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Striving for Innovation; Working in CFT

A Case Study of Audi

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Abstract

Title:	Striving for Innovation; Working in Cross Functional Teams – A Case Study of Audi
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Authors:	Lisa Berndtsson, Charlotte Karlstrand, Nicolas Leon
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Keywords	Resource Based View, Intellectual Capital, Cross Functional Teams, Innovation
Purpose	The purpose of this thesis is to study and determine how working in cross functional teams can generate value in an effort to facilitate innovation.
Method	An inductive scientific perspective is chosen as the research approach. A single case is investigated with the theoretical framework based on Resource Based View, Intellectual Capital, Innovation theory and theories concerning Cross Functional Teams. The empirical material has been collected through primary data; surveys, interviews and secondary data; literature, websites and further complementary data.
Conclusion	The practice of using Cross Functional Teams will enhance organizational learning, knowledge transfer, increase communication and innovation, which in turn will increase the speed and performance of the new product development process. The research shows that a firm's internal resources (human,- structural and intellectual capital) are a fundamental source of value creation. Effective cross functional teamwork creates an environment which stimulates creativity and strengthens the human- and structural capital leading to increased intellectual capital, suggesting the intangible resources to be the main source of competitive advantage.

Glossary

Resource Based View	Competitive advantages through the exploitation of the firms' internal resources and capabilities. Consisting of financial, physical, human and organizational assets used by companies to develop, manufacture, and deliver products or services to its customers
Intellectual Capital	All non-monetary and non-physical recourses fully or partly controlled by the organization and that contribute to the organization's value creation. Consisting of human-, structural and customer capital.
Human Capital	The employees' knowledge, capabilities, attitude, motivation, behavior and performance. Furthermore the company's philosophy, values and corporate culture.
Structural Capital	Databases, customer lists, patents and brand names. Other useful recourses incorporated within the organization not documented are the culture, working processes, and competence.
Customer Capital	The customers of the company. Those play a decisive role not only as a source of information but also to release creativity.
Cross Functional Teams	A CFT is a group of people who apply different skills, with a high degree of interdependence, to ensure the effective delivery of a common organizational goal.
Team Effectiveness	Variation in team effectiveness can be explained by differences in team structure (team design, group composition) and/or team processes (communication, collaboration).
Innovation	One differentiate innovation from mere invention. Whereas invention implies new ideas and or concepts for new product and processes, innovation refers to the commercialization of these ideas or concepts
Entrepreneurial Strategy	A way of creating the environment of a start-up and thereby reinvent or revitalize their entrepreneurial roots.
Corporate Entrepreneurship	Innovation can be created through the exercise of an entrepreneurial strategy with the structure and the climate which facilitate its implementation.

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1 Introduction

To get a fundamental and clear picture of the research problem the following chapter will present the background, problem, method and purpose of the thesis. The background will conclude in problem discussion which further leads to the purpose of the thesis. Finally a model illustrating the disposition and of the thesis is presented.

1.1 Background

“In today’s marketplace, companies recognize that the ability and performance of their human capital has a direct link to maintaining competitive advantage.” (Edvinsson, 2002)

Today’s rapidly changing environment has drastically changed the conditions for firms to conduct business. Factors like globalization, trade liberalizations and an exponential advancement in technology have all contributed to the changes. Simultaneously, changes in consumer behavior, with higher demands and expectations as a result, have also affected company’s ability to compete in the new business landscape (Johannessen and Lumpkin, 2001).

In order to anticipate and manage these changes companies have been forced to reconfigure their business models and strategic direction. And more importantly, set the pace for competition (Eisenhardt & Brown, 1998). As the competitive environment transforms, the potential for innovation is greater than ever (Prahalad & Ramaswamy, 2003). Therefore, companies must continuously improve and differentiate their products as means of creating value for the customers and to achieve competitive advantages. It has now, more than ever, become evident that companies have to create value for the customers to stand a chance in the competition (Prahalad, 2003). Consequently, the basis of competition calls for new flexible organizational structures, enabling companies to bring more innovative and customize products to the market faster, in order to meet the needs of customers in smaller market niches (Christensen, 2001).

One way for companies to achieve this as means of becoming more creative, is working in so called Cross Functional Teams (CFT). This way of working with product development and innovation is said to be one of the most prominent changes in organizational design. By constructing teams consisting of team members from different functions of the company, the probability of becoming more innovative is vastly enhanced (Holland et al. (2000).

As we are moving towards a post-capitalist, knowledge intensive society (Johannessen and Limpking, 2001), one can assume that a company’s internal resources and capabilities constitute the basis of a company’s ability to achieve sustainable competitive advantage. As a result and in response to the competitive challenges, it has been increasingly important for companies of today to incorporate its internal capabilities and market knowledge to be successful (Williamsson, 1999). This point of view is in line with the Resource Based View (RBV) of internal resources and capabilities as the main indicator and source of competitive advantage (Barney’s 1996).

1.2 Problem Discussion

Independently of the prevailing economy, what all firms seek to gain is a competitive advantage over their competitors. According to Barney (1996), competitive advantages is obtained when resources are valuable, rare and costly to imitate. Thus, the evident question is how can companies, competing in the prevailing fast paced and innovative business landscape, create activities to maximize organizational capabilities?

These activities need to be a source of innovation for companies' ability to continuously improve and renew their product offering. In addition to this, the fast move towards a knowledge based society implies that the intangible fraction of a company's resources is of increasing importance for the ability to obtain competitive advantage. To focus and distinguish the intangible recourses from the tangible the more generic term intellectual capital is often used. Edvinsson (2007), emphasizes the importance of dynamic innovation capital and external aspects as customer capital and networks as well as organizational learning and transfer of knowledge. These are factors which the traditional RBV perspective doesn't include and emphasizes to the same extent (Edvinsson, 2007).

To achieve innovation capital it is fundamental for companies to possess an organizational structure which encourages a creative product development process. But how can companies be organized to increase vital factors as efficiency and raise productivity while accommodating for the complex and perhaps chaotic nature of the creative process and at the same time be responsive to market trends? According to Saleh and Wang (1993), there are a number of characteristics, including an entrepreneurial strategy, dynamic and innovative people, management support, good communication and risk taking that can help companies become innovative, and thus help to increase intellectual capital. However, the high rate of new product failures is evidence that this is something which companies struggle with (Cooper 2001). In addition, the task of being creative is suggested to be even greater for large and established companies which in general are not conducive to rapid change and innovation due to tendency of being heavily bureaucratic (Saleh and Wang, 1993). Large companies must therefore find ways to enhance innovativeness, enabling them to stay competitive.

According to Edvinsson (2005), intellectual capital is created in the interaction between people and organizational structural capital, in a way creating an activity where resources interact and create organizational capabilities. The structural capital represents, amongst other, the R&D, marketing, design and sales processes which in combination with the human capital is suggested to enable the creation of value and the potential for competitive advantage. This in turn would imply that constructing teams consisting of people from different functions of the company would release potential brainpower and build a strong intellectual capital base, creating space for both creativity and efficiency and perhaps a great opportunity for large companies. These kinds of teams are often referred to as Cross-Functional Teams (CFT).

The use of CFTs has increased and expanded in response to the prevailing competitive challenges of today's business landscape intensifying the need for product innovation (Cohen & Bailey, 1997). In regards to team effectiveness, working in a CFT is suggested to be positively related to the performance of new product development and thus the creation of an innovative environment. As such, the organizational structure of a CFT is supposed to enhance creativity and the development of innovative

ideas and solutions (Hoffman et al. 2000), resulting in increasing the ability for companies to stay competitive. In contrast, although CFTs are formed with great optimism, not all are managed and implemented successfully, indicating a negative relationship between the use of CFTs and activities resulting in innovation. These conflicting results originate from the major obstacles impeding the effectiveness of Cross-Functional teamwork, namely that people from different functions with different goals are forced to collaborate (Jassawalla & Shashittal, 1999). Consequently whether a CFT has the ability to create activities to maximize intellectual capital is highly dependent on its effectiveness to work as a team and reach common goals.

If constructing effective CFTs can generate innovative organizations which in turn increases vital intangible resources, explained as intellectual capital, it would indicate that an effective CFT could be a source of competitive advantage for large and established companies.

The above reasoning has giving rise to the following questions concerning the ability for large companies to create competitive advantage in the prevailing economy.

- Is working in CFTs an optimal way for large and established companies to create a creative environment and thus facilitate innovation?
- What are the main factors influencing the effectiveness of a CFT?
- How does the work in CFTs develop a company's intellectual capital creating a base for competitive advantages?

The third and last question aims to link the previous two together and thereby create a discussion fulfilling the purpose of the thesis.

1.3 Purpose

The purpose of this thesis is to study and determine how working in CFTs can generate value in an effort to facilitate innovation.

1.4 Presentation Case Company – Audi AG

In 2005, Audi AG, the German automobile manufacture, initiated a new strategy for exploring local customer demands in foreign markets such as the US and China. The strategy was named *The Product Market Experience* and was in line with their corporate strategy of becoming more innovative and customer oriented. In order for Audi AG to work as effective as possible, a Cross-Functional Team (CFT) was formed, consisting of team members from different functions of the company; production, marketing, controlling, technical development, purchasing, product planning, quality assurance and design. This study will follow and examine the work of this CFT when exploring the local demands of the Chinese market. Examples of their work methods were; Mystery Shopping, In-Home Interviews, Owner Round Table,

Ride Alongs, scouting tours and, expert talks. A further presentation of its design and method will be covered in the empirical findings, chapter 4.

1.5 Disposition

The thesis is structured in the following way. A model of the disposition will be further presented in figure 1.1, helping the reader to understand the composition and the links between the chapters.

1. Introduction

The first chapter will cover the background of the research problem. The background will conclude in a problem discussion, enabling the reader to fully understand the fundamentals of the thesis's subject. This will lead to a presentation of the purpose, followed by a model illustrating the disposition of the thesis.

2. Method

This second chapter sets out to explain the methods used for the conducted study. The chapter will also present the case company, the chosen theories and more importantly, the theoretical framework. This part of the chapter aims at illustrating how the chosen theories are linked together. Furthermore, the information gathering process is examined and the analysis process and its consequences are accounted for.

3. Theory

The third chapter will present the theories used and related to the purpose of the thesis. It begins with a presentation of the RBV, focusing on the intangibles such as intellectual capital and value creation. Thereafter theories concerning innovation and CFT effectiveness are discussed. Finally, the concerned theories are linked together concluding in a theoretical framework displaying a model for explaining and conceptualizing value creation.

4. Empirics

The fourth chapter exhibits the empirical findings, starting with a presentation of the case company and a more detailed description of their cross functional team structure. Finally, the empirical findings from the interviews are presented. The chapter ends with a summary and appendix of the findings from the conducted questionnaire.

5. Analysis

The fifth chapter aims to consolidate the theoretical framework with the empirical findings. The structure of the analysis is constructed in accordance to the purpose of the thesis and the theoretical framework. Hence, the chapter begins by analyzing innovation theory and CFTs followed by theory concerning RBV and Intellectual Capital. This in turn will constitute the basis of the next chapter, namely the conclusions of the thesis.

6. Conclusion

The sixth and last chapter presents and discusses the conclusions of the thesis. The chapter ends with proposals for future research.

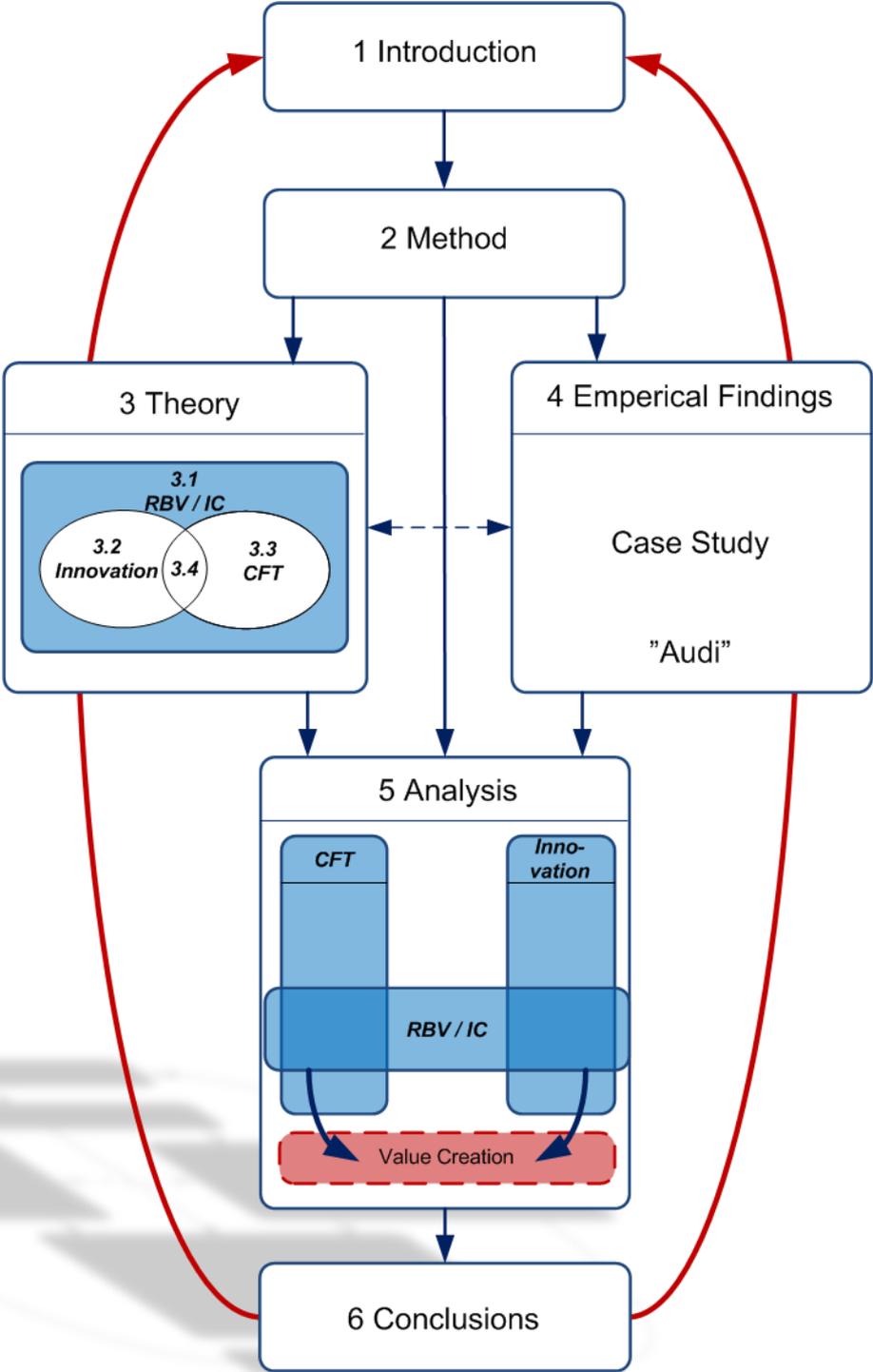


Figure 1.1 Model of Disposition

The figure above illustrates the thesis disposition. The figure inside the “Theory box” illustrates how the chosen theories are linked together. The RBV/IC forms a foundation, sets the scene. Theory concerning the importance of innovation and theory of CFT explains the value creation through a company’s internal resources. The figure inside the “Analysis box” illustrates how the theories are used in the analysis chapter where the RBV/IC analysis section links the remaining two together and thereby create a discussion fulfilling the purpose of the thesis.

2 Method

This chapter explains the methods used for the conducted study. First scientific approach and case study design will be introduced followed by a presentation of chosen theories, theoretical framework and the case company. Furthermore the analysis process and its consequences have been examined.

2.1 Scientific Perspective

An empirical interest in large company's ability to stay competitive in an innovation demanding marketplace led to a research of the role Cross Functional Teams play in such organizations. An empirical question was then formulated, resulting in the purpose and research problem of the thesis. To be able to form an understanding of the selected field and effectively research the chosen purpose, relevant theories and adjacent researches were studied. Selections of the studied theories were then chosen to form the theoretical framework of this thesis. Analyzing the empirical findings with the selected theoretical framework allows an explanation of the empirical problem and a possibility to generalize the findings. According to Rienecker (2004), this is called an inductive scientific approach. He argues that the starting point of such approach is a specific empirical observation, which is explained by general theory, and finally resulting in new theory available for other researchers to exploit. Hence, this thesis has an inductive scientific perspective.

Aiming to gain knowledge depth and better understand the phenomena of value creations through internal resources, a case study research design was chosen. According to Yin (2003) a case study is appropriate when a "how" or "why" question is being posed, when the investigator has little control over the events and when the focus is on a contemporary phenomenon with real life context. The objective of this study, to determine the value generated by cross-functional-teams in large and established companies, fits the desirable description of a case study research. The aim of the thesis could be said to investigate the "how" of cross functional teams value creation. The authors of the thesis had thus no control over the generated value and since the object of study is a team of people, it is very much a contemporary phenomenon with real life context. Defined by Yin (1994) a case study is;

"An empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident." (Yin, 1994)

In order to investigate the above and for the ability to conduct an in-depth study it was crucial to perform interviews face to face with the members of the team. This implied travel to the headquarters in Germany and deliberately taking time into consideration the most suitable strategy for the investigation was a single case study.

