduces the amount of innovations since there might be too many problems since people cannot look outside their own box. Schrage (2000) mentions firms need to think outside the box in order to be innovative. Zeta discuss they need to do a lot of trial and error by themselves since they have a small department in China. Furthermore, Lundvall (1992) argues learning and tacit knowledge is part of the interactive innovation process. According to Zeta they do much more trial and error in China than what the company does in Europe and it was necessary to adapt to the Chinese way of working and not to bring the whole Swedish way of working. Ren et al. (2010) state Chinese companies use process innovations and not develop products of world class.

5.6 Risk

According to Dodgson et al. (2008) the innovation process is both risky and complex process. Epsilon argues Chinese people are usually not taking more risk than Europeans since they don't have the same degree of experience and knowledge as Europeans. Gamma also agrees on this statement since they believe Chinese people don't take much risk since copying products is not a risky business. Veryzer (1998) claims understandings of new technological feasibilities can

increase with technology research. At Beta they say many Chinese employees just follow the execution and these people don't think too much for themselves. This has often led to fewer mistakes, but also less innovativeness. Dodgson et al. (2008) argue the outcome of new innovations is unpredictable and costly for the company. Bernstein and Singh (2008) discuss firms need to evaluate which ideas that might be successful and which one to reject. Beta also mentions in Sweden there are many parties that have to agree before decisions are taken, that lower the risk to make mistakes but the process takes a lot of time. Boeddrich (2004) states if more people are involved the chances of a successful idea increases.

Moreover, Jolly (1997) argues the commercialization process is very uncertain and risky and therefore need management support. Delta argues Chinese employees are more willing to take risk when they work in a group than individual. This is due to the Chinese culture, since if people work in a group they share the responsibility if the project fails. But if employees work alone they have to take all the responsibility. Martins and Terblanche (2003) discuss autonomy and work teams can promote innovations in an organization while Burgelman (1983) discuss that autonomous strategic initiatives can create new strategies. It is also discussed in general that Chinese employees are more risk taking when they work in a group but most Chinese people prefer to work alone. According to Afuah (1998) a firm needs to recognize innovations that have the potential. This is not an easy task since a lot of factors are correlated to each other and the uncertainty is very high. To be able to recognize the potential innovations, the firm must understand the factors that create an innovation and how it can be applied in the organization. This is the reason why firms need to collect and process a lot of information. The time and cost of handling all the information is another factor the firm need to take into consideration. Fernandes et al (2009) claim structured work methods increase the innovativeness. Structured methods can enhance the firm's innovative capabilities and also improve the innovation management. However Hornsby et al. (2002) and Martins and Terblanche (2003) claim freedom and flexibility and company culture should not punish mistakes.

Alpha says that their Chinese employees are not taking any risks since their organization is more top-down which the managers want to change in order to get more ideas from the lower levels in the organization. This is also due to the customer driven targets that need to be fulfilled. Chang and Shih (2004) argue that general in China the decisions are taken by the top management. Moreover, Hornsby et al. (2002) discuss managers should support the employees to be creative, innovative, and to take risks. Therefore the authors claim the employees should be able to make their own decisions. According to Theta the managers are always right in the Chinese perspective, even though they make wrong decisions. At Zeta they say innovations should be done in small teams, the group has to take some risk and the employees must be given the freedom to be innovative. The team should also have enough resources and the managers should not interfere too much. Wei and Atuahene-Gima (2009) discuss cross functional collaboration and how other units in the organization can support the innovativeness. Innovations within the

organization are therefore crucial for the growth of the firm. Innovations cannot be created without risk-taking, hence employees must be given the chance and support from managers to take risk (Hornsby et al., 2002). Orr and Roth (2012) describe that Chinese workers have a tendency to have a more risky behavior working in a group than individually. The purpose of the innovation process is to carry out innovations in the organization (Hornsby et al., 2002).

6. Conclusions

This chapter initially reflects on what contributions current paper brings. The chapter starts with contributions, followed by a discussion and possible areas for future research.

6.1 Contribution

Evidently, the innovation process has attracted many researchers' interests for a long time. However, how the innovation process is constructed and executed by Swedish subsidiaries in China is still an undiscovered area. In this chapter we aim of answering our research question:

- What do senior managers in Swedish firms consider are the differences in the innovation process between China and Sweden?

Through the research it was explored that the firms' innovation process is characterized by six different areas. In addition, the first order results indicate that there are characteristics in the innovation process in the current firms. The first order results indicate that most of the operations in the innovation process are not performed in China. This is in-line with theory that states it is not common to have R&D in China. Usually are the technology imported. From the first order results it is discovered the firms use the same operational procedures but adapt it to local context. As the customer preferences are different this has an effect on how the firms operate. Theory argues it is important to understand the technology since it can create new ideas.

