

**Professional MBA  
Automotive Industry**



**Development of a procedure  
for knowledge enhancement and transfer  
to increase efficiency  
of automotive sales teams**

**A Master's Thesis submitted for the degree of  
"Master of Business Administration"**

Supervised by  
Prof.Dr.-Ing. Vera Hummel

Alfred Waldhäusl  
0828044

Vienna, January 23<sup>rd</sup>, 2011

## *Preface*

The conclusions contained in this master thesis are based on twenty five years of experience in leading positions in the area of automotive logistics and sales. It is dedicated to the people who accompanied me during these years, especially to those who shared the challenge of leadership with me.

*The real danger is not that computers  
will begin to think like men, but that men  
will begin to think like computers.*  
(Harris, cited by Davenport & Prusak 2000:123)

## Affidavit

I, **Alfred Waldhäusl**, hereby declare

1. that I am the sole author of the present Master's Thesis, "**DEVELOPMENT OF A PROCEDURE FOR KNOWLEDGE ENHANCEMENT AND TRANSFER TO INCREASE EFFICIENCY OF AUTOMOTIVE SALES TEAMS**", 97 pages, bound, and that I have not used any source or tool other than those referenced or and other illicit aid or tool, and
2. that I have not prior to this date submitted this Master's Thesis as an examination paper in any form in Austria or abroad.

Vienna, January 23<sup>rd</sup>, 2011

-----  
Signature

<b>1</b>	<b>LIST OF ABBREVIATIONS</b>	<b>5</b>
<b>2</b>	<b>ABSTRACT</b>	<b>6</b>
<b>3</b>	<b>INTRODUCTION</b>	<b>7</b>
3.1	Motivation	7
3.2	Structure, research target and efficiency	9
3.2.1	Structure of the thesis	9
3.2.2	Research target	10
<b>4</b>	<b>METHODICAL APPROACH</b>	<b>12</b>
4.1	State of the art literature	13
4.1.1	Selected pioneers of knowledge management	13
4.1.2	Other important knowledge management literature sources	16
4.2	Objectivist versus practice-based perspective on knowledge	17
<b>5</b>	<b>STATE OF THE ART</b>	<b>18</b>
5.1	Data and information versus knowledge	18
5.2	Types of knowledge	23
5.3	Knowledge creation within two basic dimensions	24
5.4	Knowledge codification, conversion and transfer	25
5.5	Markets for sharing knowledge	27
5.6	Knowledge sharing and transfer in organizations	30
5.7	Knowledge fostering environments	33
5.8	Knowledge based management of teams	36
<b>6</b>	<b>DEVELOPMENT OF A PROCEDURE FOR KNOWLEDGE ENHANCEMENT</b>	<b>38</b>
6.1	Setup of the automotive 2 <sup>nd</sup> tier sales application	38
6.2	Barriers for knowledge based sales team management	39

6.2.1	Tacit knowledge in practice meets barriers	40
6.2.2	Centralism and process adherence versus knowledge responsibility	41
6.3	Procedural steps targeting on specific areas within a firm	42
6.3.1	Individual humans within the team	43
6.3.2	The manager of the team	46
6.3.3	The team as an organization	49
6.3.4	The interface with other teams on peer level	51
6.3.5	The interface with the customer	53
6.3.6	The physical work environment	57
6.3.7	The psychological work environment	58
6.3.8	The next organizational level above the team	61
6.3.9	Interfacing outside the firm except customers	64
6.3.10	To foster lean processes	65
6.3.11	Interaction with the team members social live	67
<b>7</b>	<b>VALIDATION OF DEVELOPED PROCEDURE</b>	<b>68</b>
7.1	Overview about identified procedures	69
7.2	Clustering of the partial solutions for validation	70
7.2.1	Cluster regarding Motivation	70
7.2.2	Cluster regarding vision	71
7.2.3	Cluster regarding communication culture	72
7.2.4	Partial solutions embedded in leadership	75
7.3	Validation Method	76
7.4	Reference process	78
7.5	Influence of procedural steps	79
7.6	Validation Result	81
7.6.1	Validation towards clusters	81
7.6.2	Validation towards focus	86
7.7	Validation summary	88
<b>8</b>	<b>CONCLUSION AND FUTURE PROSPECTS</b>	<b>89</b>
<b>9</b>	<b>BIBLOGRAPHY</b>	<b>91</b>
<b>10</b>	<b>LISTS</b>	<b>95</b>
10.1	List of tables	95
10.2	List of figures	96

# 1 LIST OF ABBREVIATIONS

KPI	Key Performance Indicator
OEM	Original Equipment Manufacturer
RFQ	Request for Quotation
RnD	Research and Development
1 <sup>st</sup> tier supplier	Supplier to the OEM
2 <sup>nd</sup> tier supplier	Supplier to the Tier1 / sub supplier

Table 1 List of Abbreviations

## 2 ABSTRACT

*Knowledge management application on team level within automotive sales teams, working from a 2<sup>nd</sup> tier position!*

Motivated by many years of practical experience, it was most challenging to try to manage the tradeoff between philosophy and theory and practical application of knowledge management within an MBA Master Thesis. One of the first challenges was to validate whether knowledge management is recognized as a contributor to company and team performance. This worked out, with a remarkable portion of effort, because knowledge management has still no independent focus within corporate structures in most companies. And, if structures are available, in most cases they are located on corporate level and therefore too generic to be applied in practice. This was the reason to take care that all measures, later on defined procedural steps, can be applied on team level independent of any corporate structures. The structure of the thesis goes stringent from introduction, analysis of the state of the art, development of the procedure to validation. In order to validate the developed procedure, the quote lead time has been defined as KPI. The methodical approach is based on the analysis of the state of the art, as well as the investigation of a possible application towards enhancement and transfer of knowledge. Based on that, a procedure for automotive sales teams has been developed. After outlining the basics of theory and the basic structure of the thesis itself, the setup of a 2<sup>nd</sup> tier sales team application is described, followed by a more critical section explaining the barriers of knowledge management and discussing centralism and process adherence versus knowledge responsibility. In order to make sure that the developed procedure can realistically exploit the whole potential, all areas of the firm with their related aspects regarding knowledge enhancement have

been investigated. Finally, the developed procedure has been validated based on an interview methodology. The major expectation that the application of an overall procedure to enhance and transfer knowledge aiming the increase of efficiency of automotive sales teams significantly, has been confirmed.

## **3 INTRODUCTION**

### **3.1 Motivation**

The motivation to work on an master thesis, which is dealing in the area of knowledge management, is rooted in my strong belief that there is a difference between good and excellent teams – especially in the area of sales, where sandwich management between customer and the own firm is one of the major challenges. Over the time, it became more and more obvious to me that this different perception of team performance has to do with how information is shared, and how this information is incorporated as knowledge into the team and the operative working style of such a team. In order to verify whether this own perception based on work experience is also confirmed by scientific literature, the literature study was extended to an investigation regarding the relevance of knowledge management in sales.

Following interesting statements derived from literature stand representative for the relevance of knowledge management in the area of sales:

*"The sales force of any organization is a critical component to the overall success of that company's goals and objectives. Knowledge management is a key factor that, if implemented correctly, can act as catalyst to synergizing the efforts of a sales force leading to many positive*



*outcomes including a more effective sales force, an overall smarter organization, and employees who have a high sense of moral because of their involvement in the decision making process."*(Fenton D., Albers J.A.:2007)

This shows the importance of knowledge management within sales, as well as Morello is describing knowledge and communication gaps with

*"Figure 1 shows that there are lot of avenues for communication in the sales chain but there are few strategies in place to ensure that these avenues of communication are being utilized or optimized. The lighter communication links in Figure 1 are rarely established yet have the most potential as they are closer to the consumer."* (Morello F. 2002:88 in *Practical Aspects of Knowledge Management*, Karagiannis D., Reimer U.,2002)

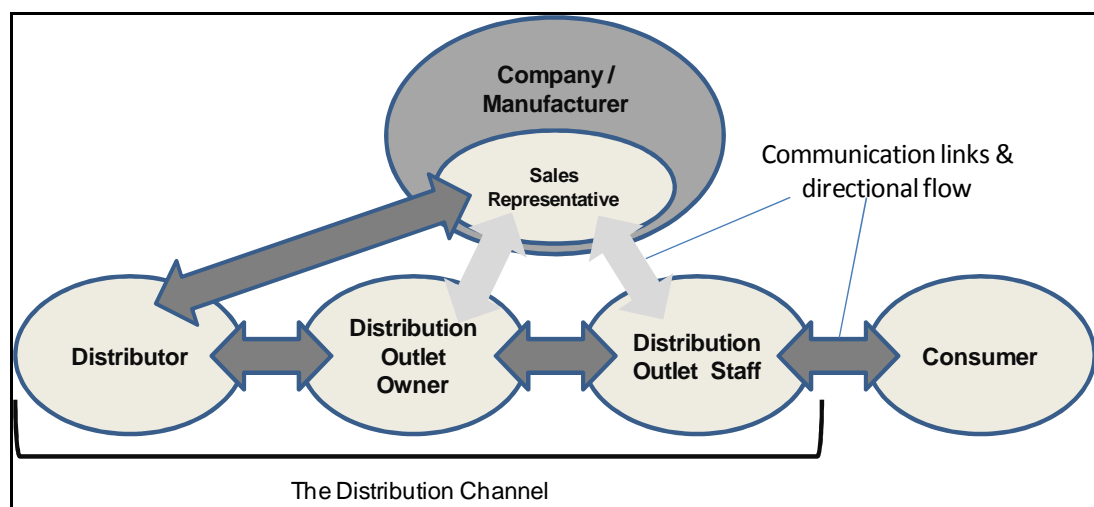


Figure 1 The sales chain (Morello 2002:89)

Another source puts a focus on information gathering in the context of new customer acquisition, saying *"it's no secret that seeking and securing prospective customers is the key to successful growth, but it takes a coordinated knowledge management process to deliver them as actual customers."*

(Stapleton 2003:61). Fraunhofer, Promind and MVI did a study in 2003 regarding the German automotive industry, investigating also the impact of knowledge management specifically for the automotive industry. The study states that *"Wissen ist eine der entscheidenden Ressourcen, von denen die Zukunft unserer Wirtschaft und Gesellschaft abhängt. Gerade in der Fahrzeugentwicklung spielt dieser Faktor eine entscheidende Rolle."*(Bullinger HJ. et al,2003:94), as well as:*"Wissen wird zwar als wichtig erachtet, welches Wissen wann und wo benötigt wird, ist in den Unternehmen aber kaum bekannt."*(Bullinger HJ et al, 2003:95) Translated, this means that knowledge is regarded as resource, which is decisive for the future of our economy and society. This is especially valid for vehicle development. The study revealed, that knowledge is regarded important, but which knowledge is required where, is seldom known within the firm. These statements underline that, if efficiency increase is a target, knowledge management actively applied in a company's sales department is an issue.

## **3.2 Structure, research target and efficiency**

### **3.2.1 Structure of the thesis**

The structure of the thesis is displayed in Figure 2 in addition to the table of contents. The most essential parts are chapter 3, where also the targeted key performance indicators (KPI's) are defined, chapter 6 where specific procedural steps utilizing elements of knowledge management are developed, and chapter 7, which validates the procedure based on interviews, taking the KPI as measurement base. The focus is:

- knowledge enhancement
- Knowledge transfer
- Efficiency increase

In order to simplify orientation for the reader, Figure 2 Structure of the Thesis will be displayed on relevant places in the thesis.

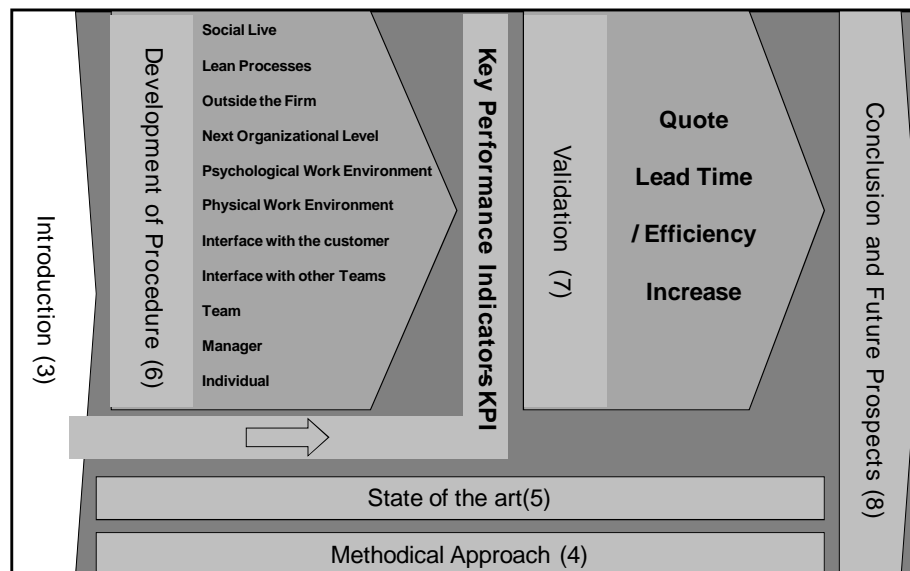


Figure 2 Structure of the Thesis

### 3.2.2 Research target

The research, which supplies the base for procedures which can be applied to team structures, is focused on how applied knowledge management can increase team performance. Important is, that all proposed procedural steps can be applied independently from any available corporate structure – in order to be flexible in gradually implementing the measures. In particular, the procedures proposed in this master thesis concentrate on how knowledge can be enhanced and transferred with the intention to increase efficiency – so knowledge itself is not regarded as kind of self contained structure. Also, not all of the developed procedures deliver knowledge directly to the team, but they foster a knowledge sharing friendly environment which motivates team members to move their perspective from information processing to knowledge working. The development of the methods is focused on sales teams in the automotive industry, operating from a 2<sup>nd</sup> tier position. This focus based on potential efficiency increase was sensed during practical

experience. Another reason choosing this example was, that the automotive industry is one of the most dynamic industries and especially on a 2<sup>nd</sup> tier position highly competitive – requiring therefore an excellent level of efficiency. The precise setup will be explained in chapter 6.1. The aim of this thesis is to increase efficiency of automotive sales teams by knowledge enhancement and transfer. The procedures shall be a toolkit which enables gradually implementation in order not to overstress the abilities to change within the team. In order to validate the procedures in regard of their successful application, sales related key performance indicators (KPI's) need to be selected.

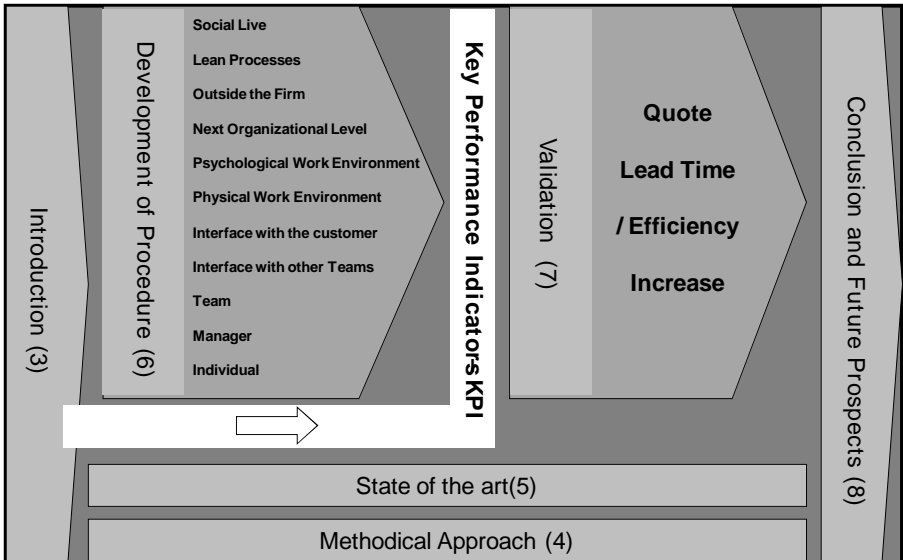


Figure 3 Key Performance Indicators (KPI's)

Since the thesis targets to identify the relation between knowledge management procedures and efficiency increase, it is necessary to define how this efficiency increase is to be measured. For a sales department, having a setup like described in chapter 6.1, following Key Performance Indicators (KPI's) can be applied:

Quote Lead Time, which is the time between receiving the RFQ (Request For Quotation) and submitting the quote to the customer.

- and -

Quote Quality, which is the quality perception of the quote by the customer.

The quote quality perception is very difficult to measure, since it requires the setup and realization of a project as well as feedback from the customer and needs therefore a long time before it could be measured. Therefore, the validation of the developed procedure concentrates on measuring the reduction of quote lead time. Details are outlined in chapter 7.

## 4 METHODOICAL APPROACH

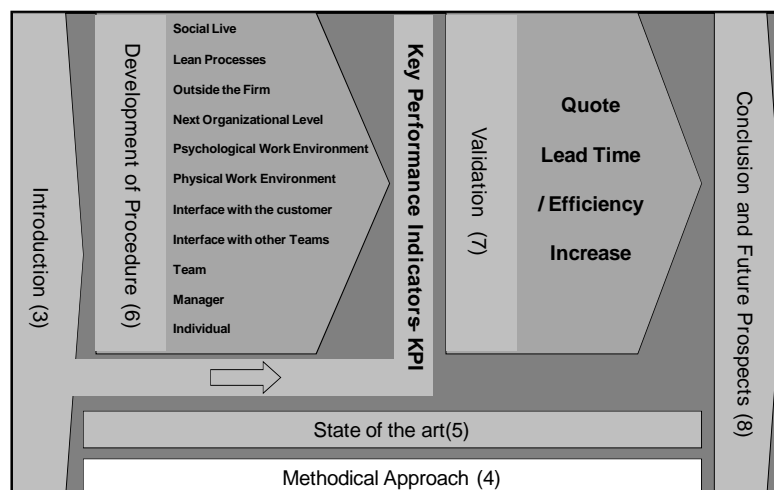


Figure 4 Methodical Approach

The analysis of the relevant inputs was done as a literature study. Since the available literature for knowledge management is enormous, the approach was to provide different cultural and personal, and philosophical viewpoints of the authors. The collected inputs of the literature have been shaped towards the research question in order to build the base for combination with own practical experience. Since other disciplines and terms, like leadership, value management and competence management have a close relation to knowledge management, the necessity

to keep focus was strictly followed, sometime sacrificing the option to draft a wider perspective of knowledge management. Part of that is referenced to in chapter 8.

## **4.1 State of the art literature**

The literature used for analyzing the state of the art for the thesis is listed in chapter 9. As already mentioned, the available literature regarding knowledge management is enormous, which made it comparable complex to identify the main structural contributors on one hand, and on the other hand to integrate also viewpoints from a different perspective. Chapter 4.1.1 and 4.1.2 describe the selection of the literature, which is based on the references other sources use in their content. This makes it possible to track down the essentials to the authors cited in this thesis.