Furthermore, the objective of this study was to draw specific conclusions from the studied empirical problem and later generalize them to be applicable in other similar situations. In other words, go from the specific to the general. Bryan and Bell (2003) describes these kind of exploratory studies as a qualitative research approach and identifies the approach as well suited for investigating a specific phenomena that also could be applied to other situations

2.2 Choice of Theory and Theoretical Framework

The chapter presenting the theoretical frame is divided into three sub sections:

- (i) A section covering the basics of the Resource Based View and Intellectual Capital – understanding competitive advantage
- (ii) A section covering theories concerning the innovativeness in large corporations
- (iii) A section presenting the fundamentals and the factors determining the effectiveness of Cross Functional Teams

The different theories have been selected for the purpose of analyzing the empirical findings, enabling the drawing of conclusions and answering the empirical question posted by the thesis. In order to link the different theories together and provide the reader with a better understanding of the chosen theories, a theoretical framework has been constructed and is presented in chapter three. Additionally, the framework was constructed with the purpose of serving as a practical tool for the collection of data and for structuring the empirical findings and analysis. Since the theories separately introduce diverse and valuable aspects of the value creation process, they will jointly create a comprehensive theory covering the purpose of this thesis; *to study and determine how working in CFTs can generate value in an effort to facilitate innovation.*

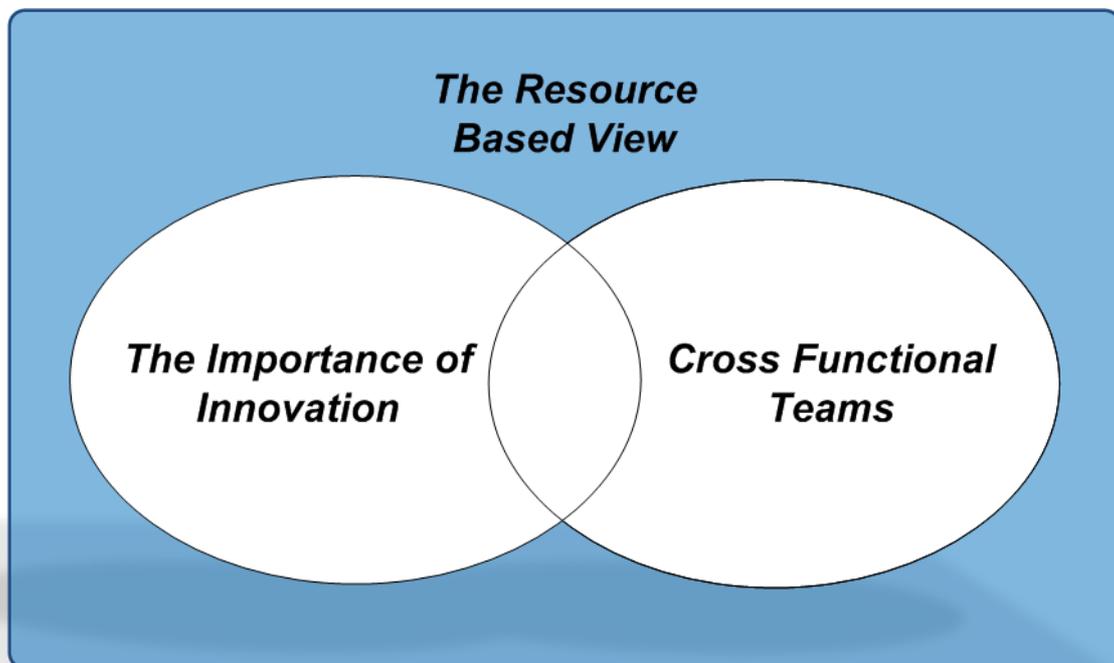


Figure 2.1 Choice of Theory The figure illustrates how the chosen theories are linked together. The RBV/IC forms a foundation, sets the scene. Theory concerning the importance of innovation and theory of CFT explains the value creation through a company's internal resources.

In order to conceptualize the meaning of value for companies, The Resource Based View, incorporating theory of Intellectual Capital, has been chosen. In a way, it could be said that The Resource Based View sets the scene for the continuous analysis of the empirical problem. The incorporation with Intellectual

capital in the RBV reasoning is in an effort to concretize the source of a company's organizational capabilities through the interaction of intangible resources. As the figure illustrates, the RBV/IC reasoning will serve as a foundation when analyzing how companies can take advantage of its resources and capabilities to achieve competitive advantage. In order to develop knowledge about how companies optimally can work with their internal resources to stay innovative, theories concerning Innovation and Cross-Functional Teams were added to the framework, also illustrated by the above figure. The two theories were chosen since they, according to the theory, both represent and illustrate how companies are forced to reconfigure their traditional business models and be more innovative in order to stay competitive. It is in the interaction of these two theories, with the RBV/IC as a foundation, that the empirical analysis will take place. With that said, the framework draws attention to a new and refreshing way of viewing value creation, by linking theories about effective Cross-Functional Teamwork and Innovation, into theories about Intellectual Capital underlying the Resource Based View.

Each theory in itself includes many valuable perspectives and viewpoints. A considerable amount of time and effort has therefore been spend on selecting and evaluating which models within each theory had a natural connection to each other and which best fitted the purpose of this thesis. Thus, it is the author's belief that the theories incorporated in the framework are strongly correlated to each other. A further evaluation of the validity of the theoretical framework and how it will be used to analyze the empirical findings is presented and argued for in chapter three.

2.3 Choice of Case Company

An empirical interest of large and established companies' ability to use their internal resources to become innovative and thereof develop their product offerings led us to the search for a relevant case company. A good relationship between a member of the research team and the strategic unit of the German automobile manufacture Audi resulted in the mutual beneficial collaboration, which forms this study. Audi had recently performed a successful re-introduction of one of their premium models in the Chinese market. When conducting the pre-market study Audi organized a research team, called "*The Product Market Experience*" consisting of representatives from diverse functions of the company, a so called Cross Functional Team. The result of the study led to several innovative developments for their premium models. With the aim to understand how a large company can work with its internal resources and capabilities to efficiently develop its product offerings, Audi is considered a suitable candidate as case company. The multinational company is acting on a highly competitive market where it is of great importance to be innovative and constantly upgrade and refine the products offered to be able to stay competitive and therefore the case company is consider to be of highly current interest.

2.4 Information Gathering

2.4.1 Primary and Secondary Data

Both primary and secondary data has been collected and examined to be used in the study. The secondary data has been collected from literature, journals, websites, and through documents provided by the case

company. The theoretical data collected has mainly been sources from the course literature and academic journals. The course literature has mostly been used as a source to find relevant theories and authors which further could be looked up and studied closer. Articles through journals and websites have also contributed with useful information of the current situation on the market and as well as information about the case company. Articles in several academic journals have been found primarily through extensive search conducted on the Library of Lund University's article database; ELIN. In addition supplementary data was found on specific databases of certain business journals' and from the case company's homepage.

The primary data has been gathered through (i) surveys and by (ii) conducting a sequence of interviews with key informants from the particular cross functional strategy team that was formed in connection to and for the reason of the launch of their premium model in China. The survey was sent out to all team members and follows the presented theoretical model of CFT effectiveness and aims to strengthen the understanding of what factors makes a CFT effective. The interviews conducted have been localized to the headquarters of Audi AG in Ingolstadt, Germany and focus on both theory of Innovation and CFT effectiveness. This was done to get a personalized and more accurate contact with the interviewees compared to telephone interviews. Advantages of personal interviews instead of telephone interviews are that it is easier to gain trust and make contact as well as the possibility to analyze face & body language for the researchers (Jacobssen, (2002). The information provided has given a deeper understanding to the research problem and offered an extensive base of relevant information. During the entire working process of the thesis the authors have frequently been in contact with the case company Audi which has provided us a possibility to ask additional questions.

2.4.2 Interview Method

To be able to acquire the accurate information and answer the research question semi-structured open interviews have been conducted. The interviews followed a certain set of questions derived from an interview guide but remained open-ended and also assumed conversational manner. Thus specific questions was answered as well as giving the interviewees time and opportunity to be flexible for open discussion, where information that had not been considered from a rigid interview was revealed (Bryman & Bell 2003). To reduce the event of the gathering biased, incorrect information with the risk of being misinterpreted the questions asked have carefully been formulated. Furthermore the goal has been not to ask leading questions that only will echo the same thoughts as the investigators (Yin, 2003). Before the interviews took place questions were sent to the participants with the intention for them to get prepared and in order to not miss any important information.

With the objective to not miss or misinterpret important information the interviews have been written down, recorded and transcribed. Subsequently it has been possible to return to the gathered information for confirmation (Kjaer Jensen, 1995). Additionally the point was not only to hear what the interviewees were saying but also in what way, an important obstacle according to Bryan & Bell (2003). Prior to the recording approval from the interviewees were asked so that they didn't find it uncomfortable, a problem which can restrain them leading to poor and inaccurate answers (Jacobssen, 2002).

2.4.3 Selection of Interviewees

All of the members of the research team have taken part in the surveys, a choice to improve the possibility to grasp important information and reduce the probability of misinterpretation.

Key informants are critical for success of a case study (Bryman & Bell, 2003). To gain an accurate picture, interviews have been made with a selection of the members of the cross functional team. Since they have all been involved with the strategic work in China, they have superior experience and knowledge within the area. The few chosen to study will be representative for the whole team. Bryan & Bell (2003) discuss the lack of transparency and representativeness while choosing people for interviews and observations consequently leading to a biased picture of the studied object. To give a more a more objective and fair view of discussed topic the selection of people in the team have been based on their different positions and departments of the company, each possessing diverse knowledge and perspectives.

2.5 Analyzing Empirical Findings

2.5.1 The Analytical Process

The conducted interviews generated a large amount of unprocessed raw data in form of transcription records. This data has been processed and relevant information has been extracted to fit the purpose of the thesis. To support the qualitative data gathered from the interviews, quantitative data has been gathered through questionnaires reaching additional team members. This process has gone about through an identification of relevant information fitting the theoretical framework of the thesis. Not all data is presented in the thesis since it lacked relevance. The processed empirical findings have then been analyzed on the basis of the different theories constituting the theoretical framework, each given their perspective to the analysis. The analytical process is divided in three major sectors:

The empirical data of the cross functional team composing *The Product Market Experience* has been analyzed through applying theory of organizational innovativeness. The aim of the analysis is to identify if *The Product Market Experience* could generate an organizational structure that stimulates an entrepreneurial mindset and creative environment. This was done through a step-by-step cross-examination of the theoretical framework with the empirical findings identifying similarities and differences.

An analysis on the empirical finding was made in order to determine the main factors influencing the effectiveness of a cross functional team. The analysis was made through a similar approach as described above, by systematically considering each factor of the cross functional team theoretical.

This last section analyses the ability of *The Product Market Experience* to generate value to the company by bringing the discussion of section (i) and (ii) of the analytical process together and analyzing it by applying theory of intellectual capital. The underlying perspective of this analysis is that of the Resource Base View, and the ability to create competitive advantages through the value generated by the cross functional team.

2.5.2 Objectivity of Empirical Data

The object of interest in this study is the cross functional structure of Audi's Product Market Experience and its ability to create an innovative environment and thereby bring value to the company. In order to study this, interviews have been conducted gathering information on the initial purpose, the execution and the noticeable results of *The Product Market Experience*. The interviews have however only been conducted with Audi personnel who were all involved in *The Product Market Experience* and are hence liable not to represent an objective view of the value generated by the cross functional team. This problem is related to the issue of reliability mentioned by Bryan and Bell (2003), and refers to the degree by which a study can be replicated and resulting in the same conclusions. According to the authors, the term of reliability is foremost associated with quantitative research approach since it is difficult to conduct two similar qualitative studies as it is hardly possible to "freeze" a social setting, keeping the same conditions as the previously study. However, in the case of this study, if the respondents give a subjective view, beautifying the value generated by the cross functional team due to their affiliation with Product Market Experience, the problem of poor reliability is of highest interest. Hence, the researchers have taken all possible measures to ensure the quality of the collected empirical data. The interview questions have, for example, been designed in such a manner to avoid partial answers and therefore reinforce the interviewee's objectivity. Both supporting and opposing standpoints have taken equal space and have been crosschecked between the three interviews for a better understanding of the issue. The complete research team has in addition been present in all interviews for the sake of later verifying what was said and heard.

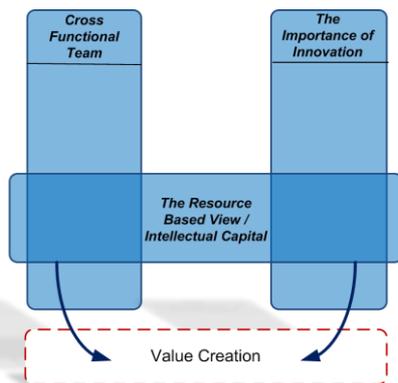
2.5.3 Generalization and Conclusions

The consequence of a single case study approach, such as presented in this thesis, is that it is more difficult to generalize the conclusions into broad knowledge useful to others, this since no case likely deals with the exact same issues (Yin, 2003). Bryan and Bell (2003) identify this as a problem of external validity, which refers to what extent the findings can be generalized across social settings. According to Yin (2003), the conclusions drawn from findings of multiple case studies will greatly increase the generalizability of the conclusions. Further, the purpose and aim of a case study is, according to Yin (2003), mainly to gain deeper understanding and generate information that can be used to build new theory. The authors of this thesis are aware of the limited possibility to generate general new theories due to the single case study approach, and thus create limited external validity. However, Yin (2003) argues further that the creation of new theories, in many cases, is preceded by a demonstration of tendencies in the area of interest, which then becomes a basis for further research. This thesis has been concentrated on a single case study in order to extract as much information as possible from that study and thereby generate conclusions that support a theoretical argument and thus show tendencies. Consequently the thesis generates tendencies in the area of the value generated by cross functional teams, and not new theory. The objective is that the conclusions can bring some light in the current discussion of the role of cross functional team in an attempt of large companies to be innovative.

3 Theory

Following chapter will discuss the theories used and related to the specific purpose of the thesis. Starting with a presentation of the resource based view theory more specifically focusing on the intangibles and intellectual capital. Thereafter Innovation and Cross Functional theories are discussed. Finally concerned theories are linked together concluding in a (contributed) theoretical framework which is the base for the analysis of the empirics.

3.1 Theoretical base – Understanding Competitive Advantage



The figure represents the theoretical framework model which composes the essence of the theory chapter, namely the Resource Based View and Intellectual Capital, theory of Cross Functional Teams and Innovation theory. The model is further presented in 3.4 “Theoretical Framework” and is here only presented to facilitate the comprehension of how the chapter is constructed and related to the rest of the thesis.

3.1.1 The Resource Based View

The Resource Based View (RBV) bases its conception of competitive advantage on the evaluation of firms’ strengths and weaknesses. According to Barney (1996), firms establish competitive advantages through the exploitation of the firms’ resources and capabilities and not through positioning in a profitable industry as the supporters of Industrial Organizational -theory argue (Porter, 1980). In general, a firm’s resources and capabilities include all of the financial, physical, human and organizational assets used by companies to develop, manufacture, and deliver products or services to its customers. The resources are commonly divided into tangibles and intangibles where the latter is a more abstract one (Barney, 1996).

Critical to the RBV-approach is to profoundly understand the force of the firm’s resources and capabilities and thereby provide the basis for strategy formulation and further development of the firm’s resources and capabilities (Grant, 2005). For a resource to be a source of competitive advantage it must be valuable, rare, costly to imitate and well organized. Also claimed to be of importance is the ability to use the resources (Barney, 1996).

3.1.2 Intellectual Capital

Due to the globalization and the rapid changes in the world there is a need for a new way of explaining competitive advantage. During the last century there has been a paradigm in the nature of competitive advantage from tangible to intangible recourses. Indicators illustrating the increasing importance of intangible recourses in a company are the rapid investment in those during the last century. In 1929 approximately 70 percent of the investment of US companies went into intangible goods and 30 percent

into intangibles. This was a pattern that was inverted in the year of 1990 (Edvinsson, 1997). Companies have to a greater extent realized the potential that lies within the intangibles a phenomenon especially significant in knowledge-based firms. To distinguish the intangible recourses from the tangible the more generic term intellectual capital is often used (Mayo, 2001). The term IC is defined as; “ all non-monetary and non-physical recourses fully or partly controlled by the organization and that contribute to the organization’s value creation.” (Edvinsson, 1997). Another more simple way of explaining the definition is; “those recourses that are created by people as well as the people themselves” (Mayo, 2001). Edvinsson (2007) argues that important aspects are considered in the perspective of IC that the perspective of RBV is missing. Aspects raised are; the dynamic innovation capital and future perspective of earning capability as well as external aspects like customer capital and networks. IC emphasizes cultivation of the internal recourses but is also focusing on external aspects for future value creation. (Edvinsson, 2007).

Different authors have different ways of subdividing intellectual capital. The most favored way of categorizing the intellectual capital has been manifested through the work of by Sveiby, Edvinsson and others. This categorization can be illustrated through the *Intellectual Capital Value Scheme*;

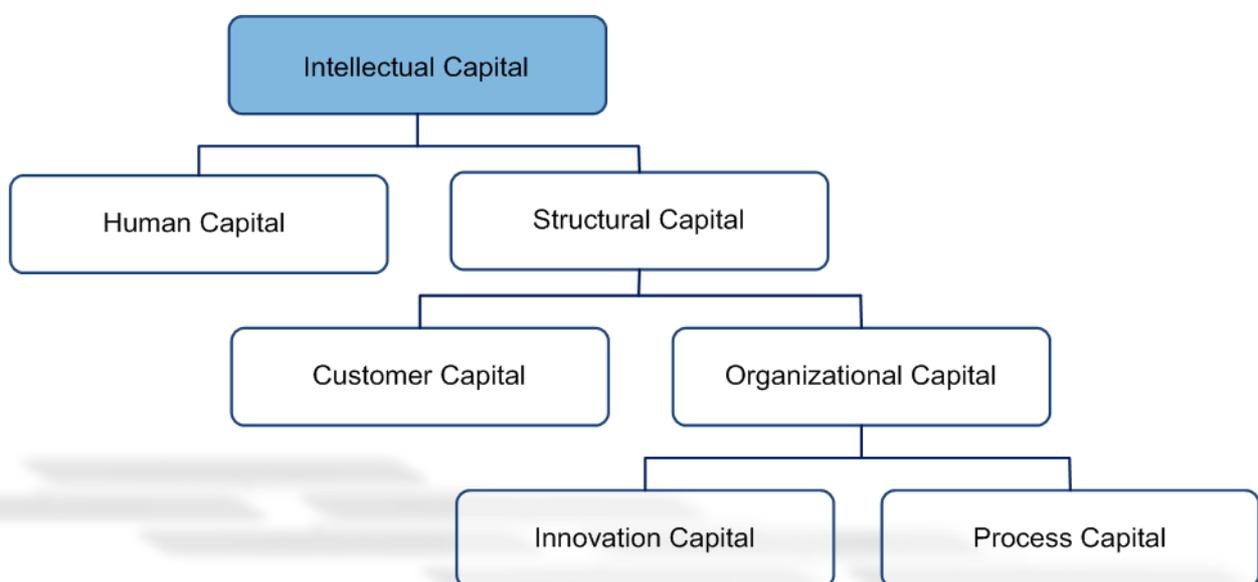


Figure 3.1 The Intellectual Value Scheme Components (Edvinsson & Malone, 1997)

Human capital in an organization is represented by the employees’ knowledge and capabilities, their ability to solve tasks and to be innovatory. (Edvinsson, 1997). Furthermore, the concept according to Roos (2005) refers to the employees’ attitude, their motivation, behavior, and performance. Since the human capital cannot be owned by a company and disappears from the company when the employees leave for the day this is a volatile type of capital (Edvinsson, 1997).