The Swedish subsidiaries in general use stage-gate models for their innovation processes. The innovation process between Chinese firms and Swedish subsidiaries differs. According to the findings, Chinese firms have a simpler innovation process where phases such as research are not prioritized, instead they focus more on commercialization. Swedish subsidiaries have a more complicated innovation process where there more focus is on social capital and integration with external actors. The Swedish subsidiaries use the fifth innovation process since they have an iterative process. Chinese firms use an older generation of the innovation process since they work more linear. However, Swedish subsidiaries don't bring the whole innovation process to China, instead they have just established the last phases of the innovation process in China.

Findings retrieved from the theoretical framework shows the time availability is a factor the companies need to have in order to be innovative. However, indication from the first order result states that the Chinese market is constantly changing. The changing market has forced the companies to speed up the innovation process to adjust to the market demands. As theory stated is the market power the driver of new innovations in China. Not all studied companies agree that speed is the biggest advantages on the Chinese market but most firms think that their innovation process is to slow compare to their competitors. Contrary to current literature, the studied companies state that the innovation process is to slow. Even though the theory shows that high-

tech companies need to be fast. The Chinese competitors are fast, especially in the commercialization phase. The first order result indicates in order to speed up the market launch is companies taking shortcuts, they skip phases or operates phases in parallel. The companies have a majority of Chinese employees and often they find another way of working to speed up the process. However, it is worth pointing out that Chinese employees are more adaptive to change.

The first order results indicate there is less interaction among Chinese employees since they prefer to work alone. Firms have taken different approaches on discussion. One view is to have less discussion to create a better organizational efficiency since it is argued by some of the studied firms that less discussion creates better and faster execution. The other view is that firms try to involve and encourage discussions to make the organization more innovative. Theory claims that more discussion creates more organizational innovativeness. In theory it was also argued that discussion and involvement increases the innovativeness.

The first order results also show that Chinese employees prefer to be told what to do and according to theory this can hamper employee's innovation capabilities. The first order results also indicate that Chinese employees have often limited language capabilities and when managers tell them what to do they often say yes even if they don't understand the instructions. Moreover, it is also not common for Chinese employees to question the managers and they almost never ask why, instead they follow the execution. Since language is a barrier in China there is a chance employees hold back their thoughts.

According to the first order results there are less innovative ideas from Chinese employees than from Western people, this is also in line with theory. Hence, Western companies have difficulties to do business in China since they often ask for one thing and get a different thing. The key to succeed in China is to have a good relationship with suppliers and partners and to insure direct feedback from these actors. Consistent with theory good relations with customers are important for organizational innovation. As theory states it is important for organizations to be flexible. The first order results show that Chinese people are much more flexible and prioritize differently compared to Western people. It goes much faster to arrange meetings in China and people adapt very fast to changes.

According to the first order results the firms have in general problem with high employee turnover in China. To cope with high employee turnover the firms have different reward systems and try to increase the employees' salaries on a regular basis. This behavior is in line with the literature that shows long term oriented rewards help firms to build competence and ensure innovativeness. In the case of Epsilon they try to lower the employee turnover by recruit people that are married or from the local area. The first order results also state that the employee turnover in China is much higher than in other markets. Findings retrieved from the theoretical

framework shows that the employee turnover in China is a major problem because there is a lack of competent employees. Therefore firms need to secure key employees that are of interest for the growth.

The studied firms also state that a good work environment can lower the employee turnover. The first order results state that Chinese employees often leave the company within 2-3 years and the reason is the enormous work opportunities that exist in the Chinese market. But also the fact that Chinese people want to increase their salaries. Another factor that is of importance for Chinese employees is the ability to work overtime to maximize their income, that can in some cases be more important than the wage level itself. Moreover, reason why Chinese employees leave their firms is to increase their social status, but also of pressure from family and friends. The studied firms are aware that status is of great importance to Chinese employees, therefore in the case of Alpha and Zeta they try to create new positions by changing the title in order to make their employees stay within the company. The first order results also indicate that the employee turnover is much higher among blue collar workers than for white collar workers and especially younger Chinese employees move among jobs more frequently.

The first order results indicate that the firms test the products a lot before the launch. Many of the studied firms' Chinese competitors do not do much testing, instead they let the market be the test for the products even if the product is not completely ready for the market. This is contrary to current literature, theory states that companies are not innovative if they don't test products. Among the studied firms there is a consistency that the Chinese market is characterized by trial and error. It is also stated that firms cannot work as their Chinese competitors since they have a brand to protect. In the case of Zeta it was discussed that Western companies sometimes focus too much on test and quality which often leads to product never get launched. They also state that they do much more trial and error in China than they do in the Western world and they refer to this as the Chinese way of working.