### **4.1.1 Selected pioneers of knowledge management**

Michael Polanyi , born in Budapest 1891, is one of the founders of modern knowledge management theories. His findings on knowledge and sharing of knowledge deliver the base for many other authors. Georg Hans Neuweg, for example, subtitles his book "Könnerschaft und implizites Wissen". The subtitle is: "Zur lehr-lerntheoretischen Bedeutung der Erkenntnis- und Wissenstheorie Michael Polanyis. More regarding Neuweg is discussed in chapter 5.1. Ikujiro Nonaka, himself one of the knowledge management pioneers, references in his book "The knowledge creating company" to Polanyi with "*As for the epistemological dimension, we draw on Michael Polanyi's (1966) distinction between tacit knowledge and explicit knowledge.*" (Nonaka, Takeuchi 1995:59 citing Polanyi 1966) and "*We know more than we can tell*" (Nonaka, Takeuchi 1995:60 citing Polanyi 1966). Another strong commitment to Polanyi's theories is given in Nonaka et al "Managing Flow – A Process Theory of the Knowledge Based Firm", where he states clearly

*"Our view of knowledge is based on Michael Polanyi's concept of knowledge (Polanyi, 1958). Polanyi stands in opposition to the objective, analytical view that sees knowledge as something human beings obtain by analyzing the object as a thing that exists separately and beyond the self." (Nonaka et al 2008:9)*

Taking Polanyi's theory as a base, Nonaka concentrates also on knowledge creation, referring to Polanyi with:

*"However, he did not theorize the process of knowledge creation. While we agree with Polanyi on the importance of tacit knowledge, we believe that it is the process of interaction between tacit and explicit knowledge that is the source of knowledge creation" (Nonaka et al 2008:9)*

This makes both authors a good complimentary choice, with Polanyi supplying the base philosophic theory while Nonaka concentrating on relating knowledge creation to interactive processes. Polanyi is cited by most of the authors dealing with knowledge management. For example, also Davenport and Prusak, in their book "Working Knowledge – how organizations manage what they know" refer to Polanyi with *"As Michael Polanyi, the philosopher who first articulated the concept of tacit versus explicit knowledge, remarks, to understand tacit experience, try explaining in detail how you swim or ride a bicycle" (Davenport, Prusak 2000:71)*. The importance of Polanyi is underlined also by Hislop, who refers to Polanyi in different sections of *"Knowledge Management in Organizations"*, e.g. *"(...) Polanyi's work is often used to justify the idea that tacit and explicit knowledge are two separate and distinctive types of knowledge, a number of writers suggest that this misunderstands his analysis." (Hislop 2009:37)*. Polanyi's basics find also utilization directly in an initiative of IBM *"IBM's knowledge management activities are based on Michael*

*Polanyi's definition of two dimensions of knowledge." (Vorbeck et al. in Knowledge Management in a Global Company – IBM Global Services; in Mertins et al. 2003:293)*

Ikujiro Nonaka is one of the most cited authors in knowledge management. Neuweg references to Nonaka with *"So sehen Nonaka / Takeuchi einen entscheidenden Wettbewerbsvorteil japanischer Unternehmen darin, daß diese bei der Schöpfung neuen organisationalen Wissens der Mobilisierung, Explizierung und Diffusion implizitem Wissens besondere Bedeutung beimessen."* (Neuweg 2001:3). Davenport, in his book "Working Knowledge – how organizations manage what they know", which concentrates on knowledge markets, refers on several occasions to Nonaka, e.g. with *"According to Nonaka and Takeuchi, one of the conditions that encourages knowledge creation is 'redundancy'. They describe redundancy as shared information that allows individuals to 'invade' one another's boundaries and offer advice and new perspective."* (Davenport, Prusak 2000:43) Hislop refers to Nonaka with a whole chapter in his book "Knowledge Management in Organizations", explaining also the limitations of Nonaka's concept.

*"In examining the topic of knowledge creation it is virtually impossible to ignore Nonaka's theory of knowledge creation as it represents the single most influential and widely referenced theory in the knowledge management domain (Guldenberg & Helting 2007; Nonaka et al. 2006). For example, Gourlay (2006) found that Nonaka & Takeuchi's 1995 book, 'The Knowledge Creating Company', had been cited 1093 times between 1994 and 2004."* (Hislop 2009:118)

Hislop refers also to the limitations of Nonaka's knowledge creating theory, stating



*"While Nonaka's theory is widely cited, and highly influential, it has also been the subject of a number of criticisms. Three considered here are that the empirical evidence supporting the theory is unconvincing, secondly that the model has conceptual problems, and thirdly that its universal applicability is limited as it is only relevant to companies utilizing Japanese business practices." (Hislop 2009:120,122)*

#### 4.1.2 Other important knowledge management literature sources

Thomas H. Davenport & Laurence Prusak are chosen as literature source because they investigate in their book "Working Knowledge – how organizations manage what they know" deeply what a knowledge market is and how such a market works. He is referenced in several of the other literature sources.

Georg Hans Neuweg was selected with his book "Könnerschaft und implizites Wissen – zur lehr-lerntheoretischen Bedeutung der Erkenntnis- und Wissenstheorie Michael Polanyis" because it investigates deeply the process learning, especially also the role of the learner. Beside referring to Polanyi, who's theories are the base for the book, Neuweg references also to other authors utilized for this Thesis, e.g. Nonaka and Davenport.

Donald Hislop contributes with "Knowledge Management in Organizations". It was selected because it provides a good overview on knowledge management, and also provides critical viewpoint on e.g. Nonaka and the objectivist domain of knowledge management.

Other authors and literature sources have been used to complement the viewpoints outlined above, or have been investigated but not used because leading too far away from the core of the thesis. The full overview on literature sources is given in chapter 9.

## 4.2 Objectivist versus practice-based perspective on knowledge

In the literature, most of the authors belong to either one of these two perspectives, objectivist or practice-based. The procedures developed in this thesis take advantage of both perspectives. The difference between the two perspectives can be described as:

*"As outlined, the objectivist perspective, drawing on the classical images of science, conceptualizes knowledge as being primarily derived from cognitive processes, something involving the brain but not the body. The practice-based perspective instead views knowing and the development of knowledge as occurring on an ongoing basis through the routine activities that people undertake." (Hislop 2009:35)*

The different viewpoints are displayed more detailed in Table 2 Knowledge Management – Objectivist Perspective (Hislop 2009:27) and Table 3 Knowledge Management – Practice-based Perspective (Hislop 2009:34).

<b>Knowledge management: objectivist perspective</b>
Convert tacit to explicit knowledge (codification)
Collect knowledge in central repository
Structure/systematize knowledge (into discrete categories)
Technology plays a key role

Table 2 Knowledge Management – Objectivist Perspective (Hislop 2009:27)

<b>Characteristic of knowledge from practice-based epistemology</b>
Knowledge is embedded in practice
Tacit and explicit knowledge are inseparable
Knowledge is embodied in people
Knowledge is socially constructed
Knowledge is culturally embedded
Knowledge is contestable

Table 3 Knowledge Management – Practice-based Perspective (Hislop 2009:34)

## 5 STATE OF THE ART

Figure 5 indicates which main aspects have been investigated based on the state of the art and how their relevance is located within the topic of knowledge management.

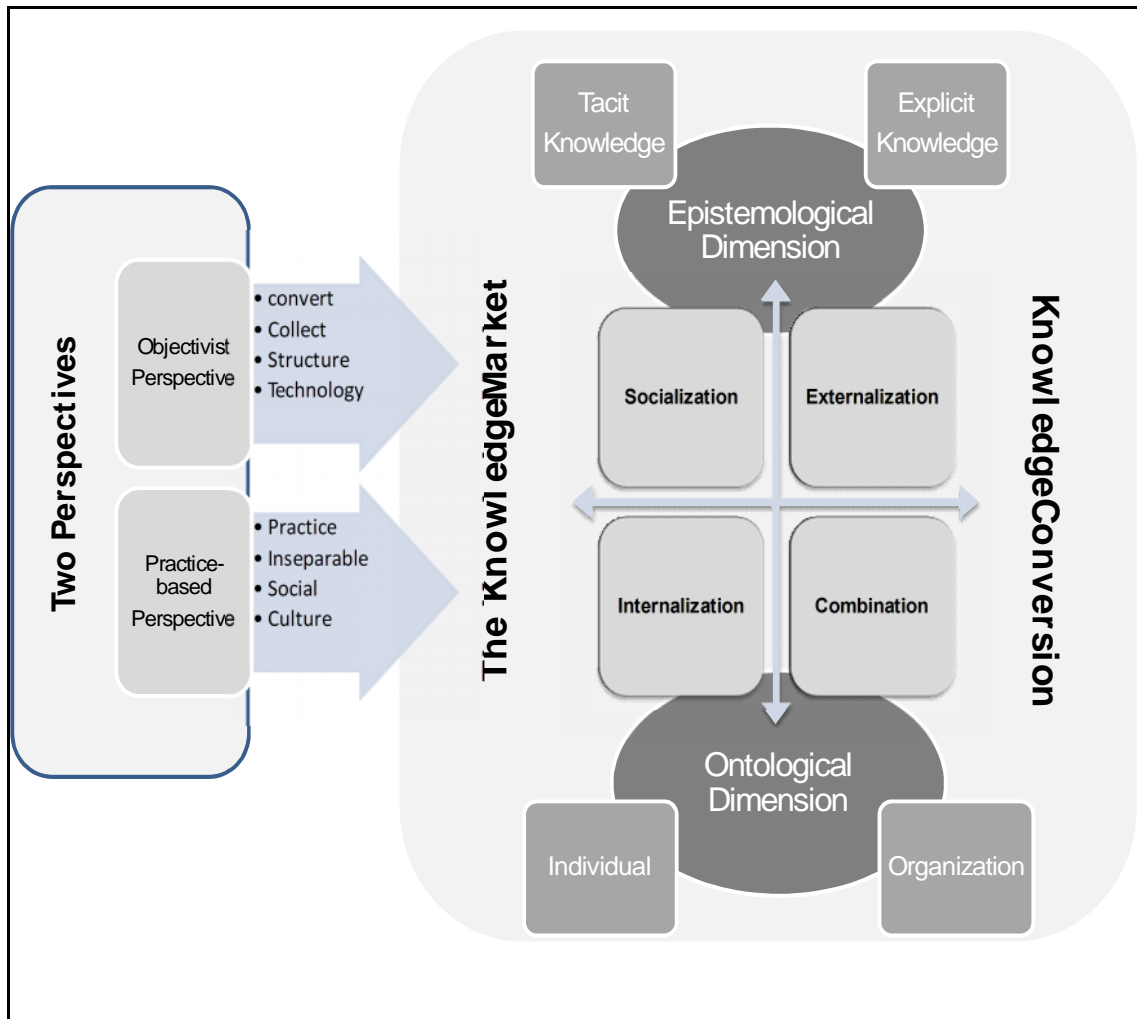


Figure 5 Overview of aspects discussed in chapter state of the art

### 5.1 Data and information versus knowledge

The differences and dependencies between data, information and knowledge can be described as *"Data is a set of discrete, objective facts about events. In an organizational context, data is most usefully described as structured records of transactions."* (Davenport, Prusak 2000:2) and *"Data becomes information when its creator adds meaning."* (Davenport, Prusak 2000:4). Based on this definition, data can be understood as the

smallest element. It has, referenced as a stand alone entity, no meaning. *"The word 'inform' originally meant 'to give shape to' and information is meant to shape the person who gets it, to make some difference in his outlook or insight."* (Davenport, Prusak 2000:3). Subsequently, information is the next higher level, where data is merged with meaning for a person. In this stage, an impact on the person is already given.

*"Knowledge is a fluid mix of framed experiences, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms."* (Davenport, Prusak 2000:5)

*"Thus information is a flow of messages, while knowledge is created by that very flow of information, anchored in the beliefs and commitment of its holder."* (Nonaka, Takeuchi 1995:58)

As a third level, the knowledge level, the information is set into context of all previous experience of a person or an organization. Ikujiro Nonaka goes a step further and assigns characteristics to knowledge. The first characteristic refers to knowledge as being subjective.

*"What we should understand first is that human beings have different subjective viewpoints, and these differences are necessary for the creation of knowledge. Physical resources and information do not, and cannot, differ depending on their user."* (Nonaka et al. 2008:8)

As a second characteristic Nonaka states that knowledge is process related. *"It is a process in which the individual's*

*subjective thoughts are justified through social interaction with others and the environment to become objective 'truth'.*" (Nonaka et al. 2008:12). Finally he states that knowledge created through practice. *"Because knowledge is subjective, process-relational, and aesthetic, it can only be created in the actual practice of dealing with each particular situation."* (Nonaka et al. 2008:13). Based on that, it can be concluded that knowledge is embedded mainly in humans and strongly influenced respectively created by social interaction in practice. This gives already a first indication regarding achievable efficiency improvements in automotive sales teams. The interactive learning process and the embedment of new information depending on the maturity of the learner, respectively knowledge receiver, can be illustrated like that (Following figures refer to Baumgartner, cited by Neuweg 2001: 340 – 342; the following text cites Neuweg, 340ff, translated by the author).

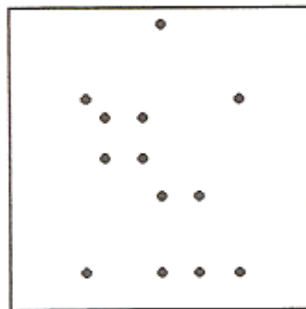


Figure 6 The fuzzy view of the novice (Neuweg 2001:340)

*"We assume a novice shall be introduced to a domain. This introduction has the target to interpret elements within a specific area, and to percept these elements as meaningful in a context with a new complete "whole". "* (Neuweg 2001:340, translated by the author)

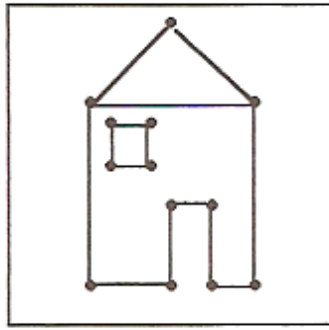


Figure 7 The real in the light of theory (Neuweg 2001:341)

*"What the expert percepts, is the function of an interpretation framework, especially the function of acquisition in the past. He percepts the details on a vectorial base, regards to their united denotation, and see them instantly meaningful configured." (Neuweg 2001:341, translated by the author)*

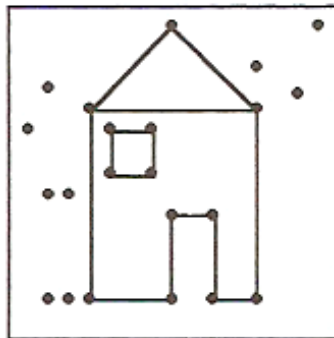


Figure 8 A transfer situation (Neuweg 2001:342)

*"Using theory for the interpretation of experience intensively and to internalize it this way, means also to expose oneself to a thinking structure, which is not experienced like this. The learner may not recognize the new data shown in Figure 8, or he will, in a kind of self-expansion, integrate the new data into the interpretation framework." Neuweg 2001:342, translated by the author)*

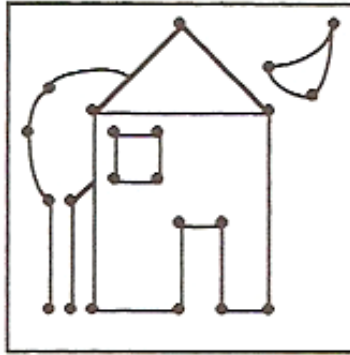


Figure 9 Theory motivated assimilation (Neuweg 2001:342)

*"The new data confirm and support themselves vice versa. This speaks for the coherence of the interpretation framework, but not necessarily for the compliance to the truth." (Neuweg 2001:342, translated by the author)*



Figure 10 Breaking out (Neuweg 2001:343)

*"The available data could be, in an alternative interpretation framework based on other concepts, interpreted completely also like (note of the author: see Figure 11)" (Neuweg 2001:343, translated by the author)*



Figure 11 Reframing (Neuweg 2001:343)

*"(...) His interpretations are, first and foremost, a function of his learning experience, a function of what is stored in his background awareness (...)" (Neuweg 2001:343, translated by the author)*

## 5.2 Types of knowledge

It is already obvious that knowledge is too complex in order to define it short. Also, knowledge can not be transferred as easy as data or information, since different types of knowledge need different transfer modes. The essential differentiation between tacit knowledge and explicit knowledge is described in following table.

Theory of Organizational Knowledge Creation – Two Types of Knowledge	
Tacit Knowledge (Subjective)	Explicit Knowledge (Objective)
Knowledge of experience (body)	Knowledge of rationality (mind)
Simultaneous knowledge (here and now)	Sequential knowledge (there and then)
Analog knowledge (practice_)	Digital knowledge (theory)

Table 4 Theory of Organizational Knowledge Creation (Nonaka, Takeuchi 1995:61)

The relation between these two types of knowledge is described with *"In our view, however, tacit knowledge and explicit knowledge are not totally separate but mutually complementary*



entities." (Nonaka, Takeuchi 1995:61). Although the above shown table gives already some indication from where these two different types of knowledge come, it is still necessary to dive deeper into the concepts of knowledge creation, in order to work out the relation to sales team efficiency.

### 5.3 Knowledge creation within two basic dimensions

Before discussing how knowledge is enhanced in teams, how it is transferred and why this contributes to efficiency increase, it is important to understand how knowledge is created.

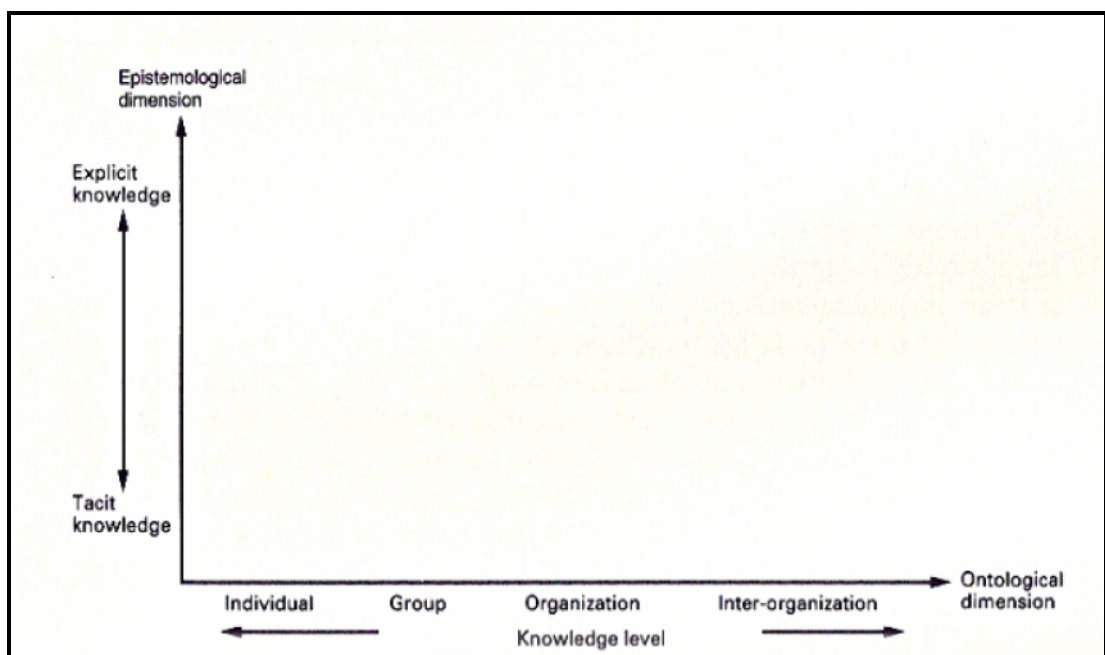


Figure 12 Two dimensions of knowledge creation (Nonaka, Takeuchi 1995:57)

The epistemological dimension is distinguishing between tacit and explicit knowledge, as described in chapter 5.2, Table 4. The ontological dimension describes on which level the knowledge is located, from individual to inter organizational.