Structural capital is most commonly divided into the external customer capital and the internal organizations capital. The customer capital comprises customer loyalty, satisfaction, alliances and image. Elements effecting people outside the organization, to work with the organization. According to Steward (1999), the concept refers to the value of an organization’s relationship to all its stakeholders. The organizational capital comprises those parts that are directly connected to the internal operations of the organization. Those are databases, customer lists, patents and brand names, everything that remains at the company

when the employees have gone home (Edvinsson, 1998) Other useful resources incorporated but not documented within the organization are working processes (process capital) and competence (Steward, 1999). The Innovation capital composes of patents, company secrets and other intangible assets which are hard to protect. This component is of great importance for the ability of constant progress which is fundamental for long term profit (Edvinsson & Malone, 1997).

3.1.3 Value Creation & Managing Intellectual Capital

“Since the meaning of business is to create customer relations, every enterprise has two- and only two – basic functions. Marketing and innovation.” (Cited by Grafström & Edvinsson, 1998; Peter Drucker).

Cited by Grafström and Edvinsson (1998), to be able to meet the market demands and enhance returns it is important to optimize customer benefit and pleasure as well as being innovative. An intelligent enterprise is treating their customer as equals, as a value creating partner (Grafström & Edvinsson, 1998). The perceived value of offerings has a direct effect on the profit since the revenue is driven by the number of customer relationships, customer lifetime cycle, and the purchase frequency. If a project will succeed is not only due to the knowledge and competences among the people involved. A significant factor to create value is also to simultaneously produce creative and enduring solutions in cooperation with the customer. The customers play a decisive role not only as a source of information but also to release the creativity (Stewart, 1999).

To deliver value to the customers which are the main sources of profit there is a need to understand the drivers of value. *The first step* of the value creation process is to identify the organization’s intellectual resources and its primary stakeholders. Hence important resources to identify for an organization are those that are required to create value today as well as the once needed to create a desired future position. For the ability to achieve its strategic objectives it is necessary to have a given portfolio of resources. *The second step* is to evaluate whether the resource portfolio is well aligned with what the organization is trying to achieve. Through the identification and evaluation of the company’s resources it will be possible to evaluate if the organization directly can pursue its chosen strategy or if it is necessary to first acquire additional resources. Achieving competitive advantage require that all the intellectual capital resources within the company are managed in an integrated way. Accordingly for maximum effectiveness in the company the deployment structure needs to be evaluated for continuous improvements (Roos et al, 2005). Edvinsson (1997) suggests the “IC Multiplier” as a tool to calculate if value is created in an organization. The “IC .Multiplier” calculates the ratio between the Structural Capital (SC) and the Human Capital (HC). Required for value creation is that the ratio or the IC multiplier if not it will lead to value destruction. With today’s hyper competition it is not only important for companies to possess knowledge, it is also of great importance to develop and expand the existing knowledge (Edvinsson 1997). According to Stewart (1999), the human capital is the source of future innovation and renewal. The knowledge and ability that a person possess can lead to future production of useful products and services (Göjer & Johanson 1996). Hence the way this knowledge is treated is important for the development and expansion of intellectual capital. Edvinsson (1997) identifies four factors from where knowledge can grow and develop into intellectual capital; (i) the creation of new knowledge through innovations; (ii) application of present knowledge to present issues and concerns that enhance employees and customer; (iii) the acquisition of present knowledge created through research and learning; and finally through (iv) packaging, processing and transmission of knowledge – knowledge management. The last factor concerning knowledge management is essential for an organization to create value and commerce. This since it is through the

transformation of human capital into structural capital that the knowledge can be retained in the organization. The knowledge is made into property of the organization by conversion to tangible resources (Edvinsson, 1997). Thereof the structural capital which is owned by the whole organization, can be reproduced and shared by others (Roos et al, 2005).

According to Grant (2005), knowledge is the overwhelming important productive resource and the value of people and machines lies primarily in the fact that they embody knowledge. Consequently, essential knowledge and experience should be converted and stored in order to reduce the possibility to repeatedly execute the same mistakes. If the structural capital is stored in a good way the productivity will increase, expert knowledge will be charted and absorbed (Stewart 1999). Two main strategies are identified which both deal with these issues. What separates the strategies is the way they handle knowledge. The strategy of personalization refers to the management and transformation of knowledge through interaction. Through face to face interaction and network building the knowledge is primarily exchanged and the firm's human capital maximized. Through this approach the knowledge becomes a part of the organizational process and activities and later on routines. The other theory handles codification of knowledge, where knowledge is extracted from individuals and converted into databases (Alvesson, 2004). Through both these strategies the human capital is converted into structural capital thus creating the foundation for expanding and developing the firms' intellectual capital. According to Edvinsson (1997) the structural capital helps the human capital to fully exploit its potential resulting in larger intellectual capital.

3.1.4 Summary

According to the RBV, a company establishes competitive advantage through exploitation of its internal resources and capabilities. These in turn need to be valuable, rare and costly to imitate. The development of the RBV, have lately focused on the intangible resources more specifically the intellectual capital, consisting of human- and structural capital and the interaction between those resources, to create value. Recognized is the importance to manage, develop and grow these resources to stay competitive, since this is the source of current and future innovation and renewal. To maximize the value generated by the company it is of great importance to store and transform the human capital to structural capital and thereof making it the property of the company. Hence the structural capital can be reproduced and the company will work more efficiently.

3.2 *The Importance of Innovation*

What makes something innovative is its newness; this is stated by Johanessen, Olsen and Lumpkin (2001) in their effort to define innovation. The authors discuss the importance of specifying what is new in order to distinguish innovation from mere change. They argue that all innovations presuppose change, but not all changes presuppose innovation. Accordingly, Utterback (1994) differentiate *innovation* from mere *invention*. Whereas invention implies new ideas and or concepts for new product and processes, innovation refers to the commercialization of these ideas or concepts (Utterback, 1994). An innovation may be the result of a single invention or a combination of multiple inventions. However not all inventions result in innovations (Grant 2005). Thus, innovation is the commercialization of newness.

This definition allows a differentiation between changes that are simply alternatives or copies, and changes that are novel and original. Consequently, innovations through its newness and thereby rare and inimitable factor could be indicators of sustainable competitive advantages as defined by Barney's (1991) resource base view (Johanessen, Olsen & Lumpkin, 2001). Cooper's (2001) study of the product life cycle shows that the product life cycle has shortened by an average of 400 % over the last 50 years, something that would reinforce the argument that product innovation is vital to remain competitive in the market place.

3.2.1 Innovativeness in Large Corporations

According to Saleh and Wang (1993), large and established companies face a dilemma of the need to develop and respond to their external environment through innovation and the constraints of their hardened internal environment which is not conducive to product innovation. They argue that these companies tend to have more rationalized operations based on their past experience and to retain routines proved to be previously successful. In addition, there is an established bureaucratization within these large companies which limit the possibilities of adapting quickly to the external environment. Thus, the need for strategic transformation and thereby creating an innovative environment is essential (Saleh and Wang, 1993).

There exist, however, ways for large and established companies to overcome the constraints of their size and age. According to Thornberry (2001) large companies are turning to what is called *Corporate Entrepreneurship*, a way of creating the environment of a start-up and thereby reinvent or revitalize their entrepreneurial roots. He argues that in many companies managers are rewarded for minimizing risk, following rules and performing their functional roles to the best of their abilities. They are planners and organizers and more rule adherents than rule breakers. To break this rigidity, Thornberry (2001) identifies four types of Corporate Entrepreneurship; corporate venturing, intrapreneuring, organizational transformation and industry rule breaking.

Corporate Venturing

Corporate venturing involves starting a business within the business. This is a common approach in new product development processes and usually involves the creation, nurturing, and development of a new business. Ventures require a mass amount of learning were new and current competencies are leveraged in a completely new way.

Intrapreneuring

This is an attempt to take the mindsets and behaviors of external entrepreneurs and inspire these characteristics into the employees of the company. Typically, companies want to target this approach more to a subset of managers to acts as ambassadors for the rest of the company.

Organizational transformation

This approach usually involves reorganization of a company's organizational structure. The transformation must involve innovation, a new arrangement or combination of resources, and can thereby result in the creation of sustainable economic value for both the company and the customer.

Industry rule bending

Industry rule bending is another type of transformation but focuses on changing the rule of competitive engagement. A frame breaking change which forces competitors and share holders to follow suit. (Thornberry, 2001)

Thornberry (2001) states however that even though large companies can achieve the environment of a start up by following one or several of the approaches described above, there exist many challenges that need to be identified and managed. A selection of the challenges include; (i) *the absence of an open climate*; Failure must be expected in the learning process and companies must therefore have a climate open for mistakes and risk taking. (ii) *Having the wrong people*; Companies must find the latent entrepreneurs in the company and stimulate their ability to create something new. (iii) *Middle manager*; Upper middle managers are least likely to either want to be entrepreneurial or support others who want to be, this cannot be so. The support of middle manager is vital to an entrepreneurial environment (iv) *Being a part time entrepreneur*; Companies must let their employees involved in entrepreneurial activities commit full time to the project. This means pulling the individual off his or hers current job. (v) *Skills*; People by nature are creative, so this is something that exist in companies. But what is needed, are people who can run with ideas and execute them commercially. This requires an understanding of markets and marketing, finance and most important the customer need and wants.

In addition to corporate entrepreneurship, Saleh and Wang (1993) argue that innovation can be created through the exercise of an *entrepreneurial strategy* with the *structure* and the *climate* which facilitate its implementation (see figure 3.2). Through the entrepreneurial strategy which includes components of risk taking, a proactive approach and commitment, the corporate behavior becomes easier to reshape and the structure more flexible. The first component, risk taking, implies a willingness to pay attention to risky opportunities and confront them, and by actively sanctioning failure, the company can spur creativity. The second component entails sensing environmental threats and opportunities in a timely fashion, and indicates that while sometimes innovation comes from simple investment in research; it more often comes from effort and from openness and from looking in the right place at the right time. The last component, commitment, implies a persistent commitment to innovation by the top management team, something that can seem obvious but is not in large corporation where criticism to newness and tough obstacles are common.

Having an entrepreneurial strategy is, however, not enough for a successful innovation environment. The authors argue that the assumption of fit between the organization's strategy and its *structure* is an essential factor in innovation creation. The structure of the large corporation must fit the entrepreneurial innovative strategy and thereby be flexible with adequate coordination and synthesis. To achieve these qualities in the absence of small organization's organic and informal structure, large corporations need formal and frequent reorganization and the use of entrepreneurial teams. A collective orientation rather than an individual one is expected to make the functioning of such teams more effective. When it comes to the *corporate climate*, the authors argue that the innovative organization must have an open climate which is based on collegiality and include a well planned reward system for innovative behavior. The entrepreneurial climate another thing that could be found in small organizations by nature, but must be planned and executed consciously in large organizations (Saleh, Wang, 1993).

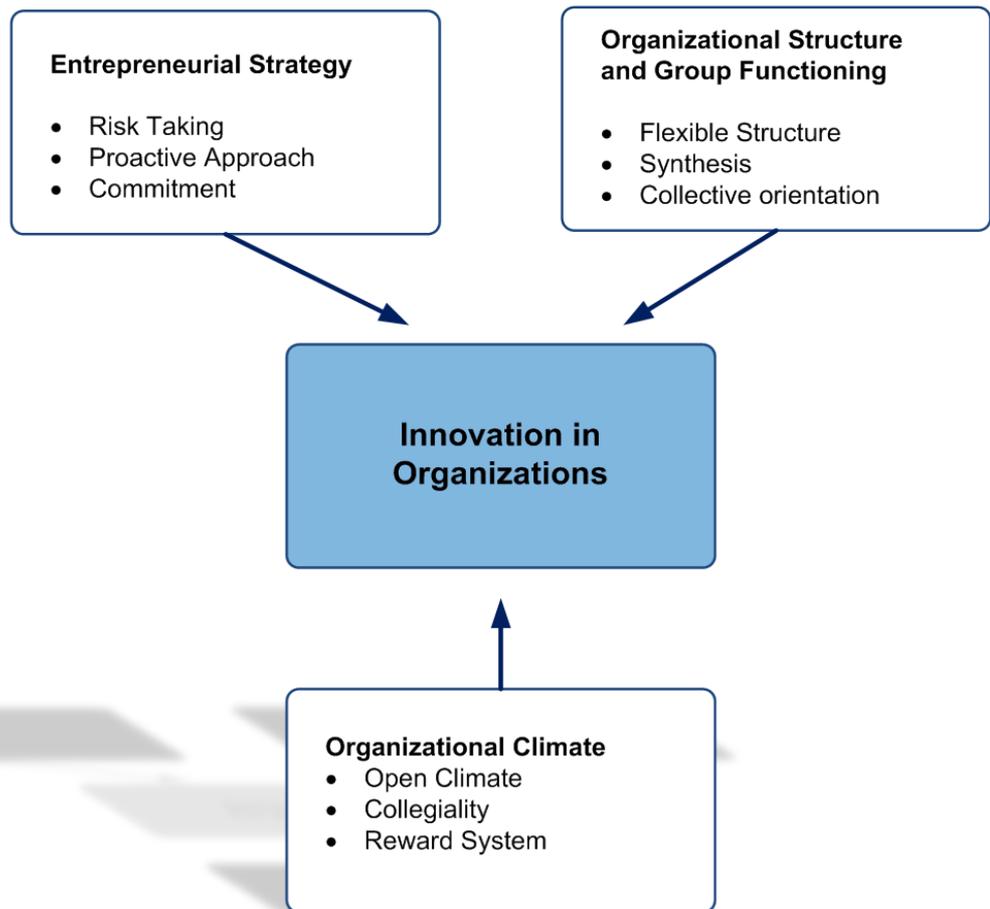


Figure 3.2 Innovation in Organizations

Innovation can be created through the exercise of an entrepreneurial strategy with the structure and climate to facilitate its implementation (Saleh and Wang, 1993).

3.2.2 Summary

An entrepreneurial environment that stimulates innovation is regarded as essential for new product success. Innovation is defined as the commercialization of newness and is predicted to be an indicator of sustainable competitive advantages through its rare and inimitable factors. Thus, there is a great need for companies to be innovative and constantly develop new products. Six different product types can be extracted by organizing the level of innovation by the factors “new to the market” and “new to the company”. These product types indicate the level of innovation. Cooper (2001) argues however that irrespective of the level of innovation, the procedure of new product development requires a capacity to be innovative. This capacity is something that often comes natural to small and entrepreneurial firms due to their organic organizational structure. In contrast, large and established companies face constraints of their bureaucratic internal environment which is usually not conducive to innovation. As a result, large companies need to plan and consciously execute different strategies to stay innovative and thereof obtain competitive advantage. There are two ways for large and established companies to be innovative; (i) implementing *corporate entrepreneurship* and (ii) through the exercise of an *entrepreneurial strategy*. The latter highlights, amongst other things, the importance of entrepreneurial teams in order to stay innovative.

3.3 Cross Functional Teams

3.3.1 Introduction Teams

As previously discussed, today’s rapidly changing environment has drastically changed the conditions for firms to conduct business. Since competition is increasingly fought on intangible resources, it is suggested that it is not so much *what* firms do as *how* they take advantage of their organizational capabilities and resources which determine their ability to compete (Holland et al. 2000). As a result, the use of teams in organizations has increased and expanded in response to competitive challenges (Bailey & Cohen, 1997). For example, according to a study made by Gordon (1997), 82 percent of companies with 100 or more employees reported that they use teams in order to stay innovative. It has therefore been increasingly important that we understand the underlying factors determining a team’s effectiveness (Jassawalla & Shashittal, 1999).

Four types of teams can be identified in organizations today: *Work Teams*, *Parallel Teams*, *Management Teams* and *Project Teams/CFTs*. It is particular the latter that has shown to be a successful way of creating value. Research has shown that the use of CFTs has become increasingly important as the need for complex and highly novel product innovation has intensified (Jassawalla & Shashittal, 1999). The emergence of CFTs is therefore said to be one of the most dramatic recent trends in organizational design (Holland et al. 2000).

3.3.2 Definition Cross Functional Teams

Although many authors refer to CFTs, there is still a difference of opinion in the literature regarding the optimal organization form for product innovation (Holland et al 2000). There are many different varieties of CFTs, including *planning teams*, *quality teams*, *process improvement teams* and *product development teams*,

(Denison et al. 1996). One of the most frequently used definitions is based on the work of Holland et al. (2000). They define a CFT in the following manner:

“A CFT is a group of people who apply different skills, with a high degree of interdependence, to ensure the effective delivery of a common organizational goal”.

In the same manner, Gebert et al. (2006) defines a CFT based on its Cross-functionality, namely the degree to which team members differ in their functional backgrounds. A CFT consists of members from different disciplines and functional units (e.g. marketing, production, finance and R&D) so that specialized expertise can be applied to the project at hand (Bailey & Cohen, 1997). CFTs are often associated with being time-limited and involve tasks that are non-repetitive in nature. Thus, the work conducted by a CFT involves either an improvement of an existing concept or a radically different new idea. Therefore, the optimal format for a CFT involved in product development, may accordingly be dependent on a multitude of factors, such as type and stage of the project, industry and/or the resources dedicated to the project (Holland et al 2000).

CFTs differ from traditional teams in three important ways: (Denison et al. 1996). *First*, they are expected to reduce cycle time, create knowledge and enhance organizational learning. *Second*, they are often temporary task teams, emphasizing the importance of the early development of stable and effective group processes. *Third*, their members usually have competing social identities and obligation to another subunit of the organization.

3.3.3 Benefits and Drawbacks of Cross Functional Teams

Advocates of CFTs state various arguments as for why these types of teams are considered to be a key factor to successful product innovation. *First*, the interaction of team members from diverse backgrounds, experiences and skills is supposed to enhance creativity and the development of new ideas and solutions (Hoffman et al. 2000). *Second*, linking different functions together is also suggested to be beneficial since it reduces costs and accelerate product development cycle times (Jassawalla & Shashittal, 1999). This in turn can enable firms to recognize potential later problems e.g. changed customer needs, and thereby bring effective new products to the market in a faster and more cost-efficient manner. As an illustration, McDonough (2000) has shown that the most frequently mentioned reason for adopting a CFT work style is to improve speed to market. *Third*, the use of CFTs and the benefits of incorporating different organizational divisions, may also heighten the potential for improved collaboration and coordination of tasks and responsibilities (Gebert et al. 2006). *Fourth*, CFTs have also proved to benefit customer focus, organizational learning and enhance employee motivation and satisfaction (Holland et al. 2000).