As theory shows is the innovation process a risky and complex process. The first order results show that not all firms agree towards the statement that Chinese employees take more risk, Epsilon and Gamma disagree. This further implies that Chinese employees just follow the execution and don't ask questions. It has been recognized during research that in Sweden there are many parties involved and this lowers the risk but the process takes longer time. Theory argues that the more people involved increases the chances of a successful idea. In addition, theory shows that the outcomes of innovations are unpredictable and costly. From the first order results it is discovered Chinese employees take more risk in group since the group share the responsibility. Moreover, theory emphasizes freedom and flexibility in an organization and the company should not punish mistakes. The employees should instead learn from their mistakes. It is revealed by literature that decisions are taken by top-management in China. The first order results indicate the managers' needs to control the employees in order to check their work. It is

worth pointing out literature shows management should support and encourage employees to be creative, innovative, and to take risks.

6.2 Discussion

As mentioned in faster pace, the innovation process in China is faster since most firms take shortcuts by skipping phases or operate phases in parallel. However it is unclear how much faster the innovation process is in China, but we can clearly state that the process is faster. We have seen clear evidence among the studied firms that more development is done in China and not much research since this phase in the innovation process is done in more mature or home markets. Moreover, the first order results indicate that Swedish subsidiaries take two different approaches in China. Most firms have brought their Swedish/Western way of working and uses same processes and standards in China as they do in other markets where they operate. Other firms have tried to adapt more to the Chinese way of working. However which approach that works best is still unclear and it is not clarified if Swedish subsidiaries should work more or less as their Chinese competitors in China.

6.2.1 Model of the findings

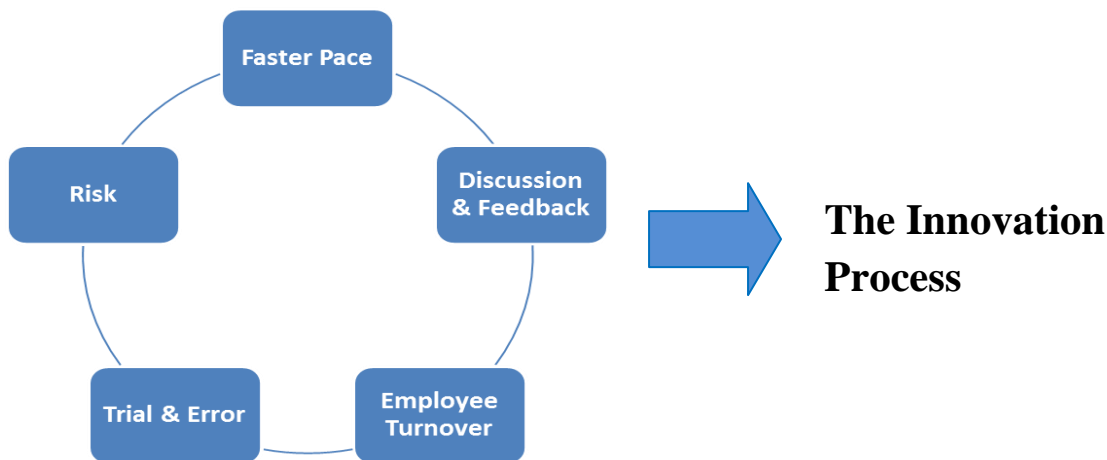


Figure 8: Model of the finding, perceived differences.

Our model (Figure 8) shows the perceived differences of senior managers of Swedish firms in China. All of these factors differ from the companies' innovation process in Sweden. Emerging from data and literature, these five factors seems to be of particular importance for Swedish companies with innovation activities in China. The line of reasoning here is that firms, by being aware of these factors, may take appropriate actions; either to overcome problems, or to utilize opportunities that may follow with the differences.

6.3 Future research

The innovation process is a complicated process and is influenced by many stages and factors. The gap in literature made us investigate the innovation process from a holistic perspective, including all the activities within the process. Hence, more in-depth studies are needed to understand the complexity of the changing Chinese market. To understand the outcome of the innovation process is the market demand crucial for companies to understand in order to succeed.

The aim of the thesis was not to seek out how governmental policies affect the innovation process. The entrepreneurial climate is in large extent affected by the Chinese government. The Chinese government is a major owner of companies in China and decisions set by the government have a major impact for other companies. The decision-making and actions impacts the innovation process. Therefore future research is needed to see the implication of government decisions and the implications of the innovation process.

The Chinese market is constantly changing and companies needs to adapt to these changes in order to survive. Especially among the customers there are changes in their preferences. During the study we saw tendencies of Chinese customers preferences are changing. In the past many Chinese customers has focused on purchasing good enough products to low cost. We think this is about to change. One of the studied firms told us that their Chinese customers not focus as much on quality as Western customers are doing, instead they want product that shines and wrapped in nice boxes. We believe that this research area is of interest to future research since it might open new doors for business opportunities.