*"In a strict sense, knowledge is created only by individuals. An organization cannot create knowledge without individuals. The organization supports creative individuals or provides contexts for them to create knowledge. Organizational knowledge creation, therefore, should be understood as a process that "organizationally" amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization." (Nonaka, Takeuchi 1995:59)*

Since knowledge creation, especially on organizational level, is described as being strongly tied to the process of knowledge sharing, organizational knowledge creation will be discussed later in this thesis.

#### **5.4 Knowledge codification, conversion and transfer**

Two basic types of knowledge, as described in chapter 5.2 , Table 4, result in four modes of knowledge conversion:

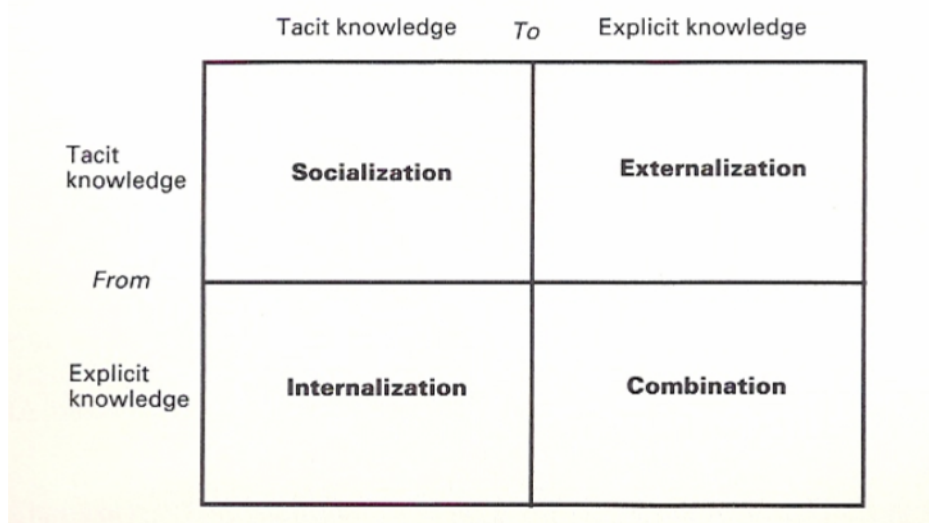


Figure 13 Four modes of knowledge conversion (Nonaka, Takeuchi 1995:62)

Due to the importance of knowledge sharing, the individual modes shall be investigated more closely here. Following inputs

describe socialization, which is the transfer from tacit knowledge to tacit knowledge:

*"An individual can acquire knowledge directly from others without using language. Apprentices work with their master and learn craftsmanship not through language but through observation, imitation, and practice." (Nonaka, Takeuchi 1995:63)*

Externalization can be regarded as very important for organizational knowledge sharing, because it describes the translation from tacit to explicit knowledge. *"Externalization is a process of articulating tacit knowledge into explicit concepts. It is a quintessential knowledge-creating process in that tacit knowledge becomes explicit, taking the shape of metaphors, analogies, concepts, hypothesis, or models." (Nonaka, Takeuchi 1995:63)* Combination, from explicit to explicit, follows this theory: *"Reconfiguration of existing information through sorting, adding, combining and categorizing of explicit knowledge (as conducted in computer databases) can lead to new knowledge." (Nonaka, Takeuchi 1995:63)*. And, finally, internalization is described with *"Internalization is a process of embodying explicit knowledge into tacit knowledge. It is closely related to "learning by doing"."* (Nonaka, Takeuchi 1995:69). Neuweg, discussing the context more from the perspective of teaching, stresses *"Die Lernenden müssen offenbar eine Aufgabe vollziehen, die der Lehrende selbst bei intensivstem Bemühen, das eigene Können, sprachlich "kleinzuarbeiten", nicht stellvertretend leisten kann."* (Neuweg 2001:9). Translated, this means that the learner has to perform a task [note by the author: during knowledge transfer] which can not, even with intensive endeavor to transfer the own knowledge verbally, performed by the teacher. This can be illustrated by following figure:

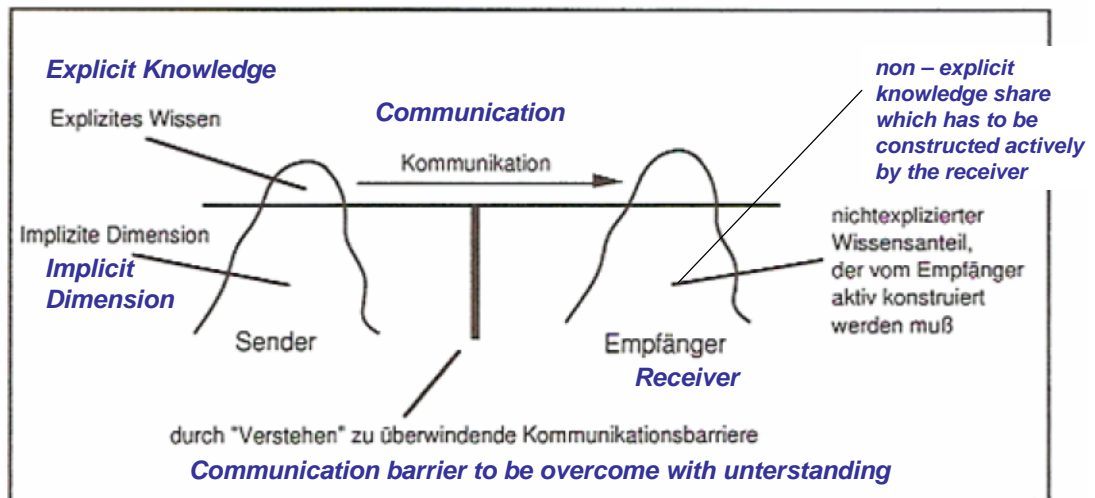


Figure 14 Communication and implicit knowledge (Neuweg 2001:10)

This shows impressive that receiving knowledge requires a very active behavior and that a high level of general understanding enables a high portion of implicit (tacit) knowledge to be transferred.

## 5.5 Markets for sharing knowledge

This chapter is included to investigate where knowledge is shared, and which elements are important for a knowledge sharing market. An important part is organizational knowledge as described by Davenport and Prusak:

*"In contrast to individual knowledge, organizational knowledge is highly dynamic: it is moved by a variety of forces. If we want knowledge to move and be utilized more effectively, we need to better understand the forces that drive it." (Davenport, Prusak 2000:25) "One challenges of knowledge management is to ensure that knowledge sharing is rewarded more than knowledge hoarding" (Davenport, Prusak 2000:29)*

The question is, how could a reward system look like, respectively whether we could assume that only very seldom the company itself is consistently caring for a kind of reward system. An answer could be:

*"Within organizations, the medium of exchange is seldom money, but there are agreed-upon currencies (or "entities", in the language of exchange theory) that drive the knowledge market. As we have said, seller and buyers exchange knowledge because they believe they gain from the transaction." (Davenport, Prusak 2000:29)*

From that we can learn, that basically knowledge is "sold" on a market which works like any other market – there are buyers, sellers, and a currency. Therefore, we can assume that like other specialized market, also the knowledge market may underlie specific market rules. But whatever market rules may apply, one thing which makes a market vital is trust.

*"For the knowledge market to operate in an organization, trust must be established in the following three ways: 1. Trust must be visible. The members of the organization must see people get credit for knowledge sharing. [...] a declaration of the importance of trust in the corporate mission statement is not sufficient. 2. Trust must be ubiquitous. If part of the internal knowledge market is untrustworthy, the market becomes asymmetric and less efficient. 3. Trustworthiness must start at the top. Trust tends to flow downward through organizations. Upper management's example can often define the norms and values of a firm. [...] Their values become known to the firm through signals, signs, and symbols." (Davenport, Prusak 2000:35)*

An remaining important question is, where knowledge is located and how someone can get access.

*"Title and position is the most common formal signal indicating who has or should have valuable knowledge [...] education is a formal market signal that may or may not be helpful [...] informal networks of practice that develop in organizations [...] "communities of practice" (Davenport, Prusak 2000:36-38)*

So it is a rather diffuse market, which also bears some weak points causing inefficiencies:

*"Our studies show that three factors in particular often cause knowledge markets to operate inefficiently in organizations: the incompleteness of information about the knowledge market; the asymmetry of knowledge; and the localness of knowledge" (Davenport, Prusak 2000:40)*

And, in addition, also some "knowledge market pathologies" have to be taken into account:

*"If only one person or group holds knowledge that others need, a knowledge monopoly exists. The effect is similar to that of monopolies in the market for goods and services: the knowledge will come at a high price [...] A knowledge monopoly is one form of artificial scarcity. In general, a corporate culture in which knowledge hoarding is the norm creates scarcity. Knowledge becomes very expensive not because it doesn't exist but because it is hard to get. Departments and groups may lack the knowledge they need to work efficiently because the hoarding culture keeps it scarce.[...] A variation of knowledge hoarding and the not-invented-here barrier is what we might call a class barrier: an unwillingness to give knowledge to or accept it from people in the organization who have relatively low status" (Davenport, Prusak 2000:43,44)*

## 5.6 Knowledge sharing and transfer in organizations

After investigating the differences between data, information and knowledge, as well as introducing two different but related types of knowledge and showing how conversion of knowledge works in principle, the ground is given to move to the topic how organizations share and transfer knowledge. Previously was already stated that knowledge creation and knowledge sharing can not be separated strictly, since sharing knowledge leads also to new knowledge because the shared knowledge is enriched by placing it into a new and different subjective perspective. Therefore, the concept of knowledge conversion is the base for evaluating how organizations share and enhance knowledge.

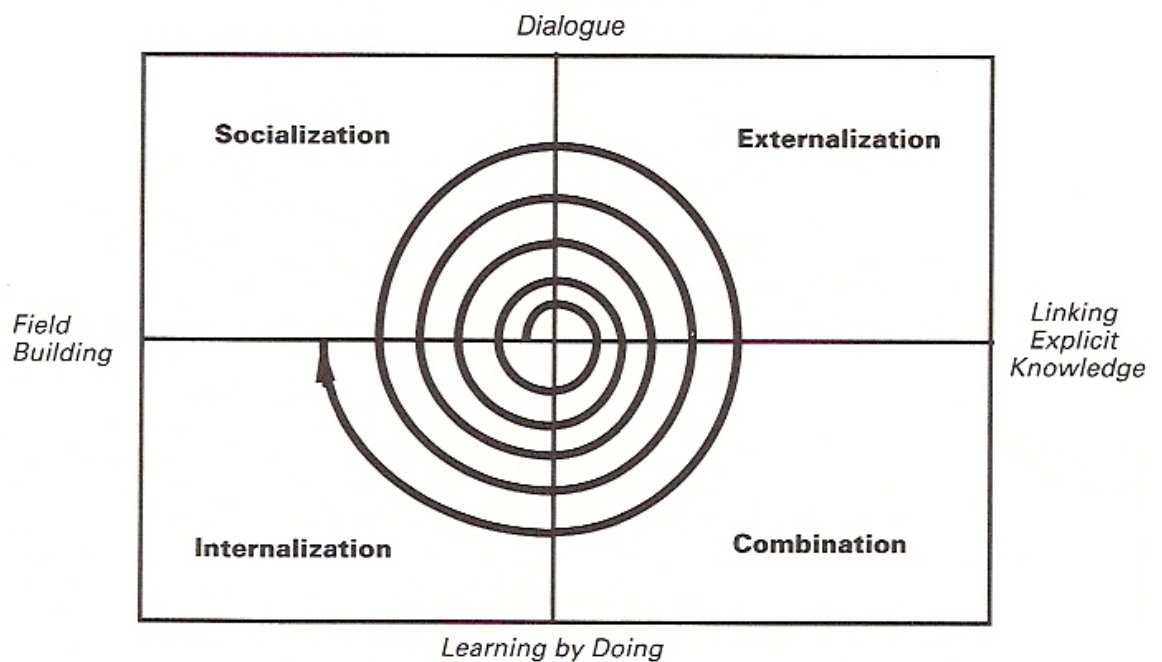


Figure 15 Knowledge Spiral (Nonaka, Takeuchi 1995:71)

The initially introduced knowledge conversion modes, which are socialization, externalization, combination and internalization are transferred to a concept where these four modes are interconnected into a permanent process.

*"Tacit knowledge of individuals is the basis for organizational knowledge creation. The organization has to mobilize tacit knowledge created and accumulated at the individual level. The mobilized tacit knowledge is "organizationally" amplified through four modes of knowledge conversion and crystallized at higher ontological levels." (Nonaka, Takeuchi 1995:72)*

Further, it is useful to be aware that through the different modes of conversion different categories of knowledge are produced.

		Tacit knowledge	To	Explicit knowledge
From	Tacit knowledge	(Socialization) <b>Sympathized Knowledge</b>		(Externalization) <b>Conceptual Knowledge</b>
	Explicit knowledge	(Internalization) <b>Operational Knowledge</b>		(Combination) <b>Systemic Knowledge</b>

Figure 16 Contents of knowledge created by the four modes (Nonaka, Takeuchi 1995:72)

Finally, all parts of the concept -

- Tacit and explicit knowledge
  - Epistemological and ontological dimension
  - Four modes of knowledge conversion
  - The knowledge spiral representing a permanent process
- are merged together:



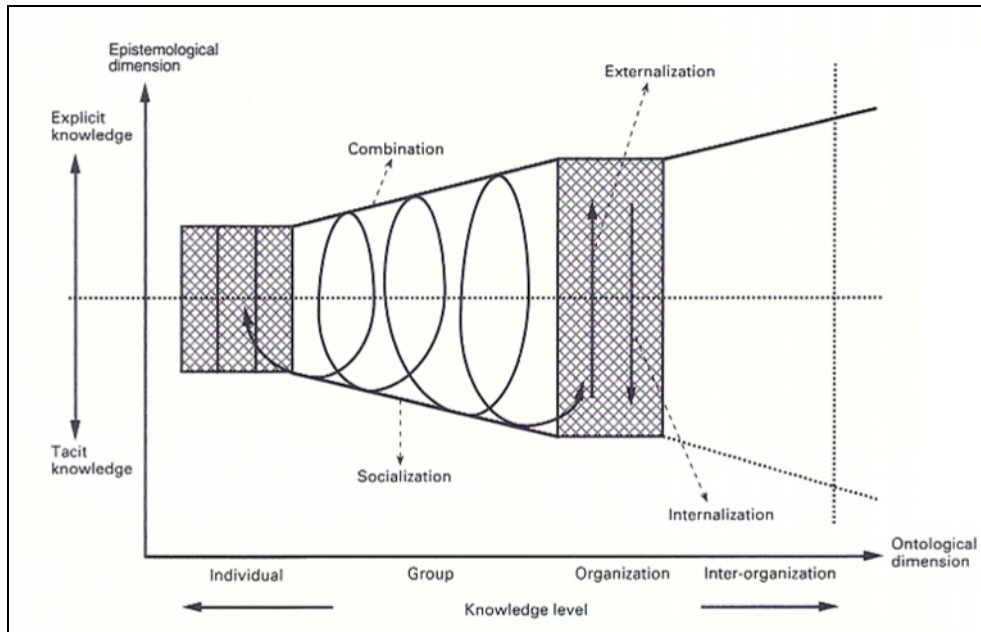


Figure 17 Spiral of organizational knowledge creation (Nonaka, Takeuchi 1995:73)

Another visualization, which sticks to the initial format of knowledge conversion but integrates also groups (teams) and the next level of the organization is the following:

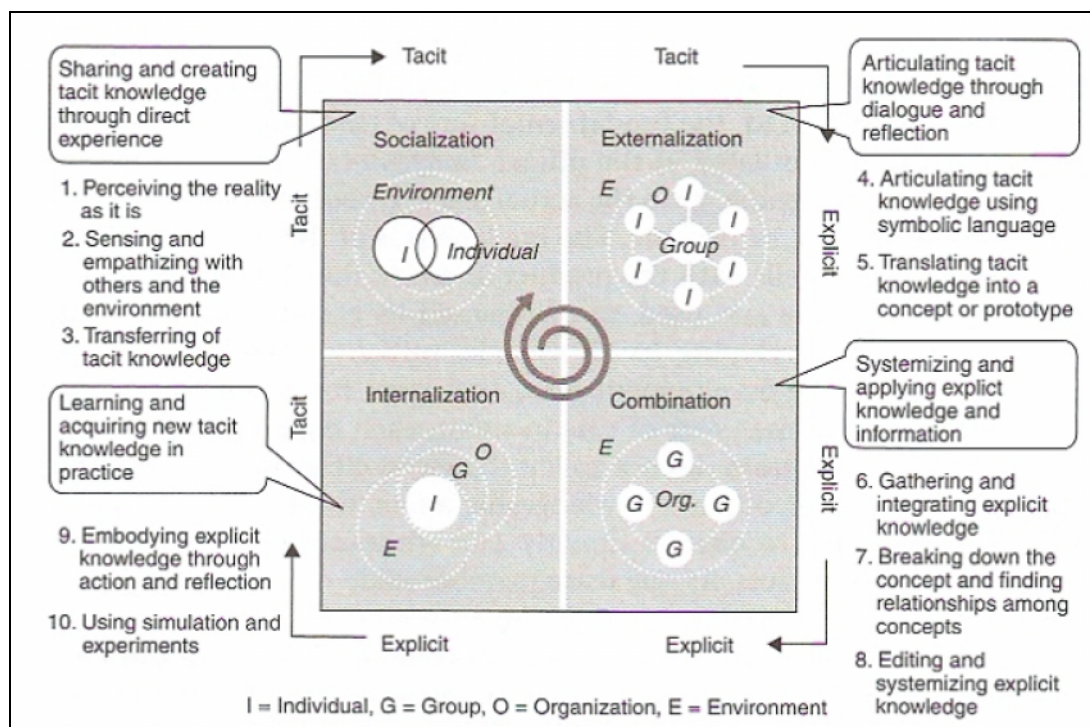


Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19)

Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) shows all interdependencies in one comparable simple visualization. Important is, that depending on the mode of knowledge conversion, the interaction between individuals, group, organization and environment is differently.

*"In the SECI spiral, the tacit knowledge possessed by individuals is externalized and thereby transformed into explicit knowledge so it can be shared with others and enriched [note from the author: enhanced in regard to the title of this thesis] by their individual viewpoints to become new knowledge." (Nonaka et al 2008:19)*

## 5.7 Knowledge fostering environments

One very important question, remaining up to now, is how knowledge sharing and enhancement is embedded into all surrounding aspects, which are not only the immediate operative environment, but also the strategic direction a firm wants to go – and how the elements interact with each other. At this point, we are assuming already a knowledge based firm.