On the contrary, the use of CFTs has its drawbacks:

“The ubiquitous hope among managers of new product development (NPD) teams that a CFT composition may be a royal road to enhancing team innovation appears to be an illusion.” (Gerbert et al, 2006)

Although CFTs are formed with great optimism, not all of them are managed and implemented successfully. This may in turn indicate a rather prevalent view that people are forced to collaborate when

thrown into a CFT (Jassawalla & Shashittal, 1999). Difficulties in managing these types of teams may also stem from the different orientations, goals, departmental cultures and languages that each member brings with them to the team (McDonough, 2000). Holland et al. (2000) point at the major obstacles impeding the effectiveness of CFTs: (i) conflicting organizational goals (ii) competition for resources (iii) overlapping responsibilities (iv) conflicting personal goals (v) no clear direction or priorities (vi) lack of co-operation. Other drawbacks of CFTs, originates from the organizational context and the internal infrastructure within which CFTs operate. Research has specifically been pointing at the challenging task of implementing effective organization systems, structures, practices and procedures for CFTs when working with product development (McDonough, 2000).

3.3.4 Team Effectiveness and Value Creation in Cross Functional Teams

In order to fully capture the value generated by CFTs, a substantial part of research has been devoted to determine the effectiveness of these type of teams. Variation in team effectiveness can be explained either by differences in *team structure* and/or in *team processes* (Barrick & Stewart, 2000). *Team structure* is associated with the design of the team which determines the allocation of tasks, group composition, responsibilities and authority. *Team processes* on the other hand refers to the way in which team members interact with themselves and their environment (Holland et al. 2000). It also relates to a team's ability to transform resources into a product (Gladstein, 1984).

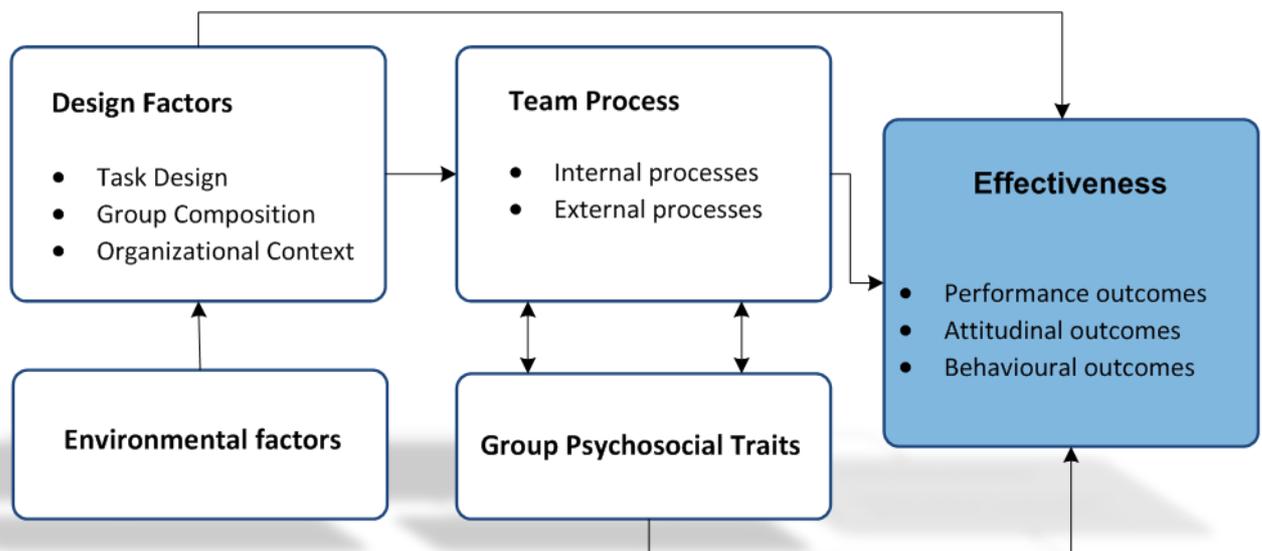


Figure 3.3 A model of team effectiveness, (Cohen & Bailey 1997)

Cohen & Bailey (1997) propose a model for analyzing the effectiveness of CFTs (Figure 3.3). The model indicates that design factors, such as how teams are structured, have a *direct* impact on effectiveness, whereas team processes only have an *indirect* impact. The model also highlights the importance of viewing

a team as a social entity with shared psychosocial traits which is said to have direct effect on team effectiveness. Moreover, the model differs from traditional ones as they propose that environmental factors indirectly influence team effectiveness.

According to the model, team effectiveness is a function of four main factors: *environmental factors, design factors, team processes and group psychosocial traits* (Cohen & Bailey, 1997). Using Cohen & Bailey's model as a frame of reference, a further evaluation and description of the variables affecting the effectiveness of working in CFTs is presented below (See Figure 3.4.)

Environmental Factors: Refer to the characteristics of the external environment in which the organization is embedded, such as industry characteristics or turbulence. The model illustrates that these factors have a *direct* influence on how teams are designed and structured.

Design Factors: Refer to those features of the task, group and organization that can be directly controlled by managers in order to be as effective as possible. Examples of *task design* variables include autonomy and interdependence. Moreover, examples of *group composition* include size, demographics and diversity, whereas *organizational context* design variables are rewards, supervision and resources. According to Cohen and Bailey (1997), the design factors have a *direct* impact on team effectiveness as well as an *indirect* impact on team processes and psychosocial traits. Thus, the model suggests that the *team design and structure* of a team has a larger influence on effectiveness than the team *processes* itself.

Team Processes: Refer to the internal and external processes that are a result of interactions such as communication, collaboration and conflict that occur within a team. As suggested, these group processes can occur among both group members and external others and have only an *indirect* influence on team effectiveness.

Group Psychosocial Traits: Refer to the shared understandings, beliefs or emotional tone shared within a team. According to the model, examples of group psychosocial traits include norms, cohesiveness and group affect. These factors in turn, are proposed to *indirectly* influence the shaping of team processes and are predicted to have a *direct* impact on team effectiveness.

As the model indicates, all the above mentioned variables determine the effectiveness of a CFT, which in turn can be categorized into three major dimensions: *performance outcomes, attitudinal outcomes and behavioral outcomes*. The former includes efficiency, productivity and response time. In addition, it also refers to a team's ability to deliver innovative and high quality products, with a high level of customer satisfaction. Examples of attitudinal measures include employee satisfaction, commitment and trust in management. Lastly, behavioral outcomes refer to absenteeism, turnover and safety.

In sum, the model draws attention to the design factors which are the major points of leverage for influencing team effectiveness. In addition, it also suggests that team processes occur both inside *and* outside the team, reflecting a new direction of research regarding the effectiveness and value generated by CFTs. The model also highlights the importance of viewing a team as a social entity that has shared psychosocial traits which directly influence the behavior and efficiency of the team. This fact is something which is unique to this model and something which other theories have failed to validate (Cohen & Bailey, 1997).

3.3.5 Key Success Factors in Cross Functional Teams

In order to determine if a CFT creates value, one needs to examine factors critical to the success of cross-functional teamwork. Drawing from the work of Holland et al. (2000) and Denison et al. (1996), critical success factors for cross-functional teamwork have been identified. These in turn, are categorized according to the factors determining team effectiveness as proposed by Cohen and Bailey: *design factors, team processes, group psychosocial traits and environmental factors* (Figure 3.4).

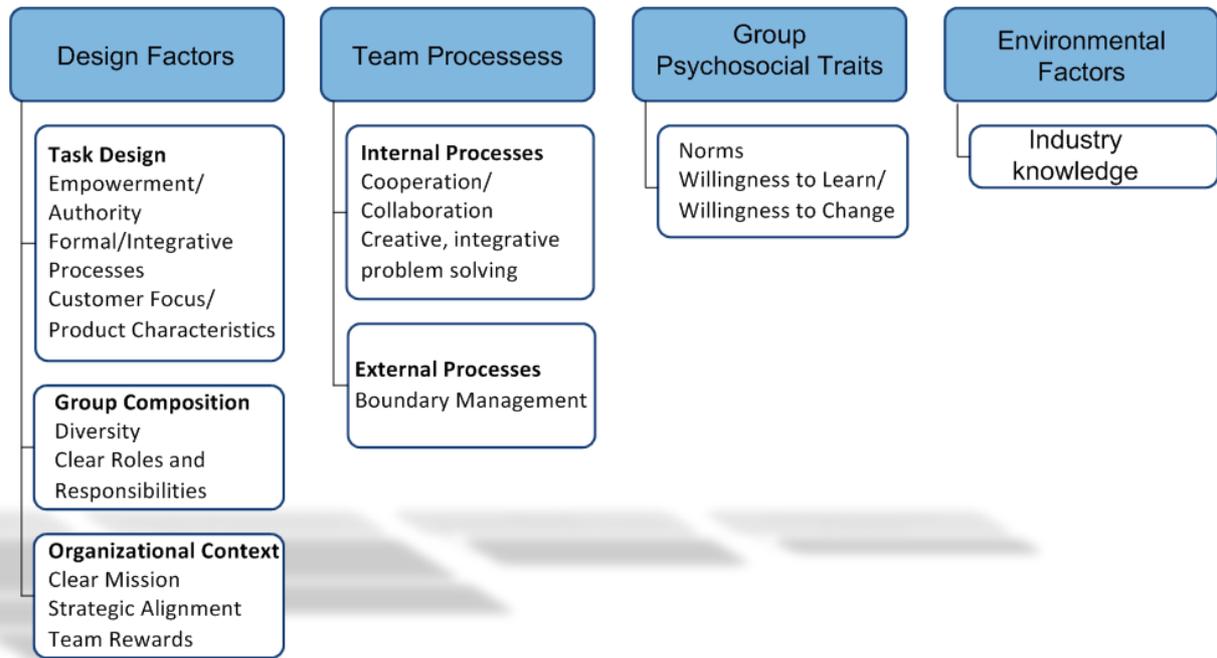


Figure 3.4 Key Success Factors (Cohen and Bailey, 1997)

Summary of the critical success factors determining team effectiveness, using Cohen & Bailey's model as a frame of reference

3.3.6 Design Factors: Key Success Factors

Task Design:

Team Empowerment/ Authority: For teams to exist within an organizational environment, they must define their role in relation to upper management and resolve the inherent conflicts between the functions that they represent (Denison et al. 1996) Research has shown that one of the greatest drawbacks perceived by team members was that managers outside the team attempt to control team activities and/or influence team decisions, therefore lowering the efficiency and performance of the team (Holland et al, 2000). Consequently, in order for CFTs to be effective it becomes vital for managers outside the project to respect team outputs and not try to manage every step of the project. A high degree of team empowerment is thus suggested to increase the overall efficiency of the team contributing to faster product development decisions, exceeded corporate goals and enhanced teamwork (Holland et al, 2000).

Formal yet flexible integrative process: According to Cooper (1996), having a high quality new product process is suggested to have a strong impact on new product performance. This factor is of particular importance in team-based organizations, since they repeatedly consist of integrative processes. In order for these

processes to be successfully implemented within the team, it is suggested that teams need clarity in direction, decision-making authority and information to be optimally effective. This calls for careful planning of every phase of the product development processes. In addition, it requires decisions to be made in a structured fashion in order to ensure that the products are designed for manufacturability as well as marketability (Holland et al. 2000).

Customer focus and Product characteristics: Gaining a shared understanding of the information needed to design products that satisfy the customer, is predicted to have a positive impact on team effectiveness (Holland et al. 2000). Previous research demonstrates that successful new product teams discuss and evaluate customer needs significantly more with their team members than their less successful counterparts. This in turn, is predicted to improve the inter-functional relations within the team. Moreover, since CFTs often are involved in product development, product characteristics may be expected to have an impact on the design of the team and, ultimately, team efficiency (Cohen and Bailey, 1997). Various studies have highlighted the importance of taking product characteristics in consideration when determining how to coordinate team activities. This is to say that, a greater awareness of product characteristics is predicted to increase the information flow, facilitate a team's problem-solving approach and thus the speed of product development.

Group Composition:

Diversity: As previously discussed, functional diversity is said to have a strong impact and effect on team performance (Cohen & Bailey, 1997). In particular, studies found that functional diversity is associated with a higher degree of innovativeness and faster new product development decisions. Consequently, this factor is said to be one of the most important success factor behind team efficiency. Additional research has investigated the relation between the right functional mix (group size) and efficiency in CFTs (Holland et al. 2000). They found that too few or too many members can reduce the performance of the team. It is therefore suggested that the most innovative teams consists of six to ten functional representatives, enabling the team to take advantage of the knowledge and information provided by each member.

Clear roles and responsibilities: Holland et al. (2000) state that role formalization enhances inter-functional integration, reduce confusion and foster productive relationships. Thus, previous research of team effectiveness has confirmed that there is a positive correlation between establishing clear roles and responsibilities and effective cross-functional teamwork. It is suggested that team members primarily loyalty should be dedicated to the team or project, rather than the function, in order for the team to maximize its level of effectiveness.

Organizational Context

Clear mission: According to Jassawalla and Sashittal (1998), senior management must give a high priority to and define a clear overall strategy for new product development in order for CFTs to be efficient. It is thus suggested that a compelling vision regarding the team's strategy and direction will facilitate commitment, collaboration and provide goal congruence. Moreover, based on the work of Donnellon (1993), the most successfully implemented CFT had a conscious mission to develop an entrepreneurial culture fostering innovative product development processes (Holland et al. 2000). Similarly, Jassawalla and Sashittal (1998) found greater Cross-Functional collaboration and efficiency in firms where senior managers aimed at utilizing a creative environment.

Team rewards: Another way of influencing the effectiveness of CFTs is by giving team members incentives, such as group rewards and recognition, to motivate them to work as efficient as possible (Cohen & Bailey, 1997). Contrary, rewards given for individual achievements have proven to result in lack of trust and lower team productivity (Steiner, 1972).

Strategic alignment between functions: Another critical success factor of team effectiveness refers to a team's ability to align the different functions regarding prioritization of, and commitment, to projects (Holland et al. 2000). By integrating the different functions and make use of the enhanced knowledge base provided by the members, team efficiency is expected to be improved. In addition, Denison et al. (1996) also found that the coordination with other teams had a strong impact on team effectiveness.

3.3.7 Team Processes: Critical Success Factors

Internal Processes

Cooperation and communication: Cooper (1996), states that high quality teams interact and communicate well and often. Similar, a study conducted by Souder (1988), provides evidence that inter-functional communication and collaboration were strongly correlated with team effectiveness (Holland et al. 2000). Although little work has been done on the internal processes of CFTs, no study have found a high level of communication and collaboration to be negatively associated with team perceptions of effectiveness (Cohen & Bailey, 1997). However, teams high in cooperation relied more heavily on informal modes of communication as a predictor of team effectiveness, than less effective teams. Additional research supports this finding, suggesting that the reasons for communication were more likely to be for brainstorming, obtaining project related information, reviewing progress and receiving feedback, than resolving interpersonal differences (Holland et al. 2000).

Creative, integrative problem solving: Various studies highlight a creative environment as an important attribute of an effective CFT process. According to Jassawalla and Sashittal (1998), a team is efficient when the member's display an integrated understanding of diverse interests and needs. This creativity also results from true team-work, where the team adds a new dimension to organizational capability through innovative ideas and approaches.

External Processes

Boundary management: Contrary to the modest research on internal processes, a significant amount of attention has been directed to investigating the relationship between a team's external communication and team efficiency. In particular, a substantial part of innovation literature focuses on team's ability to initiate interactions with, and respond to communications from other parts of the organization (Holland et al. 2000). Thus, research has found evidence that successful CFTs to a large degree rely on external information to secure needed information and resources and to stay efficient. Interestingly, team members tend to rate performance highly if the team has healthy internal processes, whereas managers rely more on external communication for the basis of team efficiency (Cohen & Bailey, 2000).

3.3.8 Group Psychosocial Traits: *Critical Success Factors*

Norms: Drawing from the work of Denison (1996), cohesive norms and values were found to be the strongest indicator of team efficiency. Therefore, having a team sharing the same values and norms and where there is mutual trust and respect, is suggested to reinforce inter-functional collaboration and enhance efficiency (Holland et al. 2000).

Open to learn/willingness to change: Much of the work constituting a CFT includes innovative and challenging tasks. Therefore, members are forced to constantly adopt new attitudes, mind-sets and behaviours, as part of effective CFT-work (Holland et al. 2000). For example, studies have found a direct positive link between member's willingness to change and the degree of cross functional collaboration achieved.

3.3.9 Environmental Factors: Critical Success Factors

Industry knowledge. As a team, having a comprehensive knowledge about the industry you are in, is predicted to have a positive impact on how efficient the team will work. In addition, it will help decisions to be made faster, more accurate and more adaptable to customer needs (Cohen & Bailey, 1997).

3.3.10 Summary

Working in CFTs has become increasingly important as the need for product innovation has intensified. Thus, CFTs are considered to be a key factor to successful innovation, as linking different functions together is supposed to enhance creativity, benefit knowledge sharing and organizational learning. Further advantages generated by these types of teams, entail the possibility for firms to reduce costs and accelerate product development cycle times.

Team effectiveness can be evaluated and explained by differences in team structure and/or team processes. According to Kahn (1996), team processes (i.e. interaction and collaboration) have a stronger impact on product development performance than team structure. Cohen and Bailey (1997) on the other hand offer a model suggesting that team effectiveness is a function of four main variables: environmental factors, design factors, team processes and group psychosocial traits. Unique for this model is the statement that team structure (i.e. design factors) have a direct impact on team effectiveness and that environmental factors to a large degree determine how a team is designed. Moreover, the model helps to illustrate the direct impact group psychosocial traits have on effectiveness. By using Cohen & Bailey's model as a frame of reference, key success factors related to efficient cross-functional teamwork have been identified. In short, these factors comprise team empowerment, diversity, clear mission and direction, collaboration, boundary management and shared norms.