One of the studied firms argued that the educational system in China is very different from the Western educational system. The Chinese system is more examination oriented and this might lead to less innovative thinking. It would be interesting to do future research about the Chinese educational system since it can increase the understanding of the Chinese way of thinking.

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Appendix 1

Interview questions

Introduction

- Can you in short describe yourself and your business background?
- How long have you been working in China?
- How would you describe your work here?
- Have you been working also in Sweden/Europe before?
- What would you say are the biggest differences from working here?
 - Positive point of view
 - Negative point of view
- What are the main challenges in your work?
- What is the main function and strategy for your group here?
- What are the main goals for your group?
 - In regards to innovation?
- Is the outcome from your innovation work in line with your goals?
- What nationalities are working in the group?
- When it comes to generating ideas and giving feedback, is there a difference between upper or lower management, levels of hierarchy?

Innovation process in general

- Do you have a process for innovation in place?
 - How does it look like?
 - Since when?
 - Is it formalized?
 - Does it work well?
- How would you define innovation?
- What would you say is the most significant obstacles to innovation in your group/organization?
 - Looking back two-three years, what were the most significant obstacles at that time?
 - What do you expect to be the most significant obstacles to innovation in your organization over the coming years?
- What are the most common types of innovations you develop here?
 - (*Ex: Product, Process, Service - Radical/Incremental*)
 - For whom?
 - Are these innovations “exported” to other markets?
 - Used for this local market only?
- Who is active most often when it comes to creating ideas and giving feedback?
 - (*Upper or lower levels*)

- Do you think your organization have the key enablers in place to support your innovation objectives?
 - What are these enablers as you see it?
 - What do you miss?

Innovation process in specific

- Can you think about a work process, ongoing or past, that resulted in some kind of innovation? (*Example: improved product/process/service, or small changes in your daily work.*)
 - Can you describe it; process step by step, challenges, problems:
 - What were the different phases in this process as you see it? Picture/Model?
 - What phases had what problems/challenges?
 - What were the most frequently returning problems?
 - What phases did the job go really smooth/fast?
- Where did the idea come from?
 - Was it something that was included in his/her duties? (*if a person in the group*)
 - What kind of idea was it? (Radical/Incremental)
- Was the activities (work) well-structured or happened in a more ad hoc way?
- What kind of feed-back did the idea and idea-maker receive?
 - Is this common?
- Did the idea change a lot during the process from idea to commercialization?
 - In what way?
 - How much was the innovation influenced by management?
- In the process, were there lots of discussions back and forward on how to improve the idea?
 - Did everybody participate in these discussions?
 - Is that common?
- What learning's did you draw from this project?
 - What there something you were surprised with in the process?

Adaptation of Swedish innovation practices

- If we generalize: Would you say that there is a Swedish/European way of working with innovations, improvement and creativity?
 - In what way?
 - *Pros and cons*
 - How do you see that in your work?
- If we generalize: Is there then a Chinese way of working with innovations, improvement and creativity?
 - *What are the strengths and weaknesses of such innovation models?*
- Can you compare them both?
 - Discussions and dialogue – Does it differ?

- Problem solving and implementing solutions - Does it differ?
 - Managerial skills – Do you need to behave/act differently?
- What ways of working have you successfully transferred from the EU/Sweden to the Chinese context?
 - Something not successfully transferred?
- What have been the main challenges in this?
 - Are there ways of working here that you would like to see more of in Sweden/Europe?

Appendix 2

Questionnaire

Following questions pertain to your *group's activities in China*. To what extent do you agree or disagree to following?

1. The speed in which we develop new products or services is high.

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

2. We use routines and processes developing new products/services.

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

3. People are hesitant to criticize each other's work.

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

4. People are hesitant to criticize management decisions

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

5. I feel that the organization help employees to generate new ideas.

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

6. People's attitudes towards new ideas are problematic

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

7. We put extensive work in research and testing before we release a new product/service in the market.

Strongly Disagree Disagree Neither/Nor Agree Strongly Agree

8. I'm satisfied in how we develop radical (very novel) innovations

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Disagree	Disagree	Neither/Nor	Agree	Strongly Agree

9. The innovations process here in China differs from the Swedish.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Disagree	Disagree	Neither/Nor	Agree	Strongly Agree

10. The biggest advantage here is the speed.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Disagree	Disagree	Neither/Nor	Agree	Strongly Agree

11. The source of new ideas differs from Sweden.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strongly Disagree	Disagree	Neither/Nor	Agree	Strongly Agree