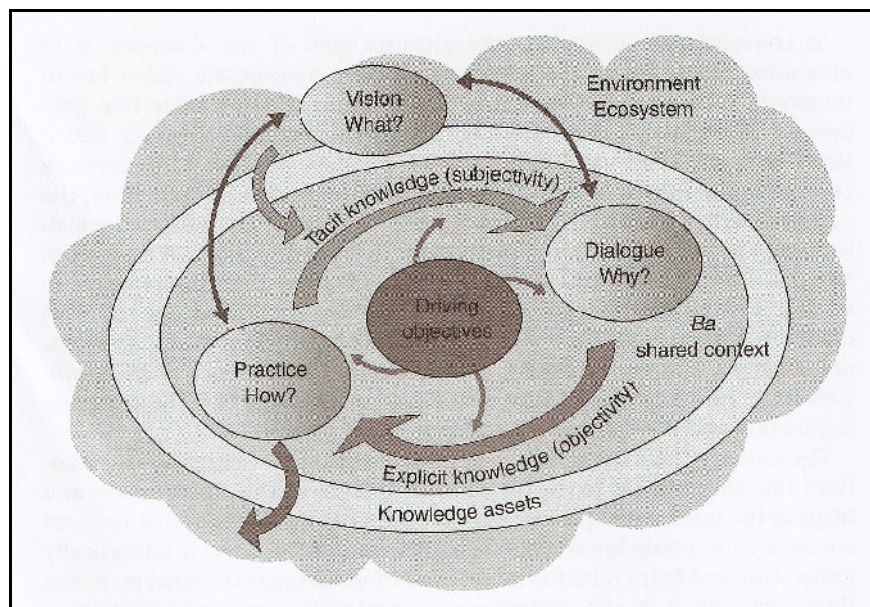


Figure 19 A process model of the knowledge based firm (Nonaka et al 2008:27)

*"The model consists of seven basic components: the SECI process of dialogue and practice: the knowledge vision and driving objectives, which gives direction and energy to the SECI process; ba, a space-time nexus for the SECI process to occur; knowledge assets, which are the inputs and outputs of the SECI process; and the environment, as an ecosystem of knowledge and multilayered ba." (Nonaka et al 2008:27). "A knowledge vision is an ideal picture of how we want to be, and that ideal is not something that is easily achieved"(Nonaka et al 2008:28)*

It is interesting to find the vision here interconnected with knowledge. Despite it is called knowledge vision, it is already obvious that it goes for a general vision about the firm in future. Another statement contributes with:

*"As stated earlier, knowledge is created from one's belief, and for a belief to become knowledge it has to be justified with truth. (...) A firms new opportunities, new markets, new technologies, or new business models are based on its vision of the future, and it is the values, ideals, and aesthetic sense of the organizational members that determine this vision." (Nonaka et al 2008:12, 13)*

Based on that, visions created based on a strong knowledge perspective tend to have a very good chance to become true. Important is, that these visions take tacit knowledge into account, as stated by Mitchell based on Polanyi's theories:

*"Common sense tells us that beauty and truth and justice exist, however imperfect their temporal manifestations. In other words, we must expand our conception of reality beyond the strictures of materialism in order to fully account for human experience." (Mitchell 2006:133, citing Polanyi:1958 non-verbatim)*

As a central motor, the 'driving objectives' are visible.

*"A firm has to have a mechanism for realizing its knowledge vision. The mechanism is a concrete concept, goal, or action standard that connects the vision to the knowledge-creation process of dialogue and practice. (...) the driving objective is the engine that drives the entire organization" (Nonaka et al 2008:29)*

Another new element is 'ba', which is described as follows:

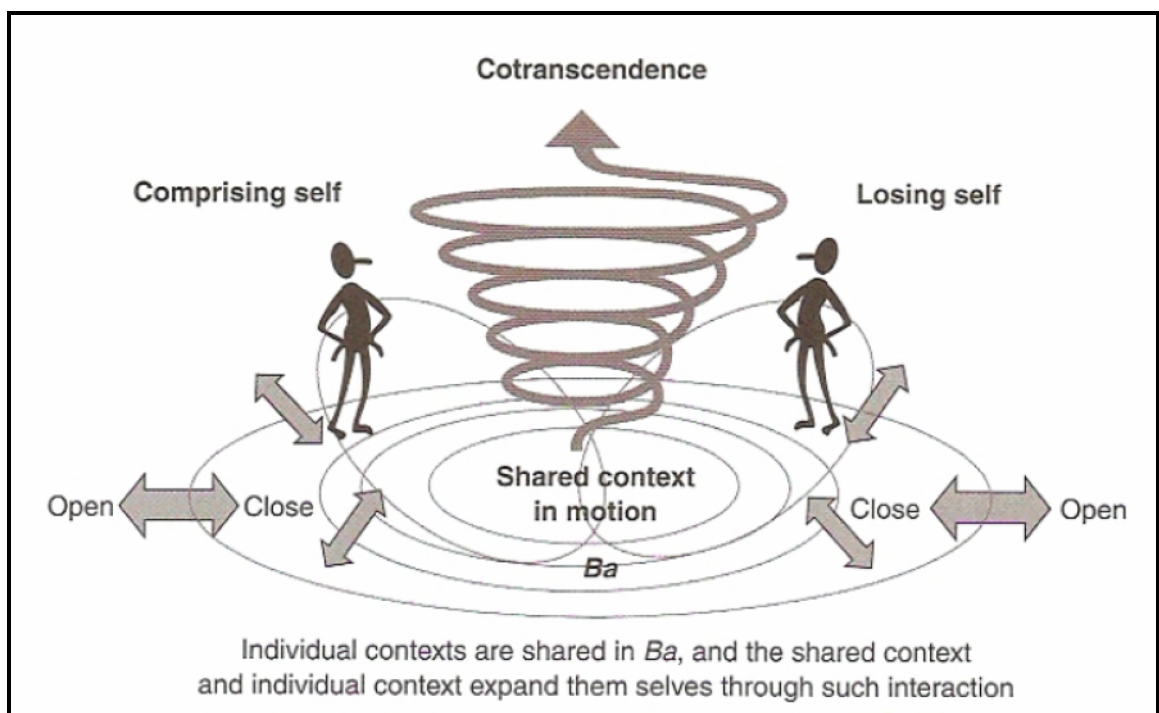


Figure 20 Ba as a shared context in motion (Nonaka et al 2008:35)

It is described as:

*"We define ba as a shared context in motion, in which knowledge is shared, created, and utilized. Ba is the foundation for knowledge-creating activity." (Nonaka et al 2008:34). Another, more extensive wording is:*

*"We define ba as a shared context in motion because ba are constantly moving and changing. Participants bring their own*

*contexts to a ba and interact with others and the environment, changing their own contexts, the context of the ba, and the environment. (...) Ba as a shared context means that subjective views are understood and shared in their relationship with others." (Nonaka et al 2008:35)*

Also, some specific requirements have to be fulfilled regarding ba in order to make knowledge enhancement possible:

*"First, a ba must be self-organized and possess its own intention, objective, direction, and mission.(...) Second, ba participants must establish a shared sense of purpose.(...) When contexts are shared in motion within a ba, participants do not observe from a self –centered standpoint but reposition themselves in terms of their relationship with others. Third, a ba requires participants with different types of knowledge. (...) New knowledge is created in the synthesis of subjective viewpoints, and is enriched by the diversity of contexts and perspectives. (...) Fourth, while a ba needs boundaries, these must be open. The possibilities for expanding contexts are limitless, so meaningful context-sharing requires boundaries.(...) Fifth, a ba requires the commitment of participants. (Nonaka et al 2008:37, 38)*

## **5.8 Knowledge based management of teams**

The question how to translate knowledge into a management method or style is evident – especially in regard of motivation and efficiency increase.

*"For endogenous motivation to function in an organization, the following conditions must be satisfied: creativity must be demanded; the work must be complex but broad in scope and require extensive knowledge; and tacit knowledge must be shared and created. (...) Feelings of satisfaction and a sense*

*of comradeship or belonging are important in the creation of tacit knowledge." (Nonaka et al 2008:38, 39)*

So it can be clearly recognized, that there are factors needed which are not simply there anyway, which leads to the term of leadership.

*"The driver of this entire dynamic process is leadership. Leadership plays a variety of roles in the knowledge-creating process, such as: providing knowledge vision and a driving objective; developing and promoting the sharing of knowledge assets; creating, energizing, and connecting ba; and enabling and promoting the continuous spiral of knowledge creation through dialogue and practice. At the base of such leadership is phronesis, that is practical wisdom to make the necessary decisions and take the appropriate action with the right timing to achieve a common good." (Nonaka et al 2008:53)*

Phronesis as a leadership concept requires a set of abilities:

*"What exactly is phronesis, then, in the context of a knowledge creating company? We argue that it consists of the following six abilities: (i) the ability to make a judgment about 'goodness'; (ii) the ability to share contexts with others to create the shared space of knowledge we call ba; (iii) the ability to grasp the essence of particular situations/things; (iv) the ability to reconstruct particulars into universals and vice versa using language/concepts/narrative; (v) the ability to use well any necessary political means to realize concepts for the common good; and (vi) the ability to foster phronesis in others to build a resilient organization." (Nonaka et al 2008:55)*

## 6 DEVELOPMENT OF A PROCEDURE FOR KNOWLEDGE ENHANCEMENT

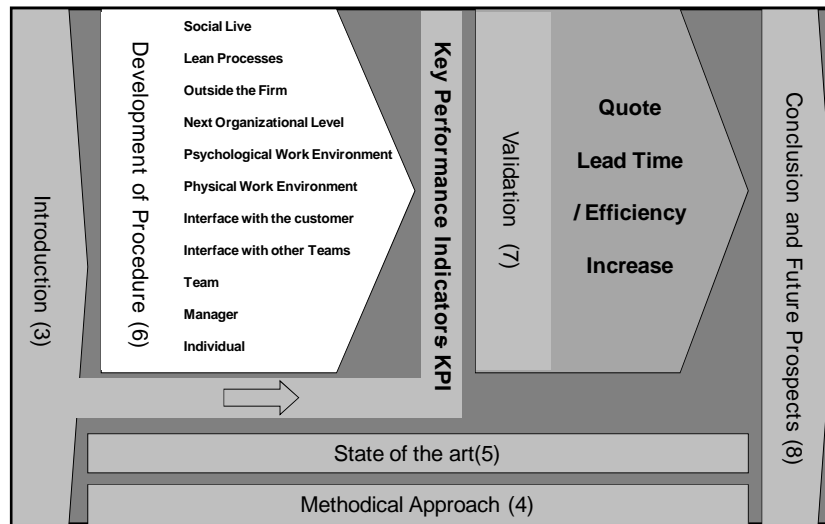


Figure 21 Development of procedure

### 6.1 Setup of the automotive 2<sup>nd</sup> tier sales application

The automotive industry is characterized by a very high level of competition between OEM's as well as suppliers. The trend of outsourcing created a supplier structure over several levels, whereas the setup of the primary supply chain is as follows:

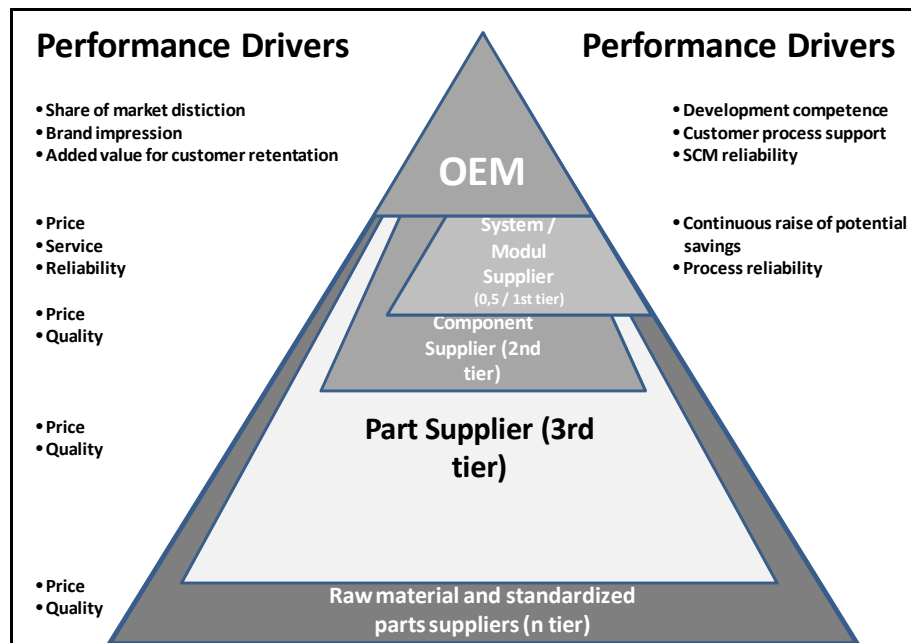


Figure 22 Supplier Pyramid (Sihn, 2009:47)

The component suppliers, respectively 2<sup>nd</sup> tier suppliers, supply typically the greater part of their product portfolio to a 1<sup>st</sup> tier, respectively system supplier, but a smaller part of their portfolio also directly to the OEM. As shown in Figure 22 Supplier Pyramid (Sihn, 2009:47), price is the leading issue over all supply levels, which requires a high grade of efficiency in order to stay competitive. Independently from the necessity that a firm has to be competitive in all areas of operation, this efficiency, which is increasing competitiveness is especially important in the area of acquisition and sales, where sales teams have the task to secure order intakes for the company. The procedures in this thesis are developed for a automotive sales team operating from a 2<sup>nd</sup> tier position, but can be applied also in other sales teams, e.g. with adaption, and probably also in other industrial branches. Typically, such sales teams perform different roles within the firm, which consist of elements like strategy, sales management, sales back office as well as planning and reporting. The team interfaces with customers, with company inside departments and with headquarters. The idea is that these people initially mainly transfer information to all these interfaces, and that applying the theory of knowledge management enables them to perform these transfers faster and in better quality, and therefore with higher efficiency.

## ***6.2 Barriers for knowledge based sales team management***

Before going into detail of the practical application, some 'practical' barriers need to be identified. Some of these barriers have already been investigated in chapter 4., e.g. in 4.5. describing the 'knowledge market pathologies'. At this point, it is deeper investigated how centralism, process adherence, tacit knowledge and the organizational structure interact and built barriers for knowledge enhancement.



## 6.2.1 Tacit knowledge in practice meets barriers

Tacit knowledge meets barriers in practical working life because every decision needs to be based on a "proof", typically called analysis or business plan. This "proof" consumes a lot of capacity and should document that each and every detail has been taken into account. Then, the "proof" is gradually pushed upward through the organizational structure, with every step converging more to a perceived "truth". Typically, a lot of promising ideas do not reach maturity or receive a decision, because it is not possible for whatever reason to construct this proof. Already Polanyi criticized this with "*[Note from the author: Intuition] is a skill, rooted in our natural sensibility to hidden patterns and developed to effectiveness by a process of learning*" (Polanyi, 1969:118; cited by Mitchell 2006:40). This recognition of hidden patterns are the base for deciding for a specific idea, but finally this decision base can not be easily translated into a convincing written analysis or business plan. "*[Note from the author: All knowledge] is either tacit or rooted in tacit knowledge*" (Polanyi, 1969:195; cited by Mitchell 2006:71). Polanyi criticizes the significance of objectivism also with following statement:

*"Objectivism has totally falsified our conception of truth, by exalting what we can know and prove, while covering up with ambiguous utterances all we know and cannot prove, even though the latter knowledge underlies, and must ultimately set its seal to, all that we can prove."* (Polanyi, 1958:286; cited by Mitchell 2006:37) and *"We know more than we can tell"* (Polanyi, 1966:4; cited by Mitchell 2006:70)

In practice, it is extremely difficult to stand for a decision which can not be documented by a base of analysis – at least, it requires a significant level of seniority.

## 6.2.2 Centralism and process adherence versus knowledge responsibility

Another conflicting field versus tacit knowledge is centralism and, implied by centralism, process adherence.

*"The final impediment to a centralized economy is the fact of human finitude. A centralized system (or what overconfident advocates might call 'scientific planning') is predicated on the belief that the central authority is capable of gathering and assimilating all available information about every aspect of the economic system and then making decisions based upon that information. Yet there is an obvious problem with this belief: 'the central authority', however properly constituted it may be as a government, is in fact ignorant of the desires of its constituents as far as their day-to-day wants are concerned." (Polanyi, 1966:148; cited by Mitchell 2006:22)*

Translated to the functional principle of a firm, this statement relates to the approach that centrally defined processes may cover all contingencies, which leads to more and more detailed process descriptions and a strong focus on process adherence for all activities. Finally, process adherence is superior to the initially indented work result. An approach to solve this issue is contained in following statement:

*"To address economic questions adequately in Polanyi's view, one must employ a polycentric approach rather than a centralized one. A polycentric system is one that operates according to the mutually adjusting actions of independent participants." (Mitchell 2006:22)*

The polycentric approach, again translated into working live inside a company, would allow to permanently adapt all activities according the actual situation, e.g. tailoring the processes to the need of the actual task. But, important,

centralized processes lead also to a fading picture of responsibilities, because if process adherence is regarded more than the operative work result, employees are freed from their natural responsibility to act according to the needs of the situation. They apply a centralized process instead of knowledge. But, since typically knowledge is available, this could lead to frustration, because, as stated by Mitchell on the basis of Polanyi *"With freedom to know comes the responsibility to act in accordance with that knowledge"* (Mitchell 2006:101). Respectively as stated by Polanyi himself *"The freedom of the subjective person to do as he pleases is overruled by the freedom of the responsible person to do as he must."* Polanyi 1958:309; cited by Mitchell 2006:102). This can be interpreted as a kind of subduing the natural desire to act based on knowledge, which causes the mentioned frustration. By intention, both issues, barriers for applying tacit knowledge as well as centralism have been dealt with very critically at this point, in order to set focus for the positive muted practical implementation of knowledge management. Of course, processes are important, and if knowledge management as a meta process framing the operative process world is implemented carefully, not creating a competition, the maximum of leverage can be achieved.

### **6.3 Procedural steps targeting on specific areas within a firm**

In this chapter, procedures are proposed, which shall in a first step foster the application of knowledge. In a second step, a reference to the related efficiency increase is made. The presented procedures refer to the scenario outlined in chapter 6.1. In some areas, overlaps can not be fully avoided, nevertheless the structure targeting the different levels or elements within the environment of the team gives an overview

which should enable gradually implementation for existing teams.