3.4 Theoretical Framework

The main objective with the theory chapter has been to further present the theories and models that together create the theoretical framework presented in Chapter 2 (Figure 2.1). By using the *Resource Based View* and theories of *Intellectual Capital*, the chapter has been able to display how critical firm's internal resources and capabilities are for its ability to create value and achieve competitive advantage. As the chapter indicates, the nature of competitive advantage has transformed from tangible to intangible resources, suggesting a new way of explaining competitive advantage; namely through a company's intellectual capital. To create value, it is of great importance that these resources, both human,- and structural capital, are developed and managed in an integrated way and is aligned with the strategic goal of the firm.

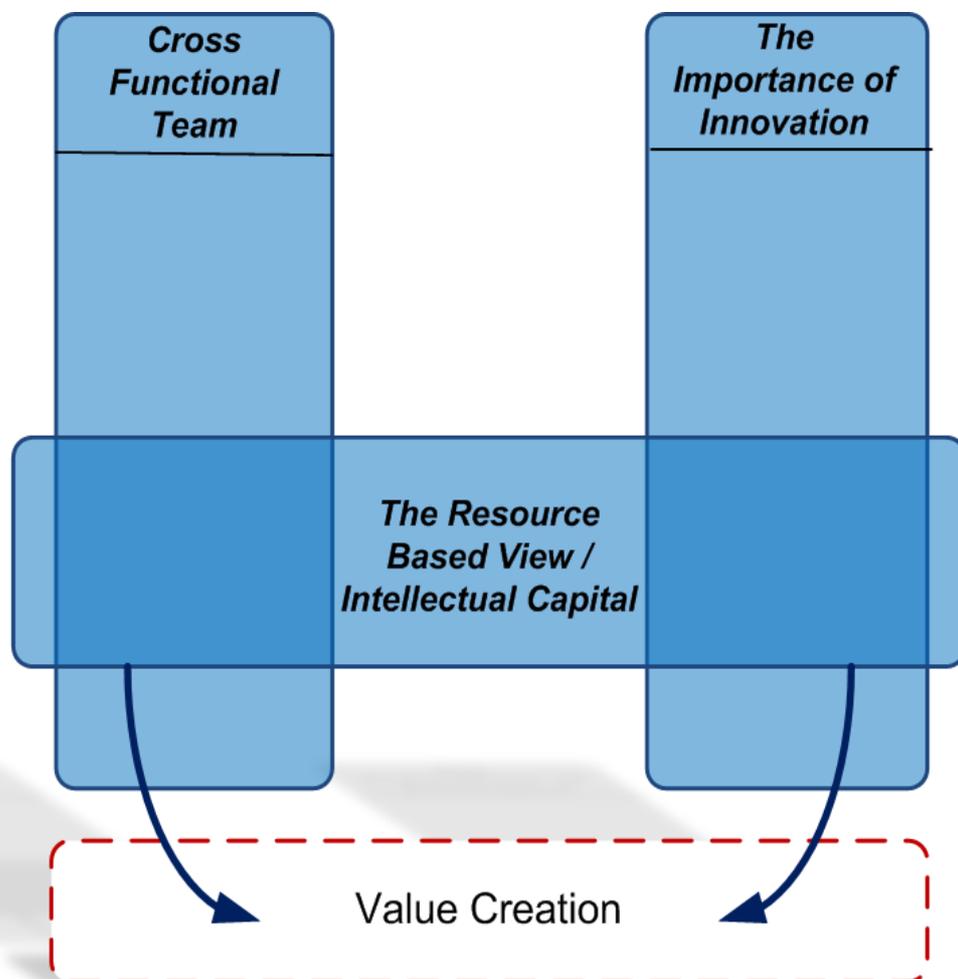


Figure 3.5 Theoretical Framework

Further more the theory chapter encompasses theories regarding *how* companies optimally can work with its internal resources and capabilities in order to stay innovative. As suggested by the theory chapter and

displayed in the theoretical framework, theories concerning Cross Functional Teams and Innovation Theory have been chosen. The authors are basing the choice of theories on the following argumentation:

According to the theory chapter, working in a Cross-Functional Team could be an effective way of organizing a company's internal resources and capabilities for the development of innovative and customized products. It would also be an effective way of stimulating the development and expansion of both new and existing knowledge, suggesting an important and valuable organizational channel for innovation. As previously discussed, innovation is classified as "*the process which turns ideas and knowledge into reality*". By bringing theory on innovation into the framework, we are adding valuable knowledge about how companies efficiently can develop a systematic new product development process to come up with new, rare and inimitable products. We are also adding valuable knowledge about what types of organizations, in terms of structure and climate, which are needed to spur creativity and innovation.

As a result, the framework has created a model for explaining and conceptualizing how value in firm's can be generated, by combining theory on *RBV/Intellectual Capital, Innovation Theory* and *Cross-Functional Team-effectiveness*. As the framework below illustrates, working in Cross-Functional Teams with product development, could then be a key factor to successful innovation and a way for companies to create value and thereby strengthen its internal resources and capabilities.

4 Empirical Findings

The following chapter exhibits the empirical findings. First the case company will be presented followed by a resume of the answers from conducted surveys and interviews.

To get a clear picture of the empirical findings an overview of the case company Audi AG and a synopsis of *The Product Market Experience* including purpose and team design will firstly be introduced. This part will be followed by an in depth presentation of *The Product Market Experience*. To enhance the ability to present the findings as unbiased as possible this is made chronologically; preparation phase, experience phase, report phase. It may be argued whether a chronological presentation makes it more unbiased or not, but by presenting the empirical findings from Audi's work process perspective the reader can better follow and understand the different steps and aspects of their work method. The chapter ends with a presentation of the main results from both the interviews and the questionnaire.

4.1 Audi AG – an overview

Audi AG, the German automobile manufacture for premium brands symbolizes high-quality and technologically progressive cars. A brand image underlined by their tagline "Vorsprung durch Technik" meaning "Advantage Through Technology". The company almost wholly owned by Volkswagen Group is a merger between four formerly independent motor vehicle manufacturers; Audi, DKV, Horch and Wanderer, which is represented by the four rings of the corporate logo. The wide range of different cars in their product portfolio consists of touring cars, sport cars and racing cars (About Audi, www.audi.com, [2007-05-15]).

The development of the automotive market in the world with high growth dynamics and competition in the premium segment has brought significant challenges to the market (price pressure, increased production costs, consolidations etc). To continue the successful course the company has recorded during the latest decade and to reach the vision of becoming the most successful premium brand in the world by 2015 the company has extensively been working with and formulated a strategic action. Audi AG has recognized the changes of the market trends and demonstrated the importance of managing the brand prestige and product differentiation through innovation. To be the image leader in terms of emotion and quality they have acknowledges that a strategy where they get deeper understanding of the market behavior of the car drivers, their needs, wishes and considerations is required (About Audi, www.audi.com, [2007-05-15]).

In addition to increase the market share in well established markets emphasis have particular been put on growth markets such as China and India. After the German market the largest market for Audi today is the USA accounting for 35 percent of the total sales (Audi Annual Report, 2006).

The third largest export-market is China with a year-on-year increase of 38.8 percentage in sales the country is most likely on the way of becoming the second largest. The trend of internationalization is rising and two out of three new cars are today sold outside Germany. Consequently to serve the needs of

those customers, to produce customer-driven innovations and expanding the model range it is vital to have cultural and market specific knowledge (Audi Annual Report, 2006).

Audi AG was in 2006 given the award “Car Company of the Year”, which is considered to be the automotive world’s most important and prestigious award. The decisive factor for the jury was the range of products that Audi has launched in recent years. Compared to models from premium competitors, Audis products offered equal value but were arguably better built, and often technologically more interesting than its competitors. (www.autocar.com, [2007-05-15])

4.2 The Product Market Experience

To achieve the strategic goal of 2015, Audi AG must strengthen its premium brand awareness in important international markets (Hautnah am Kunden, 2005). To reach comprehensive knowledge and understanding about the market- and customer requirements in order to develop the right product for that specific market, a new strategy was initiated at Audi. In support with the members of the board, the Corporate Strategy Division at Audi introduced an entirely new way of letting a team from different functions of the company experience the local demands of a foreign market. Although Cross-Functional Teams are a common way of structuring a product planning process at Audi, the experience started of as a pilot project with means for future product development.¹ The project was named; *The Product Market Experience* and started in 2005 in the US and continued in China the year after.

“The idea with the experience came out that we realized that we had all the market research in the world, we knew all about what the customer like in the US and in Asia. But at the end of the day the product wasn’t designed the way it should be. So we had many examples when we knew how to do it, but we did not do it.”

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

The initiator Guido Bauer, explains that the main purpose of *The Product Market Experience*, was to show the people in the team the company’s presence in different parts of the world and thus give them a deeper insight how the premium customer lives, what they like, value and expect from a premium brand.² In that way, Audi can enhance their ability to develop cars that are customer oriented and customer friendly which will help Audi to increase sales in those markets. The purpose of *The Product Market Experience* was also to create a Cross-Functional Team, representing the whole value chain, so that the knowledge generated from the experience could be transferred to the rest of the company. This was an important part of the project, especially for those who didn’t represent the marketing or sales department who usually are not the ones that conduct market research.³ In the following quote Mr Kröll illustrates the common difficulty associated with incorporating different functions with different goals and aspiration:

“I work with marketing and sales, so I am actually the poor guy that has to say that we need to do it in this way or this way. Then the person from Finance says that it is going to be more costly and that we can’t do the technical development and so on.”

¹ Interview: Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

² Interview: Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

³ Interview: Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

To give these people better insight and knowledge about what is going on outside with our customers is a major advantage for the team and for the company”.

Mr Björn Kröll, Product Marketing Manager, Audi AG

The initiator of *The Product Market Experience* were influenced by a similar team from Volkswagen, Moonwrakers, when they developed six ways of getting to the market and customers as directly as possible. These included: In Home-Interviews/Guest Family, Mystery Shopping, Owner Round Table, Scouting Tours, Expert Talks and Ride Alongs. In this case, the Ride Along experience was the unique feature of the project, having the customers choose where to go and letting them operate the car as they normally do.⁴ The same methods were used in both the US and in China, except for the Guest Family concept, which due to cultural and language barriers could not be managed in China.

The primary reason why the project started in the US was that the North American market, at that time, was much more important for Audi than the Chinese market. In addition, the initiator of the project also had more experience of the North American customer and a better idea of how the project could be organized and managed.⁵ Thus, the team could leverage on the experience from the US both in terms of improving the design of the team and the processes within the team. The main improvements included a better knowledge about how to organize the project which resulted in a more structured information process in China. The project also benefited from the fact that the project included the same participants in the US as in China.

“You always have to use the same people that are working in the project with the new generation cars. We work about five years on a new generation car. This is the Cross-Functional Teams that will work from the very first sketch and the ones that really make the end product. So it is very important to have the same people within in the team because at the end on the day; it will only be one car.”

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

4.2.1 Team Design

“The project can work well if we create the right team, if we prepare everything well. But it can also be a disaster.”

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

The main motive behind designing the team to be Cross-Functional was to give the different departments of the company a better insight and understanding of the Chinese market- and the premium customers. This allowed for a multitude of different knowledge and experiences to converge, thus creating better conditions for the collection of data. This was something that all interview objects agreed couldn't be managed if each department of the company were to collect the data themselves.⁶

⁴ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

⁵ Interview: Mr Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

⁶ Interview: Mr Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

The team consisted of approximately 1-2 people from the production, marketing, controlling, technical, purchasing, product planning, quality assurance and, design department; resulting in a total of 20 team members.⁷

The team in China included the same 8 core members that participated in the US-project; one project leader, one from marketing, one from finance, one from purchasing, and one from production, one from quality and two from the Corporate Strategy Division. The core members were the ones that had been loyal to the project from the start and which had proved to be beneficial for the knowledge transfer and the overall efficiency of the team.⁸ They were also the ones that had a personal interest in raising certain key questions. Sven Stockmar, one of the project leaders of *The Product Market Experience*, discusses the importance of incorporating people from different sub-divisions in each department so that new knowledge and ideas could be applied to the project.

When choosing the candidates for the team and for China in particular, it was important to choose candidates that were open minded and that could adapt well to the specific characteristics of the Chinese market. Since some parts of the car in China are considered more important than others, it was of great importance to select team members from certain departments that possess that specific knowledge about the car.⁹ In addition, team members were also selected on the basis of their language skills and their knowledge about China. Georg Wendt, representing sales strategy China, explains that he had an important role as a communicator and in supporting the team with his knowledge and experience from the region.¹⁰

“If I noticed that one person was running in a different direction or made some conclusions that I thought was not right, I tried to give an objective opinion. I lived in China and it is my job to know the Chinese customer. I know a little bit more and could therefore moderate conversations.”

Mr Georg Wendt, Sales Strategy China Department, Audi AG

Moreover, it has been essential for the efficiency and the outcome of the team to select the right members from right functions of the company. According to Sven Stockmar, the team consisted of the right functional mix and the size of the team, 20 members he considers to be the maximum. Although it would be easier to work in smaller teams, he says, it is important to have as many ambassadors from the different functions as possible so that the united voice of the team will be heard at the same level in all parts of the company, leading to a better product development. In this context, the project leaders did not only have an important role in selecting the right team members, they also were valuable for communicating the mission of the project and to give the members direction in decision making.¹¹ Björn Kröll holds the opinion that the project leaders also served as helpful assets in facilitating teambuilding and preventing members from only wanting to bring up their department goals.¹²

⁷ Interview: Mr Georg Wendt, Sales Strategy China Department, Audi AG, 2007-05-22

⁸ Interview: Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

⁹ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

¹⁰ Interview: Mr Georg Wendt, Sales Strategy China Department, Audi AG, 2007-05-22

¹¹ Interview: Mr Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

¹² Interview: Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

“A Cross-Functional Team is like a football team. You have the front player and the back fielder. Only together you can win the match”.

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

In relation to team design, no rewards of any kind were given as an incentive. Mr Stockmar explains that the incentive to be innovative and creative was simply depending on how well their ideas were accepted by the team. According to the team members, being part of *The Product Market Experience* was a reward itself.¹³

“What you shouldn’t forget is that those guys were in interesting locations, in an interesting context, with interesting experts and had unique experiences with the customers. So, there were no extra monetary rewards needed. Some of them had more exposure to the board and important decision making. Something that could be good for their career as well.”

Mr Sven Stockmar, Corporate Strategy Department, Audi AG

4.2.2 The Preparation Phase

Before leaving for *The Product Market Experience*, the team members were attending meetings and workshops with the purpose of becoming familiar with the project goal as well as gaining basic understanding about the country; the size, the people, demographics, income structure and all relevant information about the customer and culture. Additionally important facts about the market structure, Audi’s market share and offered portfolio in China, were discussed during the meetings. Since time was very limited and compressed in China also given that the market was very disparate from the home market, it was of great importance to learn and prepare the team members for the Chinese conditions beforehand. That required a structured and well organized preparation phase that included intercultural training in order to make the stay as efficient as possible. The majority of the team members were not trained in market research and interview techniques therefore the chances of successfully meeting and communicating with the Chinese customer was enhanced. Guido Bauer states that it is important to know how to deal with the differences since misinterpretation or using the wrong language and asking the wrong questions can destroy the conversation with the customer in the very first minute.

“If you ask the wrong things, if you ask stupid questions, you are out. They are pissed and you are out. Some people have a different culture while talking to each other. We have a culture here at Audi that we fight each other when talking to each other. If you know how to deal with it is no problem but if you don’t, if you take this fighting culture out/ .../ then it is a problem”

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

Mr Stockmar highlights that the external information gathering before leaving for *The Product Market Experience* has been very important for the efficiency of the team. The team members conferred with their specific function about specific concerns and question marks related to the function and the Chinese market. The objective of the task was to create key questions that could enhance the ability to meet and

¹³ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

understand the Chinese customer and hence create requirements for a better suited car. The collection of questions were united in a booklet and distributed to everyone in the team.¹⁴

“So we had lets say 30-40 questions in total. We used these questions from day one [in China], and everyone had a little booklet with all the questions. So every time we were going to an interview or an observation, we always discussed along these questions/ .../ That has been the way we have done market research”

Mr Björn Kröll, Product Marketing Department, Audi AG

The members of the team except for the core members state that they didn't devote their full time to the project during the preface of *The Product Market Experience*.

“I don't think it was too much work in the preface [for the team members]. They had only two or three meetings before, ok they had to do some preparations before that, but that was about it. It was no full time in the preparation face. It started to become fulltime when they were there.”

Mr Sven Stockmar, Corporate Strategy Department, Audi AG

Even if members were from different hierarchies everyone was from the initial point called by their first name and thereof creating an informal communication of the team. According to Mr Stockmar the communication was more formal during this stage compared to later stages *The Product Market Experience* since all the team members did not know each other very well before.

Mr Stockmar states that the responsibilities within the team for most parts were clearly defined so that everyone new what was expected from them.

“We did not have all the goals defined but we have a structured way to summarize what we experienced. We wanted to know how the customer use the cars, we want to know about the image etc. But we didn't say we want o improve that, we want to improve this. We wanted to have more information about the customer and let the outcome open”.

Mr Georg Wendt, Sales Strategy China Department, Audi AG

The purpose though of *The Product Market Experience* was not clearly defined for everyone in the preparation phase a fact that changed while coming to China.¹⁵ According to Mr Bauer several of the members had their own different goals and perspectives of things which by the initiators of the project are considered as a constraint for the team to work efficiently. In the end, however the most important thing was that everyone had the same goal to come up with the good product. A goal that only would be reached if Audi can offer products that fit customer needs with good quality and valuable pricing.¹⁶

4.2.3 The Experience Phase

To become successful one of the purposes of *The Product Market Experience* was to give the team members a firsthand experience of the market conditions so they could fully understand the specific premium customer segment in China. Björn states that the working processes based in China and implemented by

¹⁴ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

¹⁵ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

¹⁶ Interview: Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

the project leaders was very structured and organized. The program included six different methods of research and an extensive data summarizing process.¹⁷ The methods were designed to give the team members as much first hand interaction with the customer as possible so that the majority of the data collected would be based on own experience.¹⁸ The following six methods were used:

- (i) **Mystery Shopping**; the team would visit car dealerships pretending to be a customer of the premium segment in order to find out how the dealerships treated its customers.
- (ii) **In-Home Interviews**; to really experience how the Chinese customer lived and reasoned the team conducted interviews in the customer's own home.
- (iii) **Owner Roundtable**; recorded interviews of customers in a special meeting room where the team members not conducting the interview could stand behind a see-through mirror and observe.
- (iv) **Ride Alongs**; team members would ride along and observe when the customer used his car, letting him choose where to go, and operate the car as normally as possible.
- (v) **Scouting Tours**; this method was used to let the team members experience the environment of the premium customer. This was done by letting the team go on scouting tours in the same surroundings as the customer.
- (vi) **Expert Talks**; this method was to collect already existing data of the Chinese customers. The team had lectures and talks with experts from external consulting firms about the Chinese customer (*The Product Market Experience*; detailed program, 2006).