### 6.3.1 Individual humans within the team

Individual humans are referenced as the smallest possible element in discussion. At the same time, humans, in the context of this thesis, are the most important element. As discussed in chapter 5.1, already the creator can add meaning to data, which results in information. This is important, because it makes clear that discussing humans equals discussing about sender of information as well as receiver of information. As a sender, the human adds meaning, as a receiver the human is "informed", which means shaped. This being informed respectively "shaped" is, as also referenced in 5.1, depending on the beliefs and commitment of the receiver, who, with this beliefs and commitments, applies his knowledge. This application of the individual knowledge of the receiver leads already to the creation of new knowledge. Since this application of subjective knowledge requires also interaction with other humans, or provokes interaction in order to validate the own interpretation, gradually the final classification is regarded as objective. Through this process, knowledge is related to practice within particular situations. But the process itself can have different manifestations, depending on the type of knowledge which is exchanged, according Table 4 Theory of Organizational Knowledge Creation (*Nonaka, Takeuchi 1995:61*). As stated established in 5.3, knowledge is created only by individuals, strongly related to the transfer process itself, which happens according Figure 13 Four modes of knowledge conversion (*Nonaka, Takeuchi 1995:62*) in four different modes, whose are socialization, externalization, combination and internalization. And, the individual human, in order to be able to take part in the transfer process, has to make use of knowledge markets, according chapter 5.5. For the individual human, the motivation taking part in this knowledge markets is some kind of personal

benefit. Further details about knowledge markets will be dealt with in chapter 6.3.3 and 6.3.8 mainly.

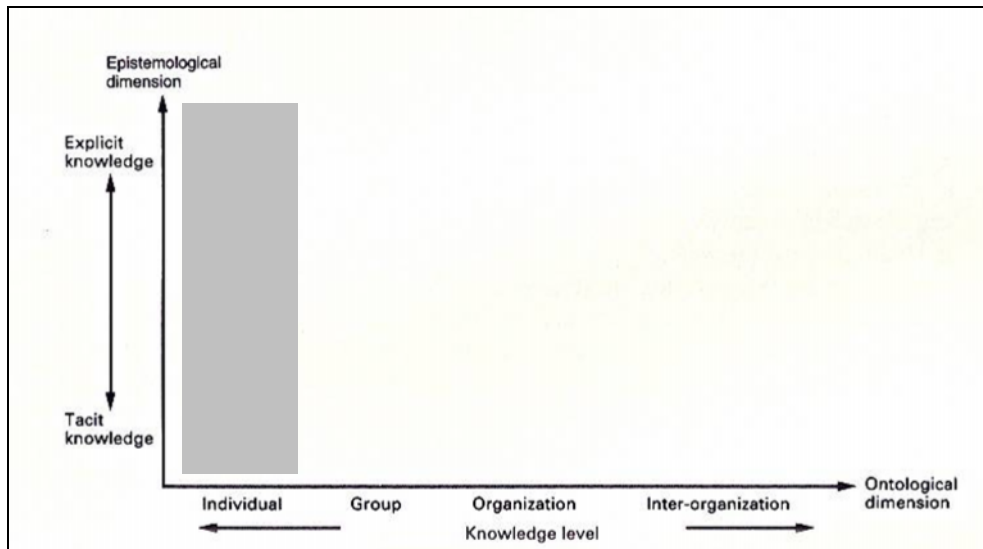
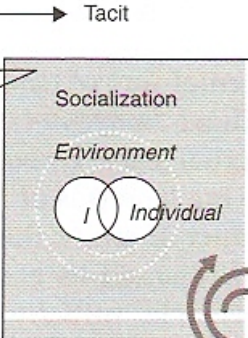


Figure 23 The individual within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Based on that, following specific procedures can be applied to individuals within a team:

Selective Measure	Theoretical Background
<p style="text-align: center;"><b>Allow close co-operation between single team members in master / apprentice structures</b></p> <p>and challenge this cooperation as a manager.</p>	<div style="display: flex; align-items: flex-start;"> <div style="flex: 1;"> <p style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px;">Sharing and creating tacit knowledge through direct experience</p> <ol style="list-style-type: none"> <li>1. Perceiving the reality as it is</li> <li>2. Sensing and empathizing with others and the environment</li> <li>3. Transferring of tacit knowledge</li> </ol> </div> <div style="flex: 1;">  <p style="font-size: small;">The diagram shows a box labeled 'Socialization' containing 'Environment' and 'Individual' (represented by two overlapping circles). An arrow labeled 'Tacit' points from the 'Individual' towards the 'Socialization' box. A curved arrow at the bottom right indicates a cyclical process.</p> </div> </div> <p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) defines with socialization the sharing and creating of tacit knowledge trough direct experience. According Nonaka in chapter5.35.4, an individual can acquire knowledge directly from others without using language.</p>

Selective Measure	Theoretical Background
<p><b>Motivate team members to share knowledge by increasing their status and expertise</b></p> <p>level depending on their ability to share (e.g, by integrating this feature into a expert career plan</p>	<p>As discussed in 5.5, knowledge sharing needs to be rewarded more than knowledge hoarding. Both sides have to gain from the transaction. Trust must be an integrated value within the organization.</p>
<p><b>Develop specific knowledge areas with different people</b></p> <p>to give everyone the chance to be identified as a knower in a specific discipline – this motivates and sharpens the senses for knowledge creation</p>	<p>5.5 refers also to the topic how the location of knowledge is determined – which is for example title or position of individuals or informal networks and communities of practice.</p>
<p><b>Subdivide the team organization into roles and formulate the roles verbally.</b></p> <p>Make one team member accountable for the role see Figure 24 Role Description Department Sales&amp;Portfolio, Continental Automotive Austria</p>	<p>As outlined by Davenport in 5.5, organizational knowledge is highly dynamic and moved by a variety of forces. By making one team member accountable for the knowledge management regarding the role content, this dynamic can be channeled. Regarding the knowledge vision, Nonaka is cited in 5.7 with a knowledge vision as an ideal picture how we want to be.</p>

**Table 5 Procedures targeting individual humans**

<p><b>Strategy &amp; Business Cases</b></p> <p>Strategy &amp; Business Cases provides the longterm course and shortterm capacity balance. <i>This role is responsible for keeping the overall picture within sight.</i></p>	<p><b>Sales Management</b></p> <p>Sales Management identifies opportunities, quotes, negotiates and wins contracts. <i>This role is responsible for translating market potentials into order intakes.</i></p>
<p><b>Sales Office &amp; Reporting</b></p> <p>Sales Office &amp; Reporting manages the frame structure for all selling activities. <i>This role is responsible for supplying a stable and reliable backbone.</i></p>	<p><b>Planning &amp; Services</b></p> <p>Planning &amp; Services integrates the segment into the BU through consistent planning and tracking. <i>This role is responsible for seamless data flow and integration.</i></p>

**Figure 24 Role Description Department Sales&Portfolio, Continental Automotive Austria**

### 6.3.2 The manager of the team

The manager of the team plays an important role in the process of knowledge management and especially knowledge transfer. According to Nonaka:

*"Middle managers play a key role in the knowledge creation process. They synthesize the tacit knowledge of both front-line employees and senior executives, make it explicit, and incorporate it into new products and technologies." (Nonaka, Takeuchi 1995:16)*

The manager has to be aware that the flow of messages, as described in 5.1, can be stimulated as well as restricted on one hand, and directed on the other hand. As another instrument, an extended knowledge about the subjective viewpoints within the team can be positively applied. Also in 5.1 is referenced to the process-relational nature of knowledge, which will be deeper investigated in chapter 6.3.10. Since the main target of the manager is to utilize his team as best as possible in order to reach or even overachieve the company targets, it is necessary that he is aware about the different types of knowledge, as stated in Table 4 Theory of Organizational Knowledge Creation (Nonaka, Takeuchi 1995:61) and the relation between those two types of knowledge, which are tacit and explicit, in the context of individuals versus teams or organizations. Figure 12 Two dimensions of knowledge creation (Nonaka, Takeuchi 1995:57) This is not only of importance for managing settled team structures, it has also relevance for the process of integrating new members into the team. Discussing the role of the manager leads then very fast to the conclusion the steering the process of knowledge conversion is central. Acting according to Figure 13 Four modes of knowledge conversion (Nonaka, Takeuchi 1995:62) does not mean translating tacit knowledge into explicit knowledge at any price, which is practiced very often, it means also work smartly with tacit knowledge. Through this,

transaction cost for conversion respectively content loss can be avoided. For knowledge transfer, socialization, externalization, combination and internalization shall be balanced depending on the situation. And, as an additional challenge, the manager represents for his team a key element within the knowledge market, since he is responsible for having the market forces in mind, creating trust regarding the reward for sharing knowledge, making transparent where knowledge is located and avoiding market pathologies as described in 5.5. Seeing knowledge management as an dynamic process, leadership, as outlined in 5.8, is the driver. This driving process needs to incorporate abilities which are explained as phronesis. In principle, phronesis describes the ability to master knowledge management on a very high and intuitive level.

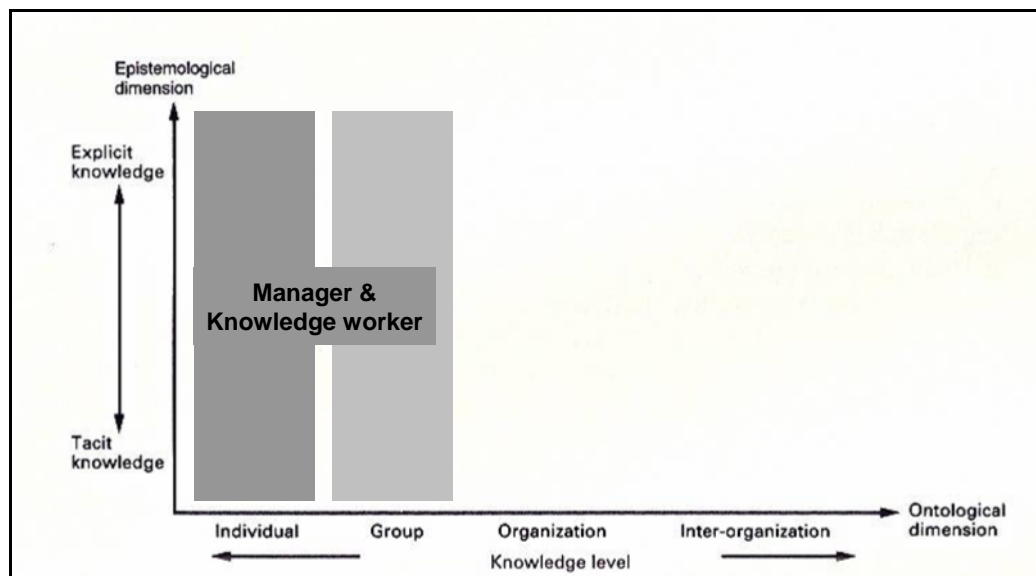
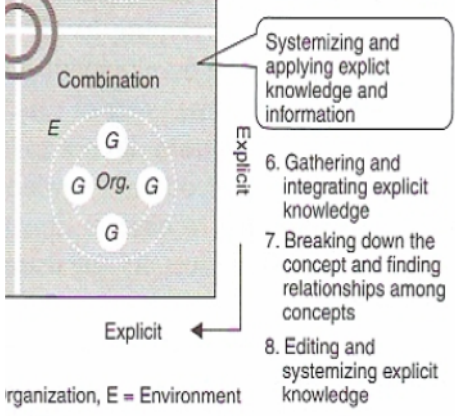


Figure 25 The manager and knowledge worker (based on Nonaka, Takeuchi 1995:62)

The manager, as an individual placed within the two dimensions of knowledge conversion, acts as a knowledge worker for the team, focusing on the conversion of knowledge from tacit to explicit (externalization) and from explicit to tacit (internalization).



Selective Measure	Theoretical Background
<p><b>Direct the information stream according the role and integration of team members into the work process.</b></p> <p>With new diffuse information, also provide local application guidance in order to avoid too much subjective interpretation. Never distribute information you can not understand respectively interpret by yourself.</p>	 <p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) shows the importance of combination. Explicit knowledge is collected, set into operational relation and systemized – in this example by the manager. Basically, this means mastering the knowledge market, as described in 5.5</p>
<p><b>Make your function as a knowledge manager public,</b></p> <p>so that your team knows that you are an important element in their knowledge market.</p>	<p>Chapter 5.5 explains that one of the most important elements of a functioning knowledge market is trust. This trust should be visible (which is achieved by the manager exposing himself as a knowledge worker) and the trustworthiness needs to start at the top.</p>
<p><b>Practice permanent and intensive communication</b></p> <p>with your team members to develop common areas of understanding.</p>	<p>Based on chapter 5.1, knowledge is process related, where subjective viewpoints are justified through social interaction. Also, as chapter 5.8 is outlining, phronesis as a leadership concept can be applied and fostered in other individuals.</p>

Selective Measure	Theoretical Background
<p><b>Train your ability to value from helicopter view</b></p> <p>and to translate specifics into universal language.</p>	<p>The application of all elements of pronesis (chapter 5.8) as a base concept of leadership, more over living pronesis authentically, is the base for a knowledge growing firm.</p>
<p><b>The manager needs to develop and apply a knowledge vision on team level</b></p> <p>which is in line with the corporate vision.</p>	<p>As outlined in chapter 5.7, a firm's vision of the future is initially based on the beliefs of individuals. These beliefs are gradually justified with truth and thereby converted to knowledge. In combination with the leadership approach stated in chapter 5.8, where providing a knowledge vision is one of the elements, the important role of the knowledge vision can be recognized.</p>

Table 6 Procedures targeting the manager of the team

### 6.3.3 The team as an organization

As an organization, the aspects get more complex compared to an individual, since knowledge sharing is happening in "organizations" of individuals. In chapter 5.6 is outlined that organizations amplify knowledge, which represent a lever for creation and transfer of knowledge. This process can be visualized by Figure 15 Knowledge Spiral (Nonaka, Takeuchi 1995:71) and, integrating also the organizational dimension, by Figure 16 Contents of knowledge created by the four modes (Nonaka, Takeuchi 1995:72) and, clearly defining the interaction of individuals, groups, organizations and environments, by Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19). This illustrates already that it is a permanent process utilizing all dimensions, not just a single step of "knowledge innovation". Since these organizations are acting within an environment, chapter 5.7 intends to investigate which practical setup represents such an environment.

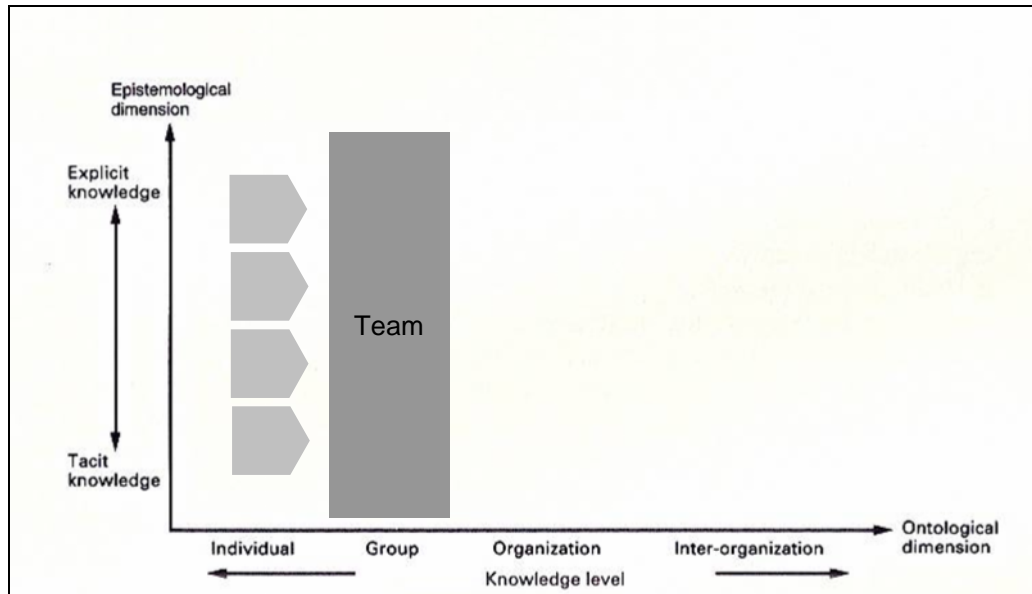


Figure 26 The team within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Individuals forming a team create a new entity with a specific level of explicit and tacit knowledge.

Selective Measure	Theoretical Background
<p><b>Provide processes supportive to operational work,</b></p> <p>but not hindering the application of knowledge. Allow educated process tailoring.</p>	<p>As described in chapter 5.1, in organizations knowledge is embedded in routines, processes and norms. This is one possibility to externalize, from tacit to explicit, knowledge.</p> <div data-bbox="837 1451 1380 1758" style="border: 1px solid black; padding: 5px;"> </div> <p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) shows the process of externalization.</p>

Selective Measure	Theoretical Background
<p><b>Create situations where the team or at least parts of the team experience business situations</b></p> <p>together and apply common practice to these business situations.</p>	<p>Chapter 5.1 explains that knowledge is process-relational and can only be created in actual practice of dealing with particular situations. This is re-confirmed in 5.4 stating that explicit knowledge is internalized in a "learning by doing" process.</p>
<p><b>Respect the team being a team also without the framing function of the manager.</b></p> <p>Respect and foster a "knowledge self-confidence" of the team. Team tacit knowledge can be introduced into amplification process.</p>	<p>The base for that is found in chapter 5.6, where it can be learned that the organization has to mobilize the tacit knowledge created and accumulated on individual level – which is a process of organizational amplification. With this process, the knowledge is leveled to a higher organizational level.</p>
<p><b>Let the vision live in the team.</b></p> <p>By including the team into the vision creating process, the team members are more motivated to align with this vision. Also, their experiences are valuable inputs.</p>	<p>According Mitchell, citing Polanyi non-verbatim in chapter 5.7, there is a common sense which tells us that truth and justice exist, however imperfect the current manifestation is. This can be applied to define the ideal manifestation (with the team), which is then achievable, because common sense confirms that it can exist.</p>

Table 7 Procedures targeting the team as an organization

### 6.3.4 The interface with other teams on peer level

The next level of social interaction is reached at the point where teams not only interact within themselves and the manager, but also with other teams on "team" peer level. In this setup, a situation is established where the knowledge spiral is circling within each team, which can be regarded as a group in this context, and the teams on peer level, which sets up an organization represented by different groups respectively teams. The manager has a double role in this setup as a group member and as a knowledge worker peering with knowledge workers from

the other groups. In this multi dimensional scene, all the other aspects mentioned in 6.3.1, 6.3.2 and 6.3.3 are relevant at the same extend. Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) is the most representative visualization for this setup.

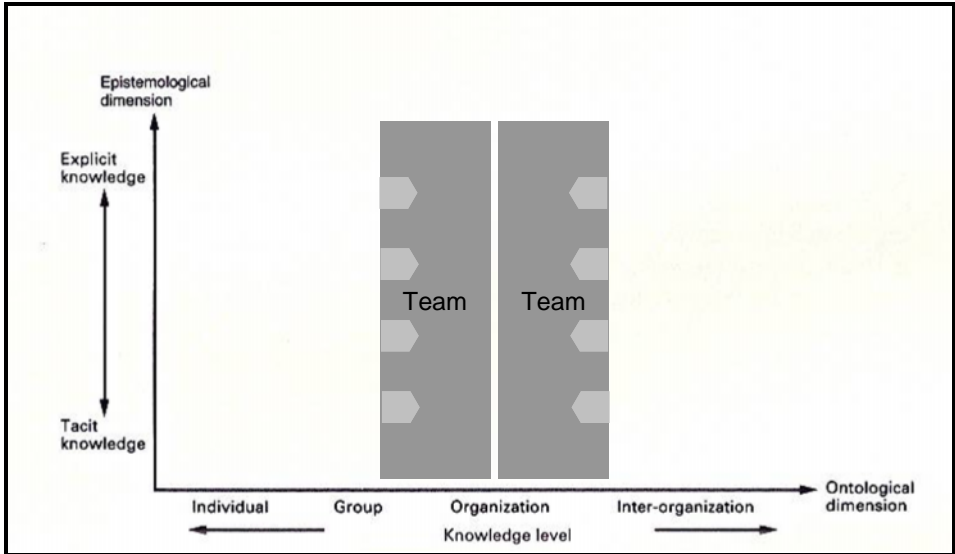


Figure 27 Teams on peer level within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Selective Measure	Theoretical Background
<p style="text-align: center;"><b>Let the team be a team.</b></p> <p>This means, the manager must not outshine his team, rather bask himself in the success which is created by the team and himself. This creates team self-confidence and team spirit. Confident teams externalize their knowledge more pro-active and combine knowledge more open to other knowledge sources.</p>	<p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) is the base for interpreting the main strategies of knowledge conversion. For two teams, interacting on peer level, externalization and combination are the most important.</p>

Selective Measure	Theoretical Background
<p style="text-align: center;"><b>Be aware: The other team is a supplier or customer.</b></p> <p>Teams need to understand supplier – customer relationships also inside the own organization. Establish in general and specifically regarding knowledge sharing a sustainable feedback culture.</p>	<p>As stated in chapter 5.4 based on Nonaka, externalization is a process to translate tacit knowledge into explicit knowledge. Recognizing the other team as supplier or customer leads to a completely different accountability. If the other team is a supplier, the accountability is to "externalize" as good as possible the requirements, if the other team is customer, the accountability is to sell the own product or service (which is very much related to knowledge) as best as possible.</p>
<p style="text-align: center;"><b>Teams must be established, respectively positioned, on the knowledge market.</b></p> <p>This increases the popularity of the team, and more popularity leads to more accountability</p>	<p>According chapter 5.5, knowledge markets need first of all trust in order to work properly. More accountability typically implicates more trustworthiness.</p>

Table 8 Procedures targeting the interface with other teams

### 6.3.5 The interface with the customer

Since a automotive sales team, acting for a 2<sup>nd</sup> tier supplier in the automotive industry, is in this thesis the environment for application of knowledge management, the interface to the customer needs to be analyzed deeply. Regarding interfacing with the customer, we increase the complexity of interaction by an external factor, which is the customer itself. The challenge is, that the customer is neither on peer level, nor organizationally superior – but nevertheless also an organization where individuals are acting in daily business, applying all their subjective viewpoints in combination with their knowledge base as an organization. Another aspect is, that in front of the fierce competition, sharing knowledge has its limits in regard to sharing intellectual property. So the complexity is located at the tradeoff between transferring enough knowledge to the customer as long as it helps to sell projects and products,

like conditioning the customer mind positively by letting him know that there is valuable knowledge comprised in the products and services which may be potentially delivered, and, at the other tradeoff limit, it must be avoided to transfer too much knowledge content, which may flow then to competitors also or enable the customer to perform the necessary content by himself. As discussed in 5.1, the framework for evaluation of new information and experiences is characterized by a mix of previous, already internalized experiences, values, other information and expert know how. An offer, which is issued by the sales team to a customer, should contain such new information for the customer, otherwise it is anyway not of value for him. This new information, which is contained in the offer, is meant to "inform" in the sense of "giving shape to" the customer – or in more practical terms, make a difference in his insight as described in chapter 5.1. The same is valid for all communication with the customer, not only in written form, but also in direct interaction, which creates even more experiences on both sides and give therefore shape to the customer – supplier relationship. Especially in direct communication with customers, where in most cases from both sides operational targets have to be met, stress is created and due to limited time or limits set by the communication style, a lot of tacit knowledge is applied to manage the situation and to achieve the intended results.

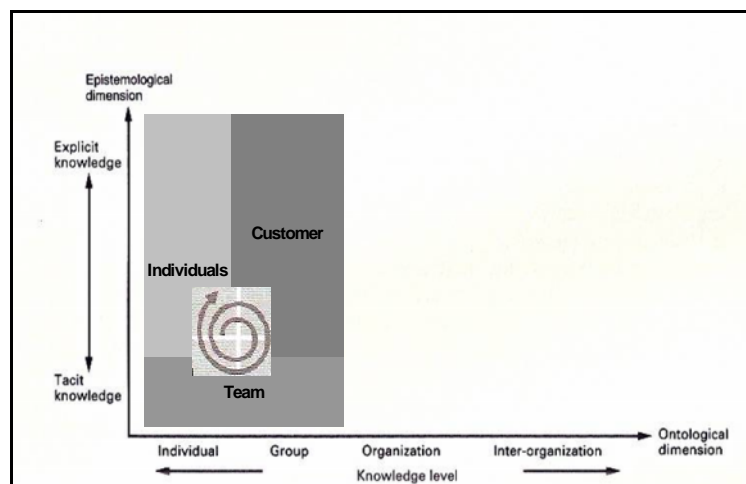
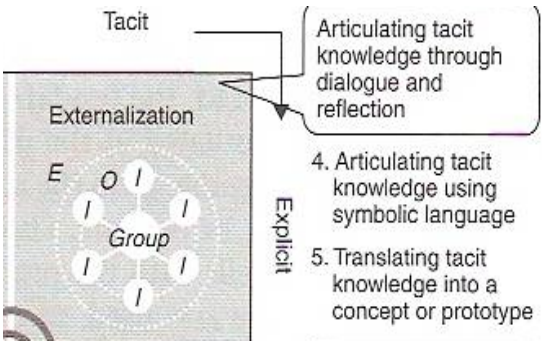


Figure 28 Interaction with customers within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Here, individuals, who are team members, work with the customer, also represented by individuals. Nevertheless, both parties perceive the other party also as a group (team customer versus team supplier).

Selective Measure	Theoretical Background
<p><b>Simulate the customer – which means put yourself into the customers situation</b></p> <p>and try to value a specific situation by applying assumed experiences and values of the customer. The information transferred by yourself respectively by your competitors are to be regarded as contextual information.</p>	<p>As outlined in 5.1 by Davenport and Prusak, knowledge is a fluid mix of experiences, values, and contextual information, partly directly from the knower, partly embedded in organizational routines.</p>
<p><b>Make sure that the knowledge codification is understood by the customer.</b></p> <p>With sending a quote to a customer, a concept based on knowledge of the supplier is handed over. This does not guarantee that the receiver, who is the customer, can understand the codification which was used.</p>	 <p>The diagram illustrates the SECI model. It shows a central circle labeled 'Group' with 'E' (Explicit) and 'I' (Tacit) labels around it. An arrow points from 'Tacit' to 'Externalization', which is further detailed with two steps: '4. Articulating tacit knowledge using symbolic language' and '5. Translating tacit knowledge into a concept or prototype'. A callout box explains 'Articulating tacit knowledge through dialogue and reflection'.</p> <p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) shows one of the most important knowledge conversion process towards the customer, which is externalization. As described in 5.4 by Nonaka and Takeuchi, externalization of knowledge is a process of articulating tacit knowledge into explicit concepts.</p>



Selective Measure	Theoretical Background
<p><b>Add Meaning to data making at least information out of it.</b></p> <p>Target is to avoid to provide just data to the customer, because a supplier can be much more successful by adding meaning (e.g. savings compared to other concepts). Ideally, tacit knowledge is transferred, which means that the customer gains positive tacit knowledge, e.g. by having experienced excellent project execution performance from the supplier in earlier projects.</p>	<p>Based on Figure 14 Communication and implicit knowledge (Neuweg 2001:10) with some adaption translated to Figure 29 Communication and transferring tacit knowledge to the customer (based on Neuweg 2001:10) it can be shown that pure flow of data does not inform the customer, referring to chapter 5.1.. Information, in contrary, "informs" the customer because meaning is already added. Also, a tacit component is transferred, with the current communication or also with earlier events where the customer made experience with the supplier.</p>
<p><b>Create a trustful knowledge market between supplier and customer.</b></p> <p>Both parties can work more successful if trust is the base for cooperation. An example for creating trust is not to utilize failures on customer side immediately for own profit.</p>	<p>Stated in chapter 5.5, trust is an essential element to make a knowledge market work. If part of the knowledge market is untrustworthy, the market becomes asymmetric and less efficient.</p>

Table 9 Procedures targeting the interface with the customer

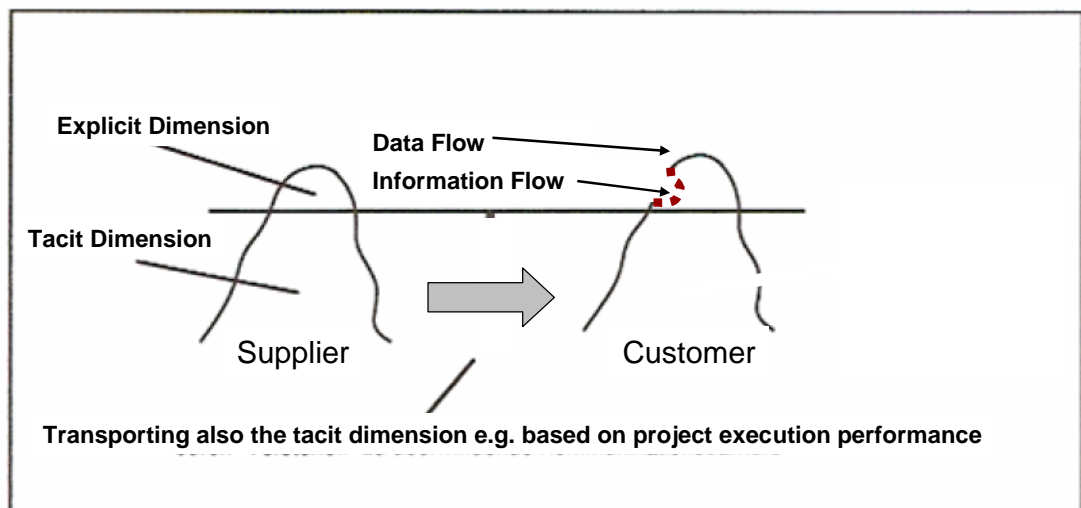


Figure 29 Communication and transferring tacit knowledge to the customer (based on Neuweg 2001:10)

### 6.3.6 The physical work environment

Beside all organizational and management measures to foster knowledge sharing and the utilization of both, tacit and explicit knowledge, the immediate physical workplace environment must not be underestimated. As well as the non tangible elements of the environment, the workplace design has a remarkable influence. As referenced in 5.1, knowledge is in organizations often embedded in documents and repositories. This implies that easy access to such documents is important. But, taking into account that knowledge ideally is shared without transaction losses of conversion, other attributes of workplace design contribute also to a large extend to success. As outlined also in 5.1, knowledge is process related and subjective knowledge is justified through social interaction with others and the environment. Further more is described that knowledge is created in practice within a specific situation. This leads to the conclusion, that social interaction with peers and others outside the team connected to practice is a good ground for knowledge sharing. This fits also to socialization, described in 5.4, which says that individuals can acquire knowledge directly from others without using language. This may sound strange if we transfer the thought to modern office conditions, but staffs members learn a lot also from behavior patterns, not only from language.

Selective Measure	Theoretical Background
<p><b>Seat the team physically together but leave space for spontaneous teamwork.</b></p> <p>There must be enough space between the desks and some area to use for spontaneous informal meetings. Too less distance between workplaces increases the distance between individuals.</p>	<p>As discussed in chapter 5.1, knowledge is created by individuals in practice trough four modes of knowledge conversion. Also in chapter 5.1 is defined, that it is a process in which the individual's subjective thoughts are justified through social interaction. Both, creation, sharing and justification happen at the same time.</p>

Table 10 Procedures targeting the physical work environment of the team

The requirements to a knowledge sharing friendly office can be deduced also from Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19):

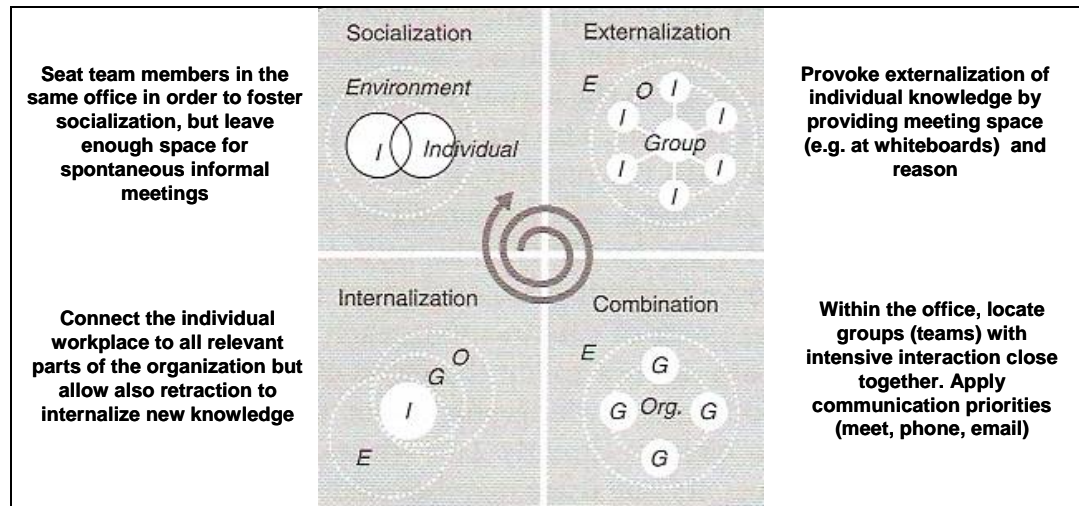
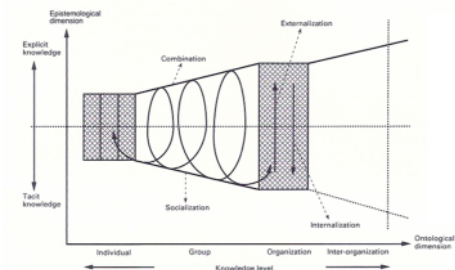


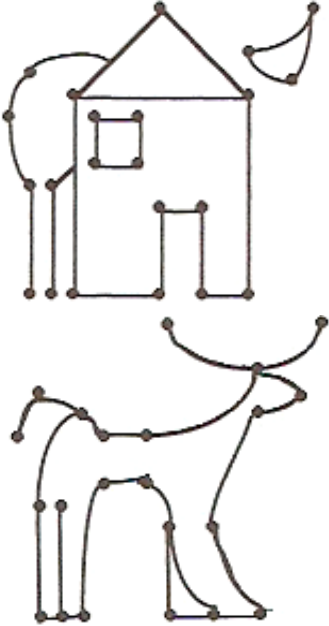
Figure 30 The physical work environment based on Figure 13 The knowledge-creating process: SECI model (Nonaka et al 2008:19)

### 6.3.7 The psychological work environment

Of course, most of the psychological aspects are covered in chapter 6.3.1 to chapter 6.3.11 within their individual contexts. But, there are some general, but very important aspects, which should be extracted and dealt with on a generic level. For example, the mentioned different subjective viewpoints in chapter 5.1 and the different types of knowledge conversion shown in Figure 13 Four modes of knowledge conversion (Nonaka, Takeuchi 1995:62) clearly indicate that a knowledge creation and sharing friendly mindset needs to be established in a very general way. The psychological aspect gets even more significant when it comes to efficient behavior on knowledge markets as stated in chapter 5.5. Here, the reward system plays a major role, and an efficient reward system requires first of all the awareness that knowledge management belongs to the most important management tasks. So, the surrounding conditions are important for individuals, but also for the team as a group, because there is a self understanding as a group also. For example, individuals should find within their team a less harsh

environment for testing their knowledge, which could be applying tacit knowledge more freely, with less back up by explicit knowledge or pure information. This kind of experimental knowledge market within the team could be extended to trusted individuals outside the team then, step by step integrating more and more individuals into kind of a company internal knowledge society. In this context, it is important, from the psychological point of view, that sharing knowledge is not disconnected from operative business. That means, sharing knowledge based on the theory of the SECI model as shown in Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) , can not be forced, and even should not be too obviously steered, in order not to end in itself. The best way to achieve this kind of discrete enabling of an knowledge based firm according Figure 19 A process model of the knowledge based firm (Nonaka et al 2008:27) is providing a common psychological base, which is the shared context named Ba in chapter 5.7 and a common vision. The common vision needs to be connected to the knowledge creation by driving objectives, also described in chapter 5.7., while Ba is the platform for all knowledge activities. This is illustrated in Figure 20 Ba as a shared context in motion (Nonaka et al 2008:35).

Selective Measure	Theoretical Background
<p data-bbox="316 1422 798 1545"><b>Introduce events where team members share their experiences and conclusions automatically.</b></p> <p data-bbox="300 1635 813 1915">All modes of knowledge conversion need to be supported respectively moderated in team meetings, where e.g. every team member presents his or her issues to the others per his own selection. Expand this activity also to other audience than the immediate team.</p>	 <p data-bbox="837 1657 1404 1937">As shown in chapter 5.6 and illustrated in Figure 17 Spiral of organizational knowledge creation (Nonaka, Takeuchi 1995:73), the utilization of all four modes of knowledge conversion over all ontological dimensions results in an increase of explicit and tacit knowledge.</p>

Selective Measure	Theoretical Background
<p data-bbox="309 421 805 479"><b>Make actively use of different subjective viewpoints.</b></p> <p data-bbox="300 786 815 1088">Integrate these different viewpoints into the discussion of topics in order to generate an aligned picture of further procedures. With this procedure, also new knowledge is created. It is important, that not only results are shared, but also the toughs and they way which led to the results.</p>	<p data-bbox="842 271 1402 600">Based on chapter 5.1, it is understood that individuals have different viewpoints, and these differences are vital for the creation of new knowledge. As also outlined in 5.1, these different viewpoints depend also on the history of involvement into a specific issue. This is illustrated impressive by Neuweg (2001:342,343).</p>  <p data-bbox="842 1312 1402 1525">The same data is applied to different subjective experience and viewpoints. The result is different and can be discussed. During this interaction, new knowledge is created which could result in a new picture.</p>
<p data-bbox="331 1637 782 1727"><b>Value also the effort of the receiver to overcome the communication barrier.</b></p> <p data-bbox="300 1760 775 1939">It is often overseen that the receiver has at least the same effort as the sender, while the sender is often more valued because he is the "knowledge source".</p>	<p data-bbox="842 1715 1382 1895">Chapter 5.4 describes based on Neuweg that the learner has to perform a task, which cannot be performed by the teacher. That means the receiver has to actively absorb the offered knowledge.</p>

Selective Measure	Theoretical Background
<p style="text-align: center;"><b>Take care that the management behaves like the management wants their teams to behave.</b></p> <p>Knowledge sharing requires trust, and trust can be defined as a value by upper management's example.</p>	<p>Knowledge sharing requires trust, and trust can be defined as a value by upper management's example. The upper management's values become known to the firm through signals, signs and symbols. (see chapter 5.5)</p>
<p style="text-align: center;"><b>Foster the ability of commitment and self-organizing in the team.</b></p> <p>Make clear, that commitment to responsibility and taking accountability is the basic condition for working in the team.</p>	<p>Chapter 5.7 describes ba as an environment where knowledge sharing happens. Some important features are that the ba needs to be self-organized and that the participants of the process must be able to leave a self-centered standpoint in order to position them relative to others. Also, a strong sense for commitment is required to create ba.</p>

Table 11 Procedures targeting the psychological work environment

### 6.3.8 The next organizational level above the team

As discussed in chapter 6.3.7, the own team should provide kind of a home base. In contrary, the next organizational level can imply competition respectively makes it necessary to market the team or individuals out of the team as good as possible. The interaction with the next organizational level can be performed in different ways – from level to level with the manager of the team as knowledge – sandwich manager, between individuals of the different levels, or team to team, without the steering function of the manager. As an illustration, Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19), can be used, showing "G", the group, which is the team, and "Org", which can be regarded as the next organizational level in the context of this thesis. Interestingly, we see that the team as a group can not socialize with the next level, the organization, as per this theory. The procedures of knowledge enhancement in regard to the next organizational

level have a very special characteristics – in some aspects, the willingness to share or receive knowledge is limited – from both sides. From the team point of view, indicating that enormous knowledge is available, is important because it increases the value of the team at the knowledge market and provides a better position in the reward system. But, the team wants just to indicate this knowledge – not to share it, because once shared, the team fears that the value of the knowledge may decrease. Interestingly, the next organizational level reacts similar, but based on a completely different motivation. This motivation is very much connected to chapter 6.2.2, because there is clearly stated that a polycentric approach, which is officially favored by all stakeholders, also bears the responsibility to act in accordance with the knowledge. That behavior is not to be downgraded, because it is market behavior and therefore keeps the knowledge market balanced.