Depending on what method was used in a day's activity the team worked together or was divided into smaller teams of two to three persons. However each method had always two theme-champions responsible for that specific event and for the summarizing process held in the end of the days (Booklet). According to one of the team member's essential for the efficiency of the team was the breaking down of the group into smaller parts as well as the nomination of team champions that was responsible for each method.¹⁹

"It would have been almost impossible to conduct any of the activities as a whole group and in addition the smaller groups allow a more flexible conversation which spurred to new thoughts and questions."

Mr Björn Kröll, Product Marketing Department, Audi AG

Mr Weldt highlights the importance of teams within the team to be able to experience more events, cars, and impressions from customers and in that way get more impressions but still in a structural manner.²⁰ Concerning the theme-champions, the same team member argues that it was an effective way of organizing the voices of 20 people to one unified voice.²¹ This was something the project leader worked extensively on while being in China. Mr Stockmar states that even though the general opinion was that members treated each other with mutual respect working in big groups can sometimes be difficult. The

¹⁷ Interview: Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

¹⁸ Interview: Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

¹⁹ Interview: Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

²⁰ Interview: Georg Wendt, Strategy Sales China Department, Audi AG, 2007-05-22

²¹ Interview: Georg Wendt, Strategy Sales China Department, Audi AG, 2007-05-22

discussions could sometimes be quite intense and not always productive. However, Mr Stockmar sees it more as a sign of commitment and motivation and that the intensions of the discussions were always good. Organizing the work through theme-champions was, according to him, therefore a way of structuring up and facilitating the team work. The theme-champions were selected for their specific characteristics and knowledge, for instance a designer was the theme-champion of the Scouting Tours because he would look at things differently than for example a technical development representative. He could then guide the team better.

“To do scouting you need to be a specific type of person. To be able to see the next generation already today I don’t think you can take any type of person from the factory and put them to Californian because only a specific type of person will see the trend. /.../ Not everybody are born to be a scout this kind of person to be ahead of time. It is not that easy.”

Mr Guido Bauer, Head of Corporate Strategy Department, Audi AG

After the activity, the theme-champions were in charge of collecting the different group findings based on the key questions. The findings were then presented to the rest of the team which added, modified or took away useless information. These summary meetings took place every evening after the group had conducted the theme-activity, and had the purpose of collecting and storing the results and producing one unified protocol that everyone agreed upon. The data was then digitally stored in a simple but effective database which categorized and allowed an easy and fast access of the data.²² Mr Bauer explains the benefits of these frequent summary meetings through the importance of sharing the experience; a positive outcome when attending the same venue or similar venues with a larger group of people, specially cross functional, is that you get different experiences and points of views of the same thing. Guido states that in a broader perspective of the activity this method can also result in a more chaotic and individual view of the specific problem faced. Consequently, the discussions in the evenings were very valuable for the unification and structuring of the impressions collected during the day. By sharing the experience with your colleges and structuralizing the different thoughts you receive a multiplication of one single event and data that you can handle and work with. Considered vital is also that that these summary events happen very frequent and close to the activity so that the impressions don’t fade or get mixed up.²³ George Wendt holds the opinion that cross functional big group discussions do also have constraints. Bringing this up he relates it to political issues where different functions pursue their individual goals. If one function takes over, due to higher hierarchy position or verbally stronger representative, the outcome may be biased and not reflect the demands of the customer.²⁴ To prevent this, Mr Bauer speaks of the necessity of more time with individual team members where in-depth interviews in addition to group discussion could be conducted. According to the project leader this was a lacking element and in need for improvement, but hard to realize due to time limitations.

Mr Wendt identified the team’s informal way of communicating as a critical factor for these summary meetings to work successfully. He states for example that the team members called each other by their first name and used when approaching a colleague. This flatten, according to him, the different hierarchies within the team and constructed an easy working environment where the discussions were more freely and honest and the say of a non-management team member had the same weight as of a management

²² Interview: Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

²³ Interview: Mr Guido Bauer, Head of Corporate Strategy Department, Audi AG, 2007-05-22

²⁴ Interview: Georg Wendt, Strategy Sales China Department, Audi AG, 2007-05-22

team member. In addition it led to a higher level of creativeness where members with a before rigid point of view could broadened their horizon.²⁵

Mr Kröll brings up the benefit of having team members with previous experiences in cross-functional team work as an important factor for the success of the team. According to him, these team members worked to prevent the problems they experienced before and consequently improving the team efficiency.

4.2.4 The Report Phase

The report phase consisted of four intensive weeks of writing reports and preparing for presentations of the Project Market Experience. The result was one central report for the members of the board which initially was the most important one. A more functional specific report was then produced for each function with more detailed data concerning matters of interests for each function.²⁶

Even though the team worked pretty close together in workshops, the two project leaders where the only ones that worked full time with the report. The rest of the team members had their regular jobs in addition to the report work. Mr Stockmar explains that this caused some trouble from the head of the departments because they didn't always understand why such intensive work was necessary. The intensive workshops in close connection with the experience in China were however vital so that everyone would have all the information as fresh as possible. That way the focus was still on the experience in China and not on old routines from their daily jobs. The most important thing when putting the report together was to be really careful with the wording. This due to that different department were interested in different results so the final report needed to be as close to the summaries conducted in China as possible (Sven). A team member explains;

"We needed to summarize everything to prevent any single opinion to be regarded as "the opinion".

Georg Wendt, Sales Strategy China Department, Audi AG

The presentation for the board was conducted by members of the team. However each member did not represent their specific function. A member from the marketing department could for instance do a technical presentation and someone from the technical department a dealer network presentation. The cross functional presentation was very important to present a unified report from the team and not individually from each function.

"Usually, board presentations are often made by one person from that department representing that particular department. In that way [by presenting it cross functional] we were not representing any different departments but only The Product Market Experience project. That's very important, because then they can't say: Oh, it is only the guy from the marketing department again."

Mr Björn Kröll, Product Marketing Department, Audi AG

²⁵ Interview: Georg Wendt, Strategy Sales China Department, Audi AG, 2007-05-22

²⁶ Interview: Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

4.3 Results from the Interviews

“We always get these questions, so in the end what did you figure out? How can I see any improvements on what you discovered over there? And it is really hard to tell, just because you can’t see it all on a [car] future level. / .../ it is just the whole packages, the whole project, everything”

Mr Björn Kröll, Product Marketing Department, Audi AG

The team leaders agree that the results of the experience are difficult to quantify and measure, but they agree however that the experience was a big success and that the method will be used again in the future. In addition, the project will also be used and applied on all Audi’s car models, not just the premium series.²⁷

“With the next project on China, it was totally different: Then people from higher management levels asked: Can we also be a part of the team and so on, so it totally changed. / .../ Now it’s like a status thing.”

Mr Guido Bauer, Head of Corporate Strategy Department, Audi AG

In general there are two main results from the experience according to Mr Stockmar. Firstly, the actual data collected in China through the different methods and secondly, that this data would be effectively communicated throughout the company. For the latter to be even more effective the other project leader, Mr Bauer, stresses the importance of constructing the team with more members from management level. The reason for this is that the voice of a manager receives a stronger acceptance within the function and the manager is thus able to communicate the findings much better.

Apart from the collection and communication of the findings, the experience according to a few team members had some other positive effects. For instance, one team member, Mr Kröll, considers that the relationship between functions has greatly improved after *The Product Market Experience*.²⁸

Another team member, representing the sales function, Mr Wendt, adds to the reasoning;

“... the communication has been improved a lot and the normal process works better because now they [functions with limited customer insights] have a first hand experience and impressions and therefore it is easier for them to understand what we are asking for.”

Mr Georg Wendt, Sales Strategy China Department, Audi AG

When approaching Mr Stockmar with the question if he could point out anything specifically that the Cross-Functional Team generated, he answered;

“I could say the other way. Without Cross-Functional Team, nothing would have happened. It would not work out because then we would have come back with members from one department and then their work would not have been accepted and the team members would not have the possibility to spread out within the different departments the findings of the project.”

Mr Sven Stockmar, Corporate Strategy Department, Audi AG

²⁷ Interview: Mr Guido Bauer, Head of Corporate Strategy Department, Audi AG, 2007-05-22

²⁸ Interview: Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

4.4 Results from the Questionnaire

Apart from the findings from the interviews, valuable information from the project could also be extracted from the conducted questionnaire. A more detailed presentation of these results can be viewed in diagrams (appendix 2).

According to the questionnaire, the members of the team point at *group composition* (right mix and size of people, diversity in knowledge, clear goals and responsibilities) as the most valuable factor of team performance. As displayed in the diagrams, 61,5 % answered that the tasks and responsibilities were clearly defined, and 53,8 % viewed the composition of the team as one of the most prominent aspects of a high performance cross functional team. In addition, when asking them to rank the overall performance of the team, the majority of the respondents scored *group composition* highest. Moreover, 69,2 % answered that a clear mission was important, indicating the *organizational context* to be an important facilitator of effective cross functional teamwork. According to the questionnaire, 53,8 % of the respondents also viewed *task design* (structured and systematic agenda) as an important factor for effective cross functional teamwork.

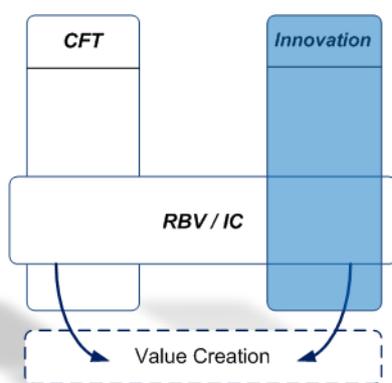
In regards to *group processes*, 53,8 % answered that a high level of communication within the team was an important factor contributing to team effectiveness. As the results from the questionnaire indicate, almost half of the respondents (46, 2%) answered that external processes such as external communication and integration with other parts of the organization was vital for the efficiency of the team. This factor was also ranked as the second most important factor of the overall performance.

Another prominent finding from the questionnaire was that *group psychosocial traits* (mutual respect, right values, willingness to learn and change) were seen as vital aspects among the team members. More than half of the respondents (53,8 %) ranked these questions as being important for the efficiency of the CFT. Furthermore, *environmental factors* such as industry knowledge had, according to the questionnaire, a relatively high impact on overall team performance. However, environmental factors had only a small impact on how the team was designed (30,8 %).

5 Analysis

Following part of the thesis has the aim to consolidate the theoretical framework with the empirical findings. In order to answer the purpose and give an interesting and relevant analysis diverse perspectives have been analyzed with a critical mindset. The model representing the Theoretical Framework will work as a guide throughout each section of the analysis chapter.

5.1 Creating an Environment for Innovation



As explained in chapter 3.1, to produce innovative products demanded by the market, companies need to possess an environment which stimulates creativity and entrepreneurship. The chapter discusses problems faced by large and established companies to obtain such an environment and thus facing problems with producing new and demanded products. Audi, with almost one million automobiles in sales and being one of the world's leading premium brand vehicle manufacture could easily be identified as large and well established. Whether the company has over all problems with its innovativeness, is however left unsaid. The theory chapter provides numerous tools for

large and established companies to create an environment for innovation. In Audis work with *The Product Market Experience* there are several characteristics which could be identified as being in alignment with the characteristics of these tools and one could therefore state that it has created an environment well suited for innovation.

5.1.1 Corporate Entrepreneurship

Even though Audi hasn't formally started a business within the business, implying a *Corporate Venture*, much of the same benefits could be said to have been achieved with *The Product Market Experience*. One could argue that the benefit of creating a business within a business is to give the product development team free reins to spur creativity outside of the hardened corporate environment. By constructing a team with a task completely separated from the team members regular work, Audi is alienating the team members from the formal corporate environment and thus creating, in a smaller scale of course, a corporate venture with the ability of freely giving rise to creativity. Consequently, by structuring the team in a cross functional matter it is almost certain that the majority of the team members will work with different tasks than implied by their regular work.

The essential of the *intrapreneuring* approach is to inspire employees in management level to become ambassadors of an entrepreneurial mindset. This is a view agreed by Mr Bauer who deliberately made all efforts possible to populate the team, which was to act in an entrepreneurial matter, with as many management level members as possible. The team was in majority represented by members of management level which would imply an intrapreneuring approach. However, as stressed by Mr Bauer,

due to functional management sometimes lack of support in a initial stage [big big trouble], the team was not fully populated by management level. This lack of support from upper middle management is identified by Thornberry (2001) as one of the major pitfalls challenging the outcome of an entrepreneurial environment and consequently decreasing the positive effects of *The Product Market Experience's* intrapreneuring approach. As a result, it is the population of the cross functional team and the support of functional management that determines the success of this approach. However, being cross functional enhances what the intrapreneuring approach is trying to achieve, spreading the word of an entrepreneurial mindset.

Through the cross functional combination of resources and the innovative approach (the fact that it is a new way for Audi of organizing a market study) *The Product Market Experience* meets the requirements of an *Organizational Transformation*.

Even though *The Product Market Experience* could not be said to follow any of Thornberry's Corporate Entrepreneurship approaches in detail, it could be argued to include several of their key characteristics. This in turn could imply a creation of an entrepreneurial environment, and thus innovativeness.

5.1.2 Entrepreneurial Strategy

To further strengthen the statement that *The Product Market Experience* creates an environment for innovation the approach presented by Saleh and Wang (1993) is discussed.

The approach presented by Saleh and Wang (1993) involves the exercise of an *Entrepreneurial Strategy* with the *Structure* and *Climate* which facilitates its implementation. According the authors, for *The Product Market Experience* to be a successful entrepreneurial strategy it must include a set of components which makes the corporate behavior easier to reshape and the organizational structure more flexible. The members of the team were all chosen for their open mindset and thereof their ability to think outside the box. Running with opportunities considered outside of the box entails a *willingness to look at more risky opportunities* and thereof also be more open for mistakes and failure. This willingness is stressed by Thornberry (2001) as one of the challenges faces by companies striving for innovativeness.

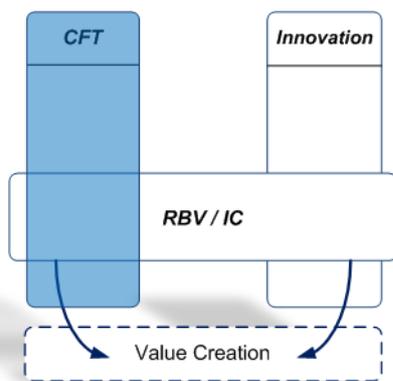
In addition, a related member characteristic allows for a *proactive approach* to be implemented. Mr Bauer speaks of the members scouting personality which enables them "to see the next generation already today". This would be in alignment with the proactive approach ability to look at the right place in the right time. The cross functional structure could be seen as an amplifier of this approach where the collection of competencies allows for an even broader ability for spotting opportunities. The last component in an entrepreneurial strategy, commitment, is also well carried out. Evidence of this is found in the survey which states that members felt support regarding the prioritization of, and commitment to the project from the managers of the different functions. This is an important factor for limiting outside managers of influencing team decision and thereof obstructing the innovation process of the team. To sum up, *The Product Market Experience* shows signs of risk taking, proactive approach and commitment and thus creating a well composed entrepreneurial strategy.

The implementation of an entrepreneurial strategy in *The Product Market Experience* must according to Saleh and Wang (1993) , be facilitated by two main element, the right structure and the right climate. The authors discuss the importance of a flexible corporate structure that fits the innovative strategy and thereof creating synthesis. What could be said is that through *The Product Market Experience* work in a cross

functional team, Audi has been able to effectively transfer the open climate to the rest of the corporation. Interviewed team members state that after completing the project the relationship between the different functions had greatly improved speeding up the process of decision making and constructing a more open and informal corporate culture. For this to be possible, the team needed to present a unified voice of the findings and work process of the experience. The team's joined voice, collative orientation if you will, was communicated both formally through the report and informally through team member's word of mouth. Saleh and Wang (1993) argue further that the team itself need an open climate based on collegiality and well planned reward system. Collegiality is obtained by the team through its informal way of communicating. The team leaders were from the start clear that the communication should be informal encouraging team members to call each other by their first name, thus creating stronger relationships both during and after *The Product Market Experience*. Lacking was however a reward system for innovativeness, at least in a formal sense. According to the team members, being part of *The Product Market Experience* was a reward itself.

This discussion has shown that *The Product Market Experience* shows clear signs of following the Saleh and Wang (1993) approach of applying an entrepreneurial strategy. The evidence presented here reinforces *The Product Market Experience* ability to create an environment for innovation. It is however not only the cross functional structure that has given rise to innovativeness but also attribute such as the team member mind set and hierarchical position, informal communication and senior management support, factors that are to be discussed below.

5.2 Concerning Team Effectiveness



Using Cohen and Bailey's (1997) model on team effectiveness as a frame of reference, the following section will set out to explore and evaluate the main factors (both design- and group processes) influencing the effectiveness of Audi AG:s CFT working with *The Product Market Experience*. As previously discussed, understanding these factors requires a comprehensive understanding regarding the organizational context and processes in which the CFT function and exist. By using the empirical findings from both the interviews and questionnaires, an analysis on these parts will be further presented in the following two sections.

5.2.1 Design Factors: Key Successful Factors

By using the approach presented by Cohen & Bailey (1997), the empirical findings reveal that the CFT involved in *The Product Market Experience* was subject to a variety of success factors concerning its design and implementation. It became clear that the design factors to a large extent laid the foundation and created the conditions for the team to function in an efficient and successful way.

Drawing from the results of the interviews and questionnaires, *The Product Market Experience* was characterized by a high level of team empowerment and authority, enabling the team members to influence which activities to be carried out and which decisions to be made. Reviewing the theory on team effectiveness, this factor is said to have a great impact on the efficiency of the team mainly since it permits open communication and maximize sources of information. As a result, a high level of authority in *The Product Market Experience* has facilitated team member's commitment to the project since they are more likely to develop a feeling of ownership and belonging. It is thus reasonable to assume that in Audi AG: s case, this has contributed to more efficient cross functional teamwork resulting in faster product development decisions and exceeded corporate goals.