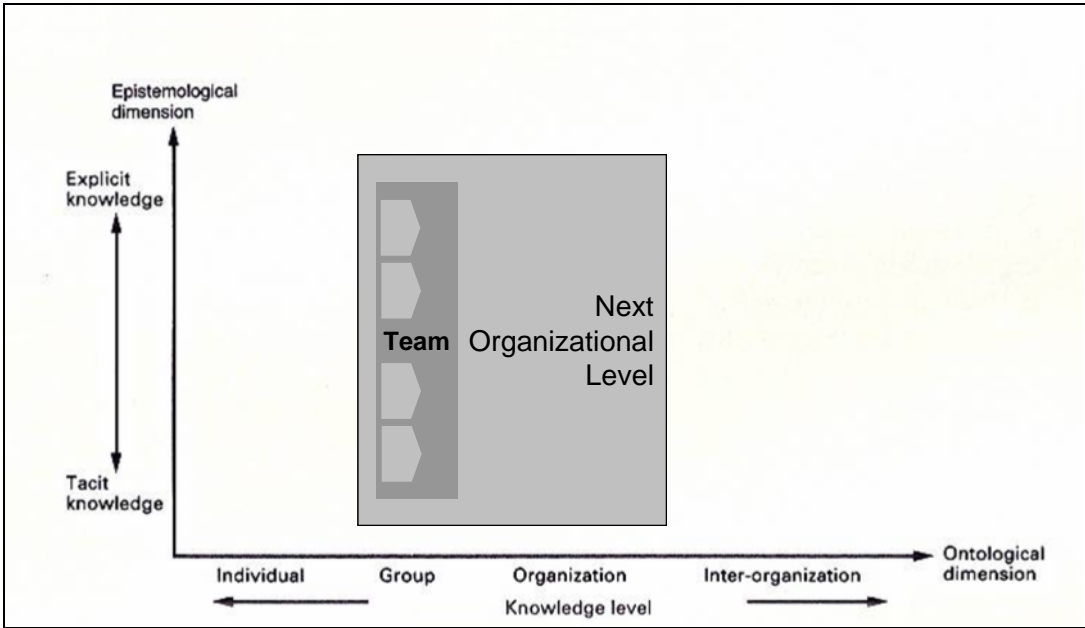
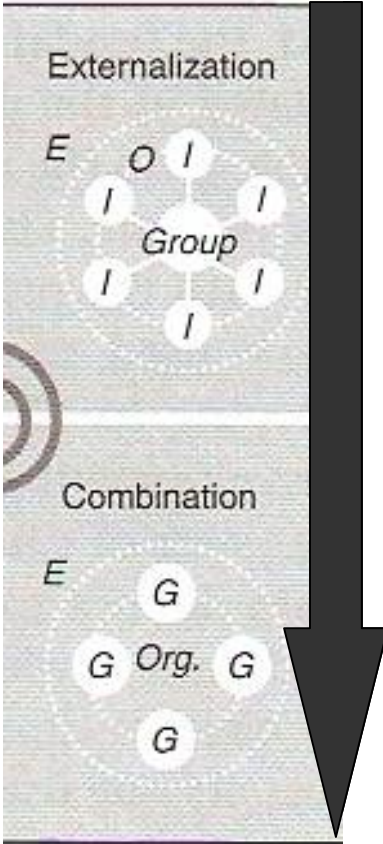


Figure 31 Interaction with the next organizational level within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Selective Measure	Theoretical Background
<p><b>The manager must not be the only interface to the next organizational level.</b></p> <p>Also let the individuals from the team communicate with the next level. This increases on one hand the accountability of the team members and strengthens on the other hand the position of the team leader – as long as the team members perform accordingly.</p>	<p>In chapter 5.7 is ba described as shared context in motion which requires, beside other elements, participants with different types of knowledge in order to create new knowledge, enriched with the different perspectives and contexts. Furthermore, in chapter 5.8 is made clear, that feelings of satisfaction and a sense of comradeship or belonging are important for the creation of tacit knowledge.</p>
<p><b>As a team, keep a standard in communicating externalized knowledge.</b></p> <p>It is important to roll out specific standards on team level, e.g. the structure of presentations. Standards with high quality create a high recognition value on team level.</p>	 <p>The excerpt of Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) represents the main flow of knowledge in regard of the next organizational level. Knowledge is externalized on team level and delivered in the form of concepts. These concepts are combined to new knowledge on the next organizational level.</p>



Selective Measure	Theoretical Background
<p data-bbox="320 255 791 376"><b>Establish an open mindset within the team for learning from the next organizational level.</b></p> <p data-bbox="300 443 815 685">It is important, in the sense of sandwich management, that the team manager keeps the team open for learning from the next organizational level. This could be practiced by outlining specific activities positively and interpreting their impact.</p>	<p data-bbox="842 255 1385 685">Chapter 5.4, especially Figure 14 Communication and implicit knowledge (Neuweg 2001:10) explains that in regard of tacit knowledge, a significant effort is needed from the learner to absorb this knowledge – and it can be assumed that there is a portion of tacit knowledge in every knowledge transfer. The willingness for this effort can be mobilized with authentic trust throughout the organization, as described in chapter 5.5.</p>

Table 12 Procedures targeting the next organizational level

### 6.3.9 Interfacing outside the firm except customers

Interfacing to customers within the context of knowledge management and efficiency increase has been dealt with in chapter 6.3.5. But the interfaces of an automotive sales team respectively the humans working in such a team, are not limited to company inside relations and customers, the team members, due to the nature of their job being rather eloquent people, keep a lot of relationships and therefore interfaces to others outside the office. A lot of these relationships are maintained for sharing knowledge, and we need to remember that sharing knowledge is in many cases a bidirectional process. This means by interfacing with an environment outside the company, the interest is to learn as much as possible and to let others learn only those content a firm wants them to learn – compliant with the intended corporate identity. A base for knowledge sharing communities are social networks within the internet, which exist with very different characteristics. These social networks have either no or a more or less clear field of interest defined, often organized in subgroups. Some of these social networks are able by themselves to combine explicit knowledge, or at least what is published as explicit knowledge, to a greater picture according

5.4. This means, the employee's appearance in such social networks need to have a reputable outline.

Selective Measure	Theoretical Background
<p><b>Motivate team members to make use of the world wide knowledge market.</b></p> <p>Sometimes, required knowledge is easier to find outside the firm than inside of it. And, also an aspect of knowledge markets, permanent training is important to keep team members on the right level of qualification.</p>	<p>Chapter 5.8 tells the conditions which must be satisfied to create motivation: demanding creativity, the work must require knowledge and tacit knowledge must be shared and created.</p>
<p><b>Take care what you share.</b></p> <p>Make your team members sensitive for protecting intellectual property and confidentiality. This is also valid and very important regarding information (or knowledge?) shared in social networks.</p>	<p>The motivating aspect of knowledge sharing, which is mentioned in chapter 5.8, can also be dangerous if the knowledge is shared in the wrong environment.</p>

Table 13 Procedures targeting the interfacing to outside

### 6.3.10 To foster lean processes

Knowledge itself and the application of it, from the point of view of a firm, is used to achieve a specific target embedded in the strategy of the company in order to get one step closer to a defined vision. But, in addition, the application of knowledge can also have positive collateral effects. In other words, the way how knowledge is managed and applied can create room for flexibility in other structures of the firm. In this chapter, it shall be investigated how the smart application of knowledge can foster lean processes in the office area and therefore increase efficiency. Processes have been chosen because processes are leading frame structure for office work, and the quality and application of processes can decide between success and failure of a firm. It is, figuratively spoken, like applying knowledge

within the application of processes what makes the competitive advantage by increasing efficiency. Or, rephrased, if processes need not to be designed to match with the lowest possible level knowledge, efficiency can be increased significantly by not wasting energy with processes cushioning the application of knowledge. This requires, as a precondition, a knowledge level which is as consistent as possible throughout the firm respectively team. For this approach, a consistent knowledge level is more important than single heroic knowers. This is also confirmed in 5.5., describing the knowledge management market and its pathologies.

<b>Selective Measure</b>	<b>Theoretical Background</b>
<p data-bbox="357 882 735 972"><b>Invest into beliefs and commitments of team members.</b></p> <p data-bbox="300 1003 791 1279">Of course, team members have to know the processes applicable within their role and responsibility. But with a strong base of beliefs and commitment to the knowledge vision, they are able to tailor the process without violating it.</p>	<p data-bbox="817 1003 1385 1189">As stated in 5.1 by Nonaka and Takeuchi, information is a flow of messages, while knowledge is created by these messages anchored in the beliefs and commitment of its holder.</p>
<p data-bbox="316 1406 775 1469"><b>Balance communication and tacit understanding.</b></p> <p data-bbox="300 1621 791 1807">If processes are too detailed and only process adherence is valued independent of the operative target meeting level, an enormous part of capacity is lost.</p>	<p data-bbox="817 1346 1385 1807">Figure 32 Knowledge transfer and processes (based on Neuweg 2001:10) is intended to explain the influence of too detailed processes. Initially, the knowledge to be transferred is divided into explicit and tacit – explicit is transferred via communication, while tacit is transferred via understanding. If processes are getting more detailed, these processes demand a bigger portion of explicit knowledge – and this bigger portion of explicit knowledge requires more communication.</p>

Table 14 Procedures targeting a knowledge application which fosters lean processes

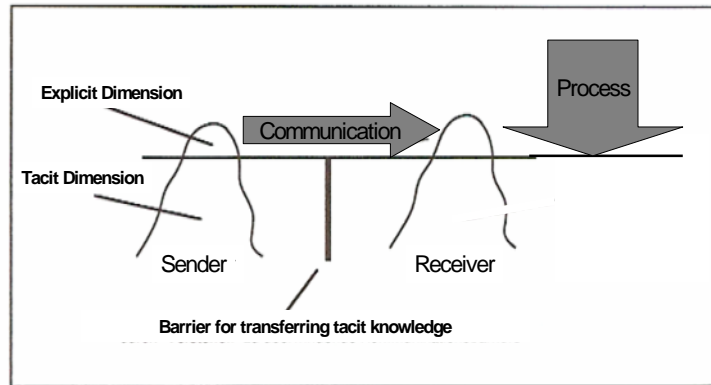


Figure 32 Knowledge transfer and processes (based on Neuweg 2001:10)

### 6.3.11 Interaction with the team members social live

The willingness to perform tasks efficient and motivated, as well as partly the ability to do so, is sourced from all aspects of the life of a human, especially the features of social life. This, and also the outlook that binding high performers to the firm will get more difficult, leads to the conclusion that some interaction with a employee's social life could be for the benefit of both, the employees and the company. Davenport described knowledge as a fluid mix of framed experiences (5.1), and Nonaka said that knowledge is information anchored in the beliefs and commitments of its holder (5.1) – both aspects, experiences and information, are core values of modern social live. A lot of learning happens in the social live outside the firm, as well as the social live of humans is directly integrated into the knowledge market.

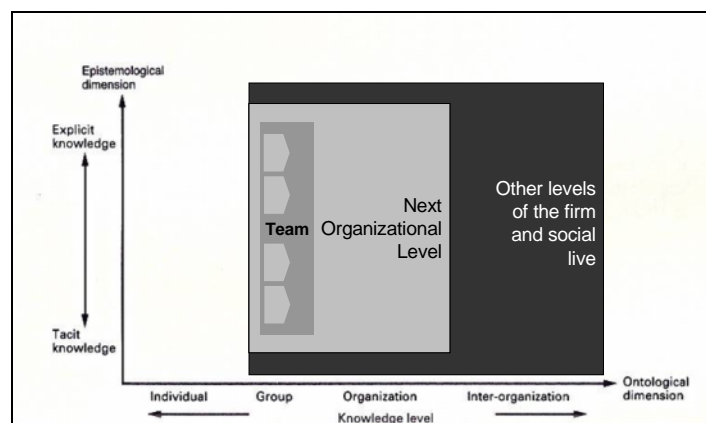


Figure 33 Interaction with other levels of the firm and social live within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)

Selective Measure	Theoretical Background
<p><b>Offer authentic interest on the team member's social live.</b></p> <p>The team member's social live is an important part of the knowledge market, where knowledge is shared in both directions. Knowing basics of this social live integrates both, individuals and company, better.</p>	<p>As stated in 5.1, knowledge creation is a process in which the individual's subjective thoughts are justified through social interaction with others and the environment to become objective 'truth'.</p>

Table 15 Procedures targeting the interaction with the team members social live

## 7 VALIDATION OF DEVELOPED PROCEDURE

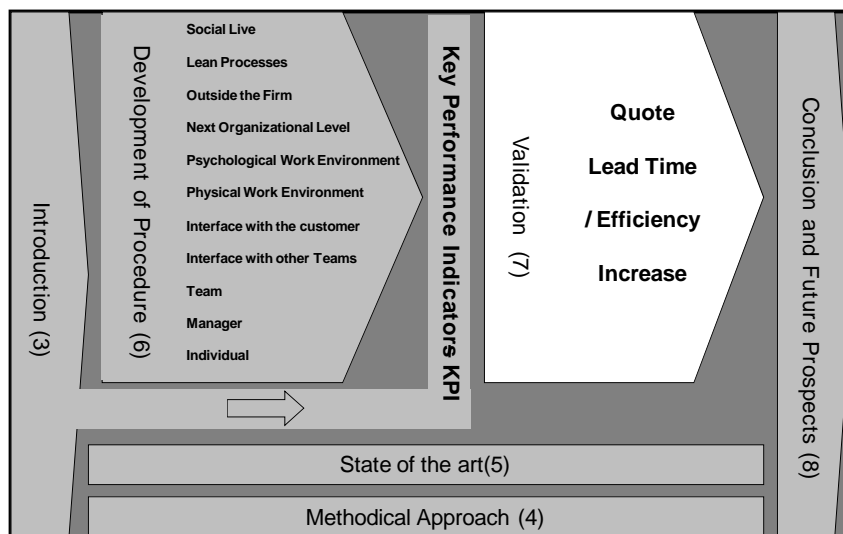


Figure 34 Validation of procedures

In order to validate whether and to what extent the identified procedures increase efficiency by reducing the quote lead time, the procedures have been compiled to an overview, and, in a next step, clustered to support a better validation.

## 7.1 Overview about identified procedures

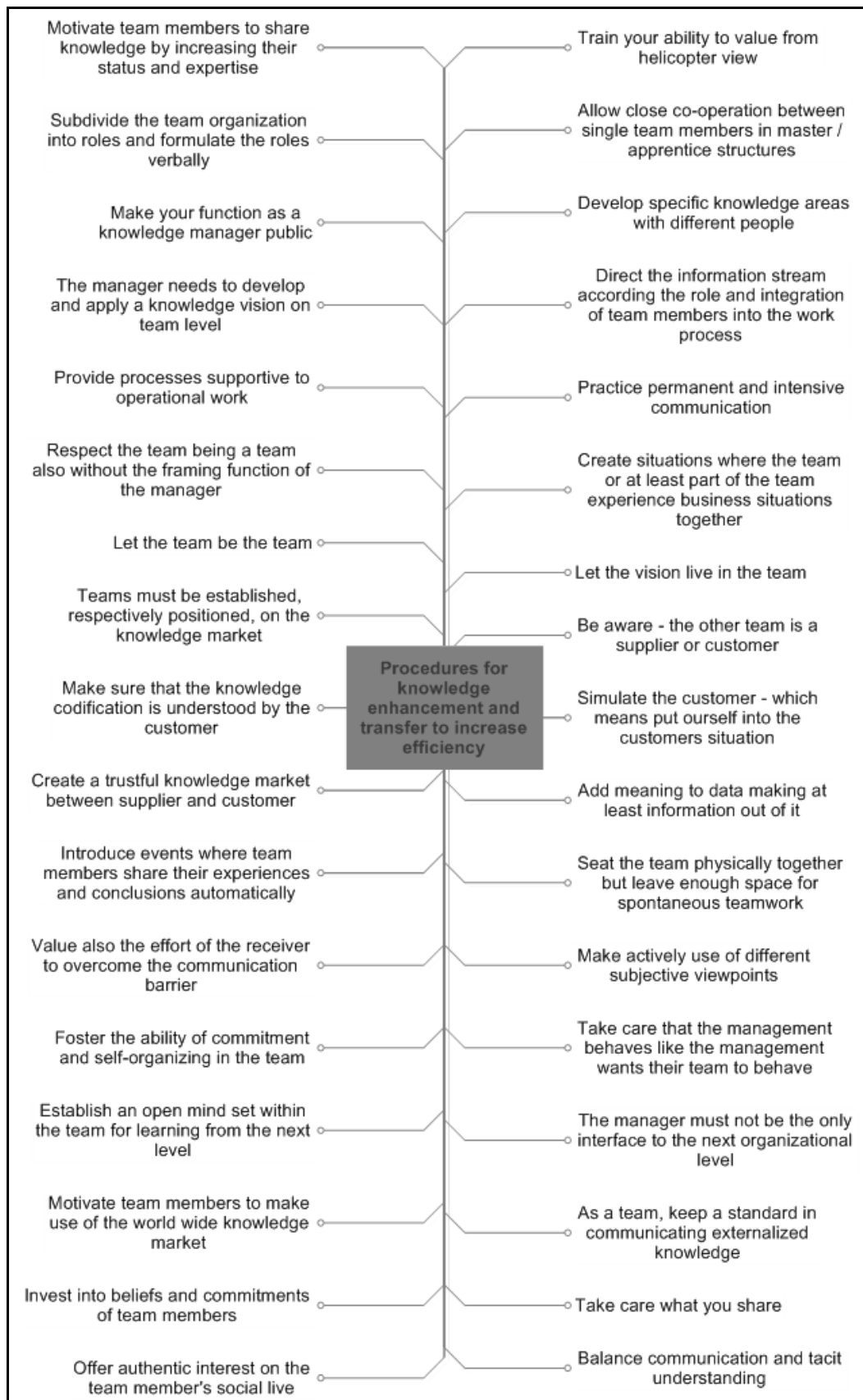


Figure 35 Procedural steps for implementation of knowledge management

The clusters have been established as follows:

- Motivation
- Vision
- Communication Culture
- Leadership

The clusters have been defined based on the structure of the procedural steps themselves, by grouping them step by step according their content. Then, a definition fitting for the groups was defined, with the target to describe the grouped procedural steps as good as possible. The result was the clustering mentioned above.