Another design factor that was shown to be critical for the efficiency of the CFT was the one associated with formalization. The work in the team had followed a specific and structured step by step process, characterized by a carefully planned pre-phase, enabling team activities and tasks to be mandated and controlled. According to the results from the questionnaires, this was a factor that the majority of the team members ranked high. By applying such a structured design, the members of *The Product Market Experience* have been able to work more efficiently since they have had clarity in direction and decision making. In addition, the project leaders have, according to the results of the empirical findings, played an important role in articulating what roles and tasks each member has to fulfill in order for the project to proceed as efficient as possible. According to the approach presented by Cohen & Bailey (1997), this factor is of particular importance in team-based organizations since they repeatedly consist of integrative processes. This would thus indicate that a high level of formal but yet integrative processes have been beneficial for the effectiveness of *The Product Market Experience* since it has helped to remove the barriers of different organizational responsibilities. This in turn has help the team to foster better and more efficient cross-functional relationships. An additional key success factor behind the efficiency of *The Product Market Experience* refers to the establishment of a clear mission of the project. As indicated in chapter 4, the majority of the team members (69,2) believed that this was an important factor influencing the overall performance for the team. As a result, it has provided team members with a common frame of reference which enhances goal congruence and promotes a higher level of cross functional commitment and cooperation.

Since CFTs often are involved in product development, knowledge about the product is, according to Cohen & Bailey (1997), expected to have an impact on the design and efficiency of the team. Thus, the design of *The Product Market Experience* has to a large extent been depended on the member's specific knowledge about the product. The result from the interviews and questionnaires, reveal that this factor has been crucial for selecting the right team member's to take part in the project and for coordinating team activities. The team members believe that selecting competent members from different functions of the company, which possess different but valuable knowledge about the product, will enhance the efficiency and performance of the CFT. As a result, the team involved in *The Product Market Experience*, has been able to work in a more efficient manner facilitating the information gathering during the different market research methods in China as well as the team's problem solving approach during the summaries afterwards. One can therefore conclude that an extensive knowledge about the specific characteristics of the product as well as the right selection of team members will result in faster product development decisions which are predicted to speed up the product development process.

Cohen & Bailey (1997), argues further that the design of a CFT also is a function of environmental factors such as industry characteristics. By applying this view on the empirical finding gathered for this study, the efficiency of the CFT has, to some extent, been dependent on selecting the people that possess useful

knowledge about the specific requirement of the Chinese customer and market. This has helped the team to work more efficiently and to overcome important knowledge barriers. As George Wendt from the Sales Strategy China Department expressed, by incorporating members with specific knowledge and understanding about the Chinese market, the work in the team could proceed more easily. This was a factor that the rest of the team members also scored relatively high in the questionnaires. Moreover, it was also important for the team's effectiveness to gain a shared understanding of the information needed to design products that satisfy the customer. Hence, the work processes in the team consisted of extensive discussions and evaluations regarding the specific needs of the Chinese customers. Conclusively, this facilitated more efficient teamwork which helped to improve the inter-functional relations within the team and more importantly: helped to team to understand what features of the car that the Chinese customer required.

As previously indicated, much theory on effective cross functional teamwork argues that a successful team is largely dependent on having the right functional diversity (Cohen & Bailey, 1997). When evaluating this key success factors in relation to *The Product Market Experience*, it became evident that having the right member's from the right functions of the company contributed significantly to the team's effectiveness. This was something that became evident when evaluating the empirical findings from both the interviews and questionnaires. In fact, this was a parameter that the team members viewed as the most valuable factor influencing the effectiveness of the team. By incorporating people from all the functions of the company, the knowledge each member possessed could be shared and transferred within the team, resulting in a unified voice. As a result, the knowledge generated by *The Product Market Experience* could then be more easily transferred to the rest of the company and served thus as an important mechanism for verifying both new and existing knowledge. One could therefore argue that one of the major benefits of using CFTs is that it improves the strategic alignment between functions and helps to overcome the traditional barriers between the marketing- and R&D functions. However, according to Mr Bauer, head of the Corporate Strategic Department, the main difficulty in choosing the best qualified members for the team was the lack of support it received from each functional manager. Therefore, in order for CFTs to work efficient it is important that these conflicts are mitigated and that more members from higher management levels are a part of the team. In this way, the knowledge generated by the project would receive better support from the rest of the company and by higher management in particular.

In sum, the above analysis of the design factors influencing the efficiency of *The Product Market Experience*, show clear signs of following Cohen & Baileys (1997) perspective on what makes a CFT design successful. We have here pointed at the most prominent key success factors that in Audi AG:s case, was found to be associated with the efficiency of the CFT taking part in *The Product Market Experience*.

5.2.2 Group Processes: Key Successful Factors

The Product Market Experience was also subject to a variety of success factors considering the team's internal and external group processes. These factors were influenced by group psychosocial traits. In combination with an effective team design, these group processes are, according to Cohen & Bailey (1997), predicted to foster effective CFTs. Therefore, the following analysis will set out to evaluate successful group processes that influenced the overall efficiency of *The Product Market Experience*.

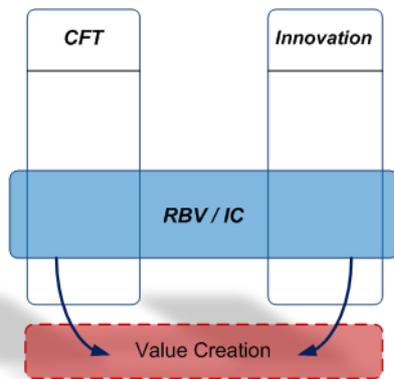
Effective communication has by Cohen & Bailey (1997), been identified as an important element for integrating the diversity of viewpoints within a CFT. As indicated by the empirical findings, this factor was said to be positively related to how efficient the team functioned. By relying on establishing informal modes of communication, the knowledge from each member of *The Product Market Experience* could be more effectively transferred to the rest of the team. As a result, this contributed to a higher degree of cooperation between team members which, according to the questionnaires, were shown to be positively related to member satisfaction. By creating an environment based on a high level of communication and collaboration, the work conducted in *The Product Market Experience* is suggested to generate a high level of goal commitment, informality and shared values. One can therefore conclude that having team members interact in an informal way enhances the ability of CFT collaboration. Moreover, it can help to reduce inter-functional barriers and create a better climate for transmitting valuable knowledge and integrative problem solving. The enhanced internal processes within *The Product Market Experience* have thus contributed to a more creative environment where the team members added a new dimension to organizational capability through innovative ideas and approaches.

Drawing from the work of Cohen & Bailey (1997), efficient teamwork also relies on another important success factor, namely to what extent team members initiate interactions with, and respond to communication from other parts of the organization. External communication from other parts of the company has been an important factor influencing the efficiency of *The Product Market Experience*, by means of securing needed information and resources. As the information from the interviews shows, this factor was of particular importance during the early stages of the project, where additional external information was needed to facilitate the organizing before leaving for China. In fact, the results from the questionnaires reveal that this factor was the second most important and influential factor of the overall performance of the CFT. One can therefore argue that the capability of the team to interact and communicate with external groups helped the team to enhance its existing knowledge base contributing to efficient team performance and valuable outputs. It also generated relationships with other parts of the organization which could be positive when transferring these outputs to the rest of the organization.

Healthy internal and external processes with a high level of communication and collaboration are seen as key elements to the success of a CFT (Cohen & Bailey, 1997). As stated in the theory chapter, these group processes feature a high degree of shared values and mutual goal commitment. According to the empirical findings, the cross functional teamwork taking place during *The Product Market Experience* benefited strongly from that work was characterized by a high level of respect and trust in team member's competence and dedication. This in turn would imply that having members sharing the same values and norms would lead to a more open communication and reinforce inter-functional collaboration. It is also reasonable to assume that shared norms would benefit information sharing and risk taking regarding suggestion of innovative ideas. In this context, *The Product Market Experience* benefited from that the knowledge now could be more easily transferred within the team, contributing to more efficient teamwork. Moreover, the efficiency of *The Product Market Experience* was also a result of the members displaying a great willingness to change and be open for learning new things. The capability of members to adopt new attitudes and behaviors was thus found to influence the shaping of group processes and creating a climate characterized by motivated people capable of taking on innovative and challenging tasks.

The above reasoning presents the key success factors considering the team's internal and external group processes. Our findings give support to existing theories that suggests that positive group processes help to form effective CFTs.

5.3 Value Creation



The optimal way of taking advantage of the internal resources in a company according to the theory about intellectual capital, chapter 3.1, is when the deployment of resources contributes to as much value for the company as possible. It is suggested that to be able to create value for the company it's important that the internal resource portfolio is aligned with what the firm is trying to achieve. In accordance with the theory value for Audi is to create a foundation to improve the ability to achieve their goal; *To be number one, the most successful premium brand by 2015*. Hence to reach the desired future position and to maintain competitive advantage it is required that all

the human capital at Audi, which is considered to be the most valuable resource for innovation and value creation, is managed in an integrated way. Additionally for the ability to reach the goal, vital is to understand how value is perceived by the customer for the ability to serve them with customized and superior products.

In view of the fact that the product lifecycle drastically have increased it is emphasized in the literature that it is essential to create an entrepreneurial strategy and build an environment for innovation. Subsequently Audi have by working in Cross-Functional Teams during *The Product Market Experience* enhanced the ability to stay entrepreneurial. A changed structure and climate have lead to an enhanced ability for product development and innovation, continuously improving and renewing its products, and hence aligned with the theory about intellectual capital (chapter 3.1) created new knowledge and improved ability to encounter the needs of the customer, thus maintaining its competitive force/ advantage.

The efficiency of gathering and transferring knowledge in the *The Product Market Experience*, have aligned with the theory discussing Cross-Functional Teams, been depending on the design and processes of the team specifically formed for the project. The individuals identified and chosen to become members and work as a high-performing, innovative team were open-minded and adaptable scouts who could see the next generation today and hence extracting information about the future trends. In addition the members were to be the best employees from top management and representatives from diverse functions of the company. Relating to the RBV the chosen resources are employees that are valuable, since those possess respect and critical knowledge. With the strategy to work in well designed and managed CFTs, there was a higher possibility that employees were exploited in the best way to create innovatory new products as well as improvements of existing products. The complete team with each member created together a dynamic platform, an innovation capital, which is rare and costly to imitate. Through interaction and network building among the members the knowledge was exchanged and human capital within the team expanded.

Working in Cross-Functional Teams in *The Product Market Experience* have also enhances the ability of increasing the knowledge in the company as well as transferring and communicating this knowledge within the company. As stated in the empirical findings the company already possessed 70% of the knowledge that was collected during *The Product Market Experience* beforehand and only 30% was newly generated. The entire company though, its human capital didn't own complete knowledge about the foreign market- and its customer requirements. Hence, by working in Cross-Functional Teams the ability to get all the internal resources to become aligned with each other was improved. Disparate views within the company were by communicating in a different way reduced and knowledge only known by parts of

the company became to a larger extent acknowledged, with the result expanding the human capital of the company.

Except from the ability to extract new knowledge the design of the team also created a foundation, more beneficial for communicating what was experienced during *The Product Market Experience*. Essential for the success was to give each representative a firsthand experience of the foreign market. Hence the experience could more easily be translated into a language which was better understood. Moreover by speaking with a unified voice and with the high rank that the members possessed they created an enhanced possibility for communicating and gaining reliance for the collected data from the rest of the company. Consequently by applying all of the external information, previously identified knowledge as well as new knowledge, in the whole company an expansion of the human capital, so even the intellectual capital, was reached. Furthermore working towards a collective goal have probably lead to a better functioning of the company hence a faster and more effective product development. Inventions already created in the company could then faster be transferred into innovations meaning that those inventions become commercialized.

Applying the IC Multiplier, the SC is fundamental since it leverages the total value of the IC. For value creation, the IC multiplier ought to be positive which requires that the SC is more valuable than the HC. The value of the SC lies both within the customer capital and the process capital. The customers which are the primary source of the company's revenues are generated through the company's specific product offerings. Specifically important is to offer customized products, which brings customer satisfaction, loyalty and attracts new and potential customers. Accordingly the team of *The Product Market Experience* has involved the customer in detailed market studies to enhance the ability to produce customize the products. For a better value extraction of the internal resources and to retain knowledge in a company it is suggested in the theory about intellectual capital, chapter 3.1 that it is of great importance to transform the recourses by codification and packaging of the human capital into structural capital. By structuring and storing the collected impressions in protocols and digitally in databases during the summary meetings in *The Product Market Experience* the probability to not lose any valuable data was minimized, hence extended the organizational capital. In addition easy access to the data enhanced the ability for the Cross-Functional Team to work more efficiently while constructing the final report and presentation about their experiences and findings. Consequently the written reports have transferred essential and aggregated knowledge to the rest of the company in a more efficient manner, thus resulting in enhanced collaborations between the different functions and mutual understanding about the market requirements, followed by faster product development process and the ability to continuously reconfigure the product portfolio to meet the customer and create more value for the company. The theory implies that codification of knowledge has become an important tool to convert it into property of the company and thus expanding the company's intellectual capital. In line with this argument Audi have by transmission of data more easily been able to share, reuse and reproduce data and knowledge collected from *The Product Market Experience*. Since the project according to several of the Cross-Functional Team members have been a great success it is of importance for future occasions to store the knowledge learned. Thus by storing the evaluation and the knowledge gained from the project the method can be reused more easily as well as improving the design and processes of the team.

As the above discussion shows, the human capital, as well as the structural capital in Audi has expanded, facilitating a better foundation for increasing the relational capital and as a result improved ability to achieve their goal; *To be number one, the most successful premium brand by 2015..*

6 Conclusions

In this chapter, the conclusions of the analysis are drawn. We have thus reached the final section of this thesis, namely to use our theoretical framework as a base for answering the question leading to the purpose of this thesis: “The purpose of this thesis is to study and determine how CFT can generate value in an effort to facilitate innovation”.

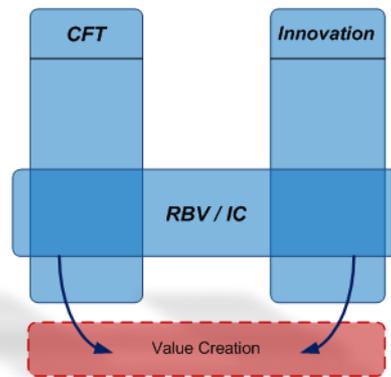


Figure 6.1 Theoretical Framework

6.1 Environment which Stimulates Innovation

The value generated by working in cross functional teams was found to be related to its ability to create an environment which stimulates innovation. In conclusion, when different experiences, skills and ideas come together, a company can bring innovations to the market faster and in a more cost efficient manner. Cross functional teams helps companies to further strengthen the interplay among its employees, resulting in a diversity of ideas, which spur creativity. As our results indicate, this can be viewed as an essential driver of value for companies developing high quality products. The value also lies in its ability to transfer this creativity to the rest of the company, enabling them to move away from traditional routines and become more entrepreneurial. The result shows how important is it for large and established companies to reconfigure their traditional business models and organizational structure to stay innovative. Thus, working in cross functional teams facilitates company’s ability to apply a structure and climate which best stimulates innovation. This in turn will enhance the company’s ability to create and maintain sustainable competitive advantage.

6.2 Team Effectiveness

The thesis has been able to unveil several important determinants of effective cross-functional teamwork. The conclusion that can be drawn is that the main factors influencing successful cross-functional teamwork are related to both design factors and group processes. The drivers of value within each factor are the following:

Design Factors: (i) a high level of empowerment and authority (ii) formalization with clarity in roles, direction and decision making (iii) integrative processes (iv) customer focus and product characteristics (v) right functional mix.

Group Processes: (i) informal communication (ii) high degree of cooperation (iii) creative, integrative processes (iv) external communication (v) shared values.

The results indicate that a successful cross functional team can add substantial value to a company by implementing a successful team design whilst maintaining successful group processes. The primary value adds is the alignment between functions, facilitating knowledge transfer, increased communication and integrative problem solving. This in turn enhances collaboration within the team and increases the member's commitment to the project since they feel aligned with the goal and the values. Working in a cross functional team will thus help companies to reduce traditional functional barriers and to create a better climate for transmitting valuable knowledge and innovative ideas. In addition, the results verify that efficient cross-functional teamwork, to some extent, is influenced by psychosocial traits and environmental factors such as industry characteristics and shared understandings.

6.3 Alignment of Resources - Develop, Maintain and Transfer Knowledge

As stressed in the theory chapter, the most valuable resource of value creation is that a company's human capital is integrated and managed in a successful way. We found that working in cross functional teams with product development decisions is a superior way of organizing and taking advantage of a company's human capital. By focusing on the employees as valuable sources of innovation, companies' will create a better foundation for managing its human capital and thus discover new dimensions, generate new ideas and to incorporate the complex desires of the market in the product development process. The alignment of resources enables companies to easier follow a systematic process when developing new products. This will allow companies to better understand how value is perceived by the customer so that they can serve them with customized products. In conclusion, this creates better conditions for companies to stay innovative and to reach and maintain competitive advantage.

One of the most prominent findings of our study is that working in cross functional teams enhances companies' ability to generate, maintain and transfer new and existing knowledge. A cross functional team structure allows for interaction and knowledge sharing to take place, expanding the human capital and generating valuable new knowledge. As the case study shows, working in cross functional teams benefits a company's ability to transfer, to communicate and store this knowledge within the company, resulting in an increased structural capital. We have thus been able to illustrate how effective cross functional teamwork strengthens the human and structural capital, leading to an increased intellectual capital which, according to our study, is seen as the primary driver of value creation. In conclusion, an increased intellectual capital add substantial value to a company and is a specific source of competitive advantage since it is seen as valuable, rare and costly to imitate. Working in cross functional teams will thus facilitate the expansion of a company's intellectual capital and further help to strengthen its competitive market position.

The purpose of this thesis is to study and determine how CFT can generate value in an effort to facilitate innovation. The conclusions are as follows:

The practice of using Cross Functional Teams will enhance organizational learning, knowledge transfer, increase communication and innovation, which in turn will increase the speed and performance of the new product development process. The research shows that a firm's internal resources (human,- structural and intellectual capital) are a fundamental source of value creation. In conclusion, effective cross

functional teamwork creates an environment which stimulates creativity and strengthens the human- and structural capital leading to increased intellectual capital. With that said, the thesis has been able to point at intangible resources to be the main source of competitive advantage.

6.3.1 Value Contribution

By using the constructed theoretical framework, the study shows that there is strong correlation between effective cross functional teamwork and innovation. In addition, the results provided by this study shows that this also is positively related to a company's ability to increase its intellectual capital. Since there are few studies that have been investigating and demonstrating this correlation it is of strong belief that this study has contributed greatly to provide evidence for existing theory. The main contribution lies in the theoretical framework, a construction combining independent theories regarding innovation, CFTs, and RBV/IC. This provides new evidence for explaining value creation and companies' ability to achieve competitive advantage. The combination of three previously independent theories into a more comprehensive theoretical framework has in itself a greater explanatory value than while applying them separately. The study provides evidence that, at least in this respect, the whole is greater than the sum of the parts. Therefore, the study can be seen as a value contribution to new and existing knowledge within both organizational- and management theories. Hence the results can work as a step stone for future research within this area.

6.4 Suggestions for further Research

The results provide by this study present valuable and new knowledge for both scholars and practitioners. To complement our findings, there are areas that future research could target in order to study the value generated by working with innovation in CFTs.

We have chosen to study a firm's value creation process by focusing on the intangible resources to be the main driver of value for companies. There are however other ways of measuring effectiveness of a company when using CFTs. An area of interest would be to investigate if CFTs also drive value in tangible terms such as profit and shareholder returns. One way of exploring this could be to investigate if there is a correlation between total shareholder return and the use of CFTs. This in turn will require a more extensive quantitative study of companies using CFTs as means of becoming more innovative.

Another interesting area of research would be to look at which organizational structures (centralized/decentralized) that could benefit most from forming innovation teams that are cross functional. In addition, the value generated by the use of CFTs might also differ when comparing companies that differ in their cultural heritage, size, age or the industry the company is operating in. For example, is CFTs an effective tool for achieving innovation also in the service sector? These are areas of research that could be further investigated.

As our study shows, an effective CFT requires both a successful team design and successful group processes. Future research could further investigate this issue by including more in depth studies of where in the innovation process (initial phase or implementation phase) these factors (team design and group

processes) are more important for the overall performance of the team. Is the early performance of a CFT mainly driven by successful design factors and vice versa? What structures and processes (informal or formal) are more important in each phase? This could for example be studied by applying a quantitative research method on companies using CFTs as part of their strategy of becoming more innovative. The above reasoning will help us to further understand how to optimally organize a CFT as means of becoming more innovative and contribute to a company's ability to achieve competitive advantage.

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Interviews

Personal interviews conducted at Audi`s headquarters` in Ingolstadt, Germany:

Mr Guido Bauer, Head of Corporate Strategy, Audi AG, 2007-05-22

Mr Sven Stockmar, Corporate Strategy Department, Audi AG, 2007-05-21

Mr Georg Wendt, Sales Strategy China Department, Audi AG, 2007-05-22

Mr Björn Kröll, Product Marketing Department, Audi AG, 2007-05-21

Appendixes

Appendix 1: Interview Guide

Mr Guido Bauer, Head of Corporate Strategy, Audi AG

Mr Sven Stockmar, Corporate Strategy Department, Audi AG

Mr Georg Wendt, Sales Strategy China Department, Audi AG

Mr Björn Kröll, Product Marketing Department, Audi AG

- What was the purpose of the project?
- How was the work structured? Why was it structured that way? How long have you been working in CFTs?
- How large was the team? How many participants? (Size/demography)
- How did you decide upon the 6 steps when identifying the Chinese customer? Have these changed or developed because of new conditions in China (i.e. other demands, laws etc)
- Can you describe the 6 steps in more detail?
- How did you come up with this style of working? Compare to other styles of working?
- Has the changing environment (new customer demands etc) influenced your decisions to work in CFTs?

Working in a Cross Functional Team

Design Factors:

Task Design:

- How much were you able to decide regarding the project? How much were you controlled by upper management (directives, costs, budget).
- What kind of work processes was conducted? Was there a structured step by step process or was it more flexible? How? Different steps? Can you identify any steps being more important than others? (Initial screening, preliminary market assessment, detail market study).
- How did you collect the info/data about the Chinese customer and the Chinese market? How much knowledge did you have before (Preliminary market assessment). How important has this knowledge been for the work conducted in the CFT?

- How much has the knowledge about the specific characteristics of the A8 influenced the processes, the people in the team, the design of the team and the team activities carried out?

Group Composition:

- How did you think when you composed the team? Who was chosen and why? What did you base your decisions on: Prior experience of working in a CFT, knowledge about the Chinese market etc? Who choose these people (Sven, Guido, upper management)?
- Where the size of the team beneficial for the effectiveness?
- Did all the members work full time with the project? Part time? If yes, why? What impact did that have on team performance?
- Did the members report back to their function regarding info about the project?
- How often did you meet? How well did you know each other before?
- Were there clear responsibilities regarding who did what? How well were these communicated? Who assigned these?
- What was the main task of the team leaders (Sven, Guido).
- How were the team leaders chosen?
- Drawbacks? Improvements? Changes?

Organizational Context:

- How was the mission communicated within the team?
- Was the goal working in CFT to enhance creativity and thereby innovation?
- High roof/high level of risk taking?
- Has the culture at Audi been supportive in facilitating CF Teamwork?
- Has the senior management from the different functions been supportive regarding prioritization of, and commitment to, the project?
- Team rewards, individual rewards? Incentives to be creative?
- How well did you work in order to integrate the different functions? Impact on overall effectiveness?

Group Processes

- Did each member only work within its expertise area or did they switch?
- How did the team communicate with each other? Informal or formal communication? Did members also share information/knowledge with each other during informal occasions (cafeteria, restaurant).
- Was the team environment often informal or formal?
- Do you consider that the team worked in a creative environment? In what way has this affected the teamwork in the CFT?

External Processes

- Have external information gathering been important for the CFT to work efficiently? If yes, which kind of external information, inside and outside the organization, has been collected and which kind has been of most importance?
- Which external info do you rate as the most important?
- Did the team Initiate interactions with other parts of the organization in order to obtain more data? (Corporate entrepreneurship).

Group Psychosocial Traits

- Did the members share the same values and norms when going into the project?
- Mutual respect/trust in team members competence and dedication?
- Were the members committed to the overall goal and mission of the project? If yes, how was this displayed?

Environmental Factors:

- Has the specific characteristics of the Chinese market influenced the design of the team? In what way? If yes, what kind of info did you take into consideration?

Further questions:

- What value do you think working in CFTs has generated more in general?
- Which factor do you think contributed most to the overall efficiency of the project?

- How have you worked with knowledge management during the project?
- If yes, how?
- Will you continue to work in the same manner when approaching a new market e.g. India?
- If not, how will you work?
- Do you believe that working in CFT has contributed to a higher degree of innovativeness?
- Can you point out something specific that the project has generated?
- e.g. higher customer satisfaction, faster lead-time,
- When you look in the back mirror, what would you have done differently?
- The other team members which we are going to meet, what were their roles in the project?!

Appendix 2: Questionnaire: D4 Experience China

1 Design Factors:

Task Design:

1) Team empowerment/Autonomy

- To what extent did managers outside attempt to control team activities and influence team decisions?
- To what extent have you personally been able to influence team activities and team decisions?

2) Formal yet integrative processes

- To what extent have the work process been a structured and systematic step by step process?
- To what extent have the work been carefully planned and followed a specific agenda?

3) Customer focus and product characteristics

- To what extent have the need to understand the Chinese customer influenced the prophase of the D4 Experience China project (before going to China)?
- To what extent have knowledge about the specific characteristics of the A8, influenced the design of the team?

Group Composition:

1) Diversity (Right functional mix)

- To what extent do you believe that working in a Cross Functional Team has contributed to faster product development decisions?
- To what extent do you think the composition of the team (the size, number of participants, knowledge mix) has contributed to the team's success?

2) Clear roles and responsibilities

- To what extent have the tasks and responsibilities been clearly defined?
- To what extent did you personally know what was expected of you when entering the project?

- To what extent have the team leaders been important for clarifying roles and responsibilities within the team?

Organizational Context:

1) Clear mission

- To what extent was the mission of the project clearly defined and communicated within the team?

2) Team Rewards

- To what extent was team rewards given based on team creativity/innovativeness?

3) Strategic alignment between functions

- To what extent was the senior management from the different departments' supportive regarding prioritization of, and commitment to, the project?

2 Group Processes

Internal Processes:

1) Cooperation & Communication

- To what extent did informal communication (telephone calls, weekly meetings) lead to a higher degree of cooperation?
- To what extent has the communication within the team contributed to member satisfaction?

2) Creative, integrative problem solving

- To what extent did creativity and integrative problem solving lead to enhanced teamwork?

External Processes:

1) Boundary management

- To what extent did the team initiate interaction with other parts of the organization in order to obtain additional information important for the project?
- To what extent do you believe that external communication (both inside and outside the organization) contributed to the team's overall performance?

3 Group Psychosocial Traits

1) Norms

- To what extent do you believe that the team was characterized by mutual respect and trust in other team members' competence and dedication?

2) Open to learn/willingness to change

- To what extent did the team-members display a willingness and eager to learn?
- To what extent did the team-members display a willingness to change and adapt to new challenges?

4 Environmental Factors

1) Industry characteristics

- To what extent has the specific characteristics of the Chinese market (different customer needs, culture etc) influenced the design of the team?

5 Overall Performance

Please rank (1-7) the factors that you believe contributed most to the overall performance of the D4 Experience China project:

- **Task Design:** (An organized structure, member's ability to influence team decisions and activities)
- **Group Composition:** (Right mix of people, diversity in knowledge, clear goals, responsibilities and expectations)
- **Organizational Context:** (Clear mission, team rewards, alignment between functions)
- **Internal Processes:** (High level of communication and cooperation, creativity)
- **External Processes:** (External communication with other functions inside and/or outside the organization)

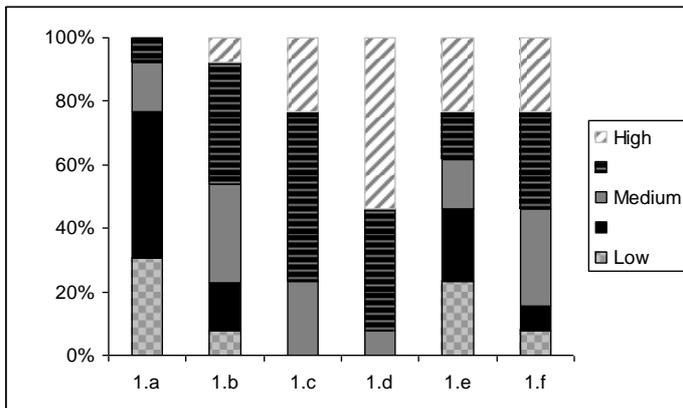
o **Group Psychosocial Traits:** (Mutal respect and trust in member's competence and dedication, willingness to learn)

o **Environmental Factors:** (Knowledge about the Chinese market and the specific needs of the Chinese customer)

Appendix 3: Results from the questionnaire

Design Factors:

Task Design:



1 a: Did managers outside attempt to control team activities and influence team decisions?

1 b: Have you personally been able to influence team activities and team decisions?

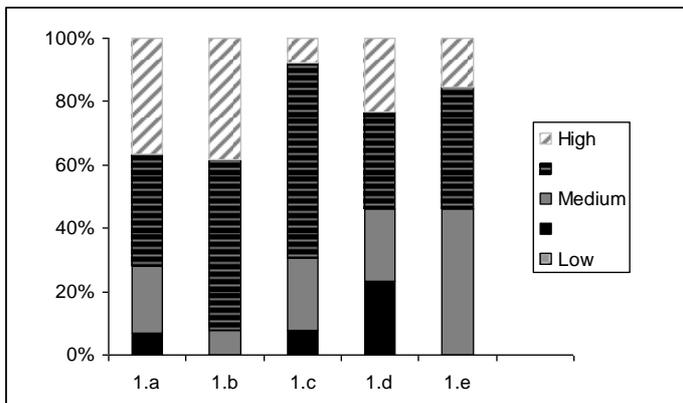
1 c: Have the work process been a structured and systematic step by step process?

1 d: Have the work been carefully planned and followed a specific agenda?

1 e: Have the need to understand the Chinese customer influenced the pre-phase of the Product market experience?

1 f: Have knowledge about the specific characteristics of the premium model, influenced the design of the team?

Group Composition:



1 a: Do you believe that working in a Cross Functional Team has contributed to faster product development decisions?

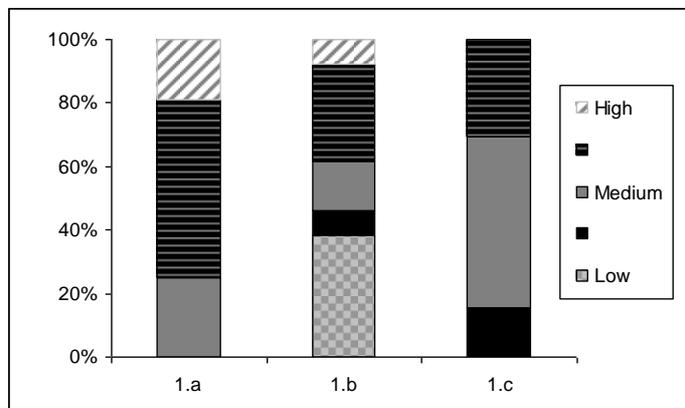
1 b: Do you think the composition of the team (the size, number of participants, knowledge mix) has contributed to the team's success?

1 c: Have the tasks and responsibilities been clearly defined?

1 d: Did you personally know what was expected of you when entering the project?

1 e: Have the team leaders been important for clarifying roles and responsibilities within the team?

Organizational Context:



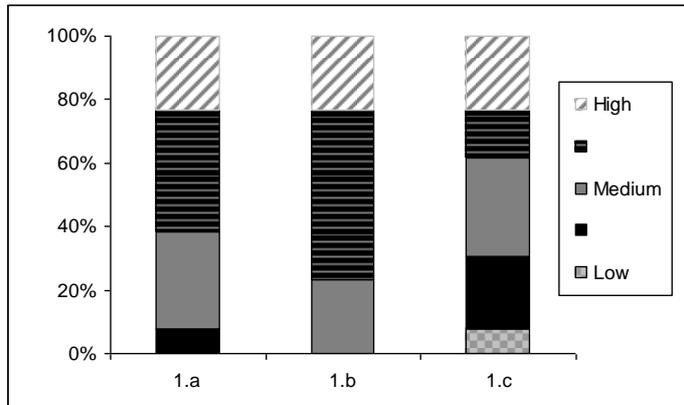
1 a: Was the mission of the project clearly defined and communicated within the team?

1 b: Were team rewards given based on team creativity/innovativeness?

1 c: Was the senior management from the different departments' supportive regarding prioritization of, and commitment to, the project?

Group Processes

Internal Processes

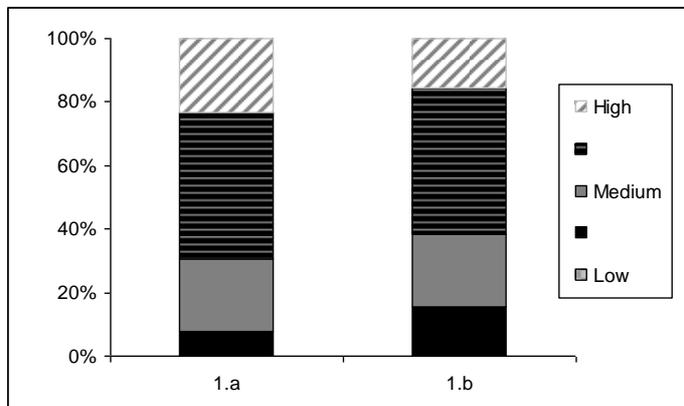


1 a: Did informal communication (telephone calls, weekly meetings) lead to a higher degree of cooperation?

1 b: Has the communication within the team contributed to member satisfaction?

1 c: Did creativity and integrative problem solving lead to enhanced teamwork?

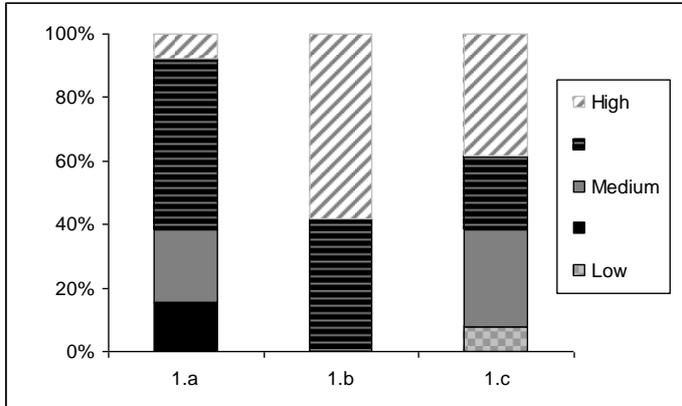
External processes



1 a: Did the team initiate interaction with other parts of the organization in order to obtain additional information important for the project?

1 b: Do you believe that external communication (both inside and outside the organization) contributed to the team's performance?

Group psychosocial traits

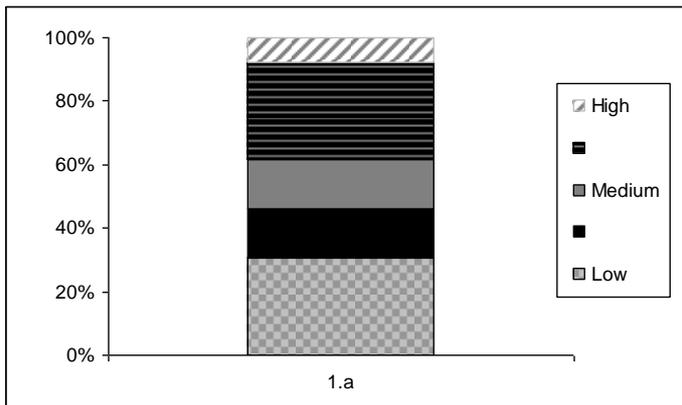


1 a: Do you believe that the team was characterized by mutual respect and trust in other team members' competence and dedication?

1 b: Did the team members display a willingness to and eager to learn?

1 c: Did the team members display a willingness to change and adapt to new challenges?

Environmental factors



1 a: Has the specific characteristics of the Chinese market (different customer needs, culture etc) influenced the design of the team?