## **7.2 Clustering of the partial solutions for validation**

### 7.2.1 Cluster regarding Motivation

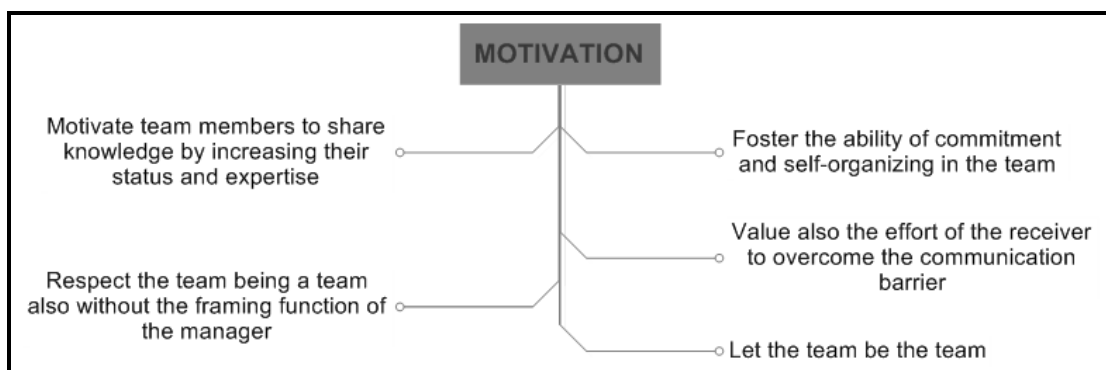


Figure 36 Procedural steps embedded in Motivation

Active participation on the knowledge market makes the market transparent and efficient – this market efficiency allows to gain knowledge for operative work without losing too much energy. This, in combination with defining targets on a higher level is more efficient compared to delegating workload on the smallest possible level, since the knowledge of the team members is utilized more flexible and balanced. Another point is, that a

team needs self understanding and confidence by itself, in order to be motivated and to be able to work efficient under pressure. Taking on new knowledge is often connected with change. The more knowledge sharing is established, the less will necessary change affect the staff mentally. Not being distracted, the team members can work more efficient as self confident teams, with a strong team spirit that leverages individual performance within the team to a higher level. This leads to more efficient team structures with open giving and taking of knowledge, which provides seamless knowledge flows without too much conversion losses.

## 7.2.2 Cluster regarding vision

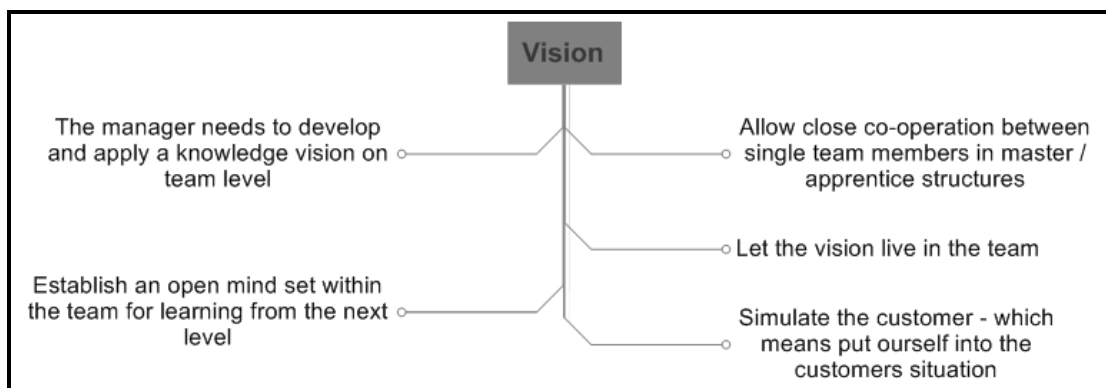


Figure 37 Procedural steps embedded in vision

A knowledge vision gives structure and direction in addition to the operative targets. It allows the individuals to strive for a higher level based on team integration. Operational tasks can be handled more efficient because there is always a next higher, motivating target. Ideally, this is combined with trust, not only to the team manager, but also to the next level, as well as the openness to learn from superior levels, eliminates moaning and increases efficiency. Establishing master / apprentice structures, allows that tacit knowledge is transferred without transaction cost of codification and challenging such a team leads to increased awareness of accountability. Humans



following a higher target than the operating targets they are just working for, do not suffer so much from stress and can therefore work more efficient. Trough not only processing externalized knowledge from the customer, e.g. the knowledge gained from various quotes from different competitors, but also processing the tacit knowledge which is transferred through interaction, signals which are intended to guide the supplier into the right direction are not overseen. The efficiency increase is embedded in a better relation of acquisition cost to won sales, because not so much capacity is running into acquisitions which are already lost in reality.

### 7.2.3 Cluster regarding communication culture

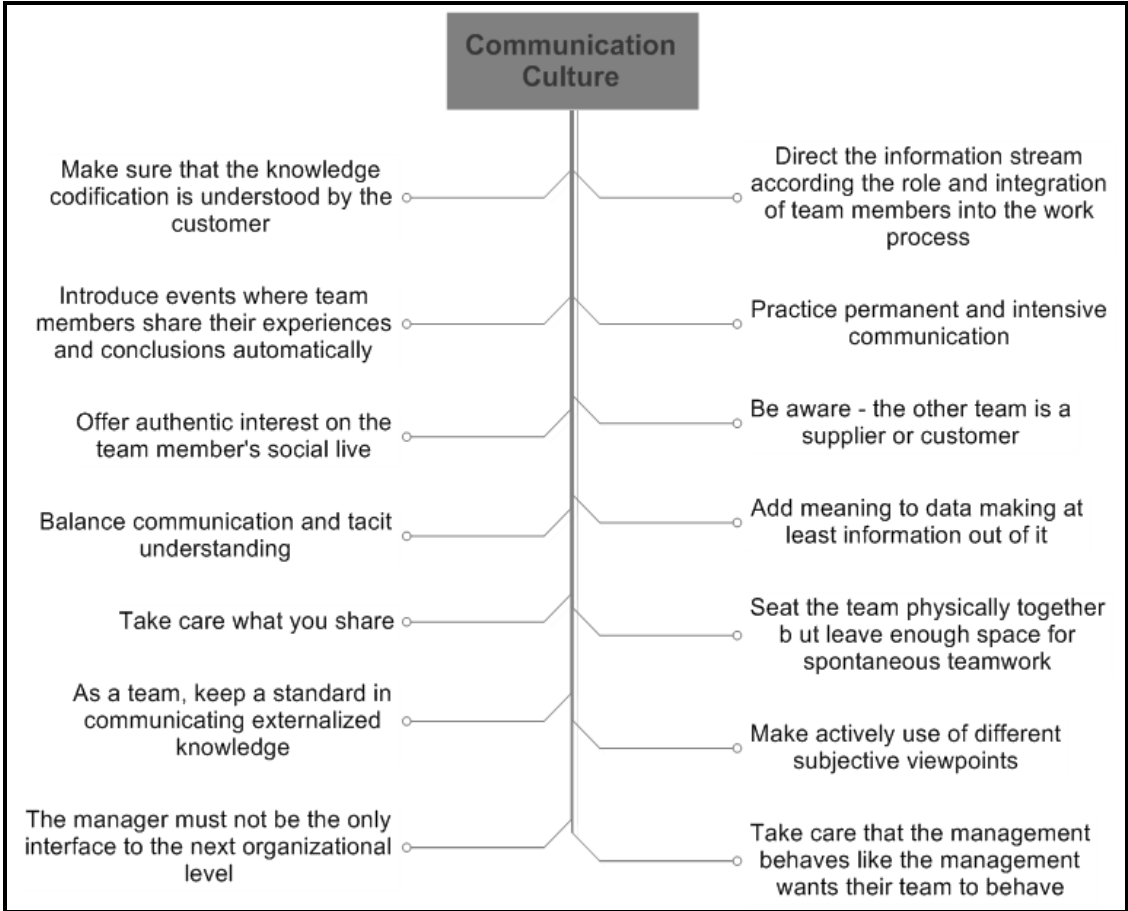


Figure 38 Procedural steps embedded in communication culture

Getting a clear understanding how the customer has perceived the concept (quote) he received, helps to avoid too much quote rounds, which consume a lot of capacity. Applying this measure, creates therefore an efficiency increase. Also, communication within the team is one of the main efficiency factors. This communication levels the knowledge within the team and also the willingness to share knowledge with others outside the team. All team members can work more efficient if a good communication level is reached. Interlinking individuals and firm with a overlap binds the employees better to the company and increases the accountability of the company for the employee. Efficiency is increased because trust is created which allows more direct reaction to unexpected personal issues. While communication of explicit knowledge is important, it is necessary to keep a balance of explicit / tacit versus communication / understanding. Too detailed processes and too much explicit communication can lead to inefficiency. If trust is evident within a firm, there is no need to permanently keep the own back save or to hoard knowledge. Using this saved time for operative tasks and knowledge sharing makes the team more efficient. In addition, a standard of communicating externalized knowledge helps the team members because they utilize structures they are used to, and it allows faster orientation for the next organizational level. Efficiency can be also increased by more motivation and performance due to a higher level of accountability. Furthermore, it can be avoided that the manager acts as bottleneck – both, in regard of capacity as well as in regard of filtering different subjective viewpoints. A balanced and directed flow of information allows more efficient generation and utilization of knowledge, since individuals are partly relieved from the burden to sort out whether specific information is relevant for them or not. Also, if information is already communicated within an application concept, the inefficiency of interpreting it on individual base is removed. Important is, that permanent communication establishes a mindset of sharing

knowledge and a well-rehearsed way of communication. This is more efficient than establishing communication just at the point of escalation. Individuals knowing their position within the team and teams knowing their position in relation to peer teams do not need to ongoing recalibrating. Knowing the position does not only require to set a course, it also requires to get feedback about deviations. Also in the area of communication is meaning (for the customer), which, if it is already added to data, provides the chance to convince the customer earlier to make a "tacit" supplier pre-selection for the supplier who provides meaning. This is leveraged if the customer has a long term positive experience with the supplier. Both aspects increase efficiency because the supplier will be guided by the customer to winning the quote after being pre-selected. Within the team, team members share automatically knowledge by spending time physically together in on office, which increases efficiency because the time for a separate knowledge transfer activity is saved. Similar, applying different viewpoints to one problem increases the possibility that the potentially best solution is chosen. Those team members who contributed with their viewpoints will in most cases find part of their viewpoint integrated into the solution and therefore support the solution more motivated, which results in increased efficiency. This all should be based on trust, which shall be evident within a firm, because then there is no need to permanently keep the own back save or to hoard knowledge. Using this saved time for operative tasks and knowledge sharing makes the team more efficient.

## 7.2.4 Partial solutions embedded in leadership

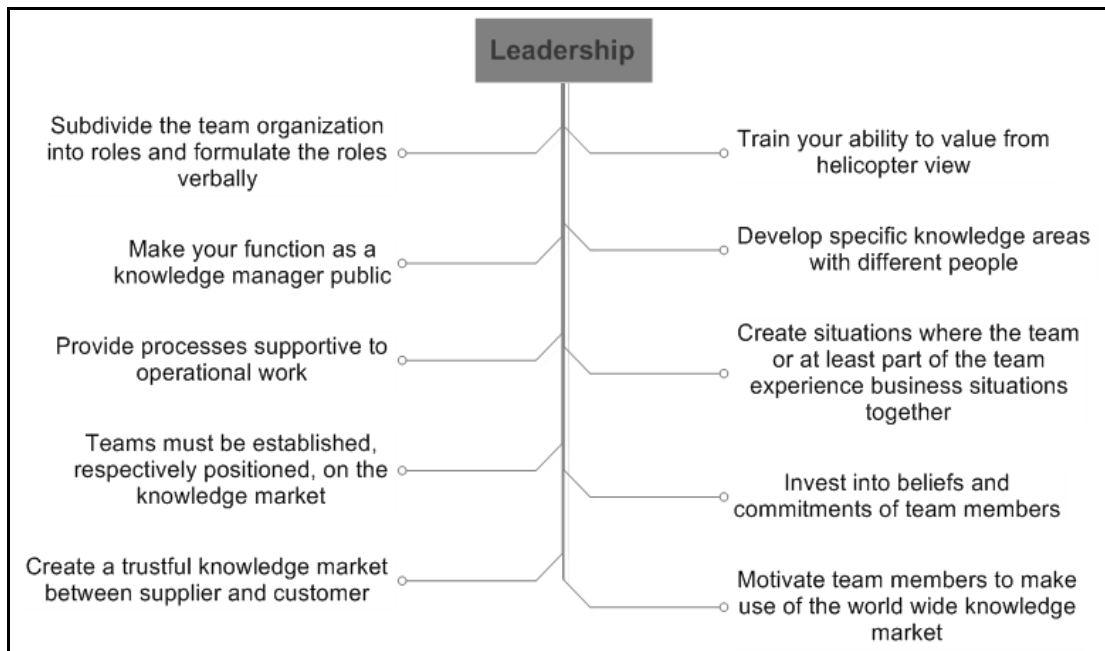


Figure 39 Procedural steps embedded in leadership

With a role leader concept (see Figure 24 Role Description Department Sales&Portfolio, Continental Automotive Austria), the role leader has the official and documented task to be the knowledge worker for the content of the role. The content of the role has been made explicit by the manager. The efficiency increase is related to the increased knowledge market transparency as well as the motivation to participate on the knowledge vision by leading a role. A transparent knowledge market with the manager of the group as first interface to this market allows efficient collection of knowledge. Being positioned on the knowledge market means being positioned in the spotlight. With trust within the cooperation on the knowledge market, a lot of tactical behavior on operatives levels can be avoided, and people can work together more efficient and motivated. Taking active part in the knowledge market as an individual motivates through the reputation as being an expert in a specific field. This motivation increases efficiency. Motivated individuals and motivated teams try to work as efficient as possible being in the spotlight. Nevertheless, processes must

not be too detailed in order to being applied efficiently. The room for movement within defined processes can be used applying or even generating knowledge. By allowing process tailoring within wider limits, based on mature and accountable team members, efficient balancing between intention of the process and cost is possible. This increases the efficiency of the team by avoiding performing overdesigned processes. The team can work more efficient if it gets guidance regarding the principles which should be applied, because not every member needs to develop then principles by his own. Translating specifics into universal "guiding rules" makes it easier for team members to apply the knowledge in very different situations. Sharing experiences together improves the team spirit and internalizes new knowledge without conversion losses. Efficiency is increased due to common application of internalized knowledge.

### ***7.3 Validation Method***

The validation method is based on qualitative expert interviews based on a questionnaire according Table 16 Questionnaire for expert interviews. In order to verify whether the questionnaire is understood properly, a trail run with two persons was done. This procedure proved to be useful and resulted in smaller adaption of the questionnaire. As a next step, a one hour workshop has been conducted for explanation of the concept and the questionnaire itself. It was important that the participants concentrate on the clusters while estimating the efficiency increase for single procedural step. In total, 13 experts have been interviewed. The average gross lead time accepted by customers is calculated based on history data with three weeks, which equals 115,5 gross working hours. Therefore an improvement of 1% roughly equals 1 hour quote lead time reduction, which was communicated as a base for the estimation by the experts.

## Questionnaire Efficiency Increase

Procedural Steps for Efficiency Increase of Automotive Sales Teams operating from a 2nd Tier Position

Please state your opinion how following measures will *increase efficiency by reducing quote lead time based on cluster view*

1% = 1 hour

Contribution to lead time reduction based on cluster view

Cluster	Procedural Step	-15	-10	-5	0	5	10	15
		%	%	%	%	%	%	%
<b>Motivation</b>	Status and expertise of team members is increased if they share knowledge							
	Commitment and the ability of self-organizing is fostered							
	The team is respected as a team, independent of the manager function							
	The effort to learn / process information is valued							
	<b>Total Motivation</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Contribution to lead time reduction based on cluster view

Cluster	Procedural Step	-15	-10	-5	0	5	10	15
		%	%	%	%	%	%	%
<b>Vision</b>	A vision on team level is established and applied							
	An open mindset for learning from the next higher level is established							
	Single team members work close together to learn from experienced experts							
	The teams is able to "walk in customers shoes"							
	<b>Total Vision</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Contribution to lead time reduction based on cluster view

Cluster	Procedural Step	-15	-10	-5	0	5	10	15
		%	%	%	%	%	%	%
<b>Communication Culture</b>	The competence / know how embedded in the quotes is understood by the customer							
	Teammembers can share their experiences and conclusions during events							
	The firm shows authentic interest in the team members social live							
	Communication and implicit understanding is balanced							
	Take care what you share - confidentiality is respected							
	A communication standard towards outside the team is established							
	The manager is not the only interface to the next organizational level							
	Information is customized according the needs of team members							
	Permanent and intensive communication is practiced							
	Supplier resp. customer thinking is also practiced internally							
	Information is shared, not only data							
	The team is physically located together with enough room for teamwork							
	Different viewpoints are actively utilized							
	The management behaves like the management wants the team to behave							
	<b>Total Communication Culture</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Contribution to lead time reduction based on cluster view								
Cluster	Procedural Step	-15	-10	-5	0	5	10	15
		%	%	%	%	%	%	%
<b>Leadership</b>	The team is subdivided according roles and these roles are verbally formulated							
	The manager is recognized as knowledge worker							
	The processes support operational work							
	The team is recognized as knowledgeable in the firm							
	Supplier and customer have a trustful relationship							
	The manager is able to apply a helicopter view							
	Different team members can develop different knowledge areas							
	The team can experience business situations together							
	The firm invests into beliefs and commitments of team members							
	Team members are motivated to use the world wide knowledge market							
<b>Total Leadership</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 16 Questionnaire for expert interviews

## 7.4 Reference process

The reference process within the scope of this thesis is shown in Figure 40 Reference Process. This process consists of four major steps, starting with the receipt of the RFQ and ending with a final decision of the customer. Since the validation is applied to the quote lead time, which is from receipt of the RFQ to submitting the quote to the customer, only the first two process steps are relevant.



Figure 40 Reference Process

Typically, the process step *Evaluate RFQ* consumes 30% of the available lead time, while *Create Quote* consumes the remainder of 70%.

### 7.5 Influence of procedural steps

Due to the nature of the tasks within the relevant process steps can be distinguished between a more strategic focus, covered by *Evaluate RFQ* and a more operative focus, covered by *Create Quote* (see Figure 41 The focus of quote process steps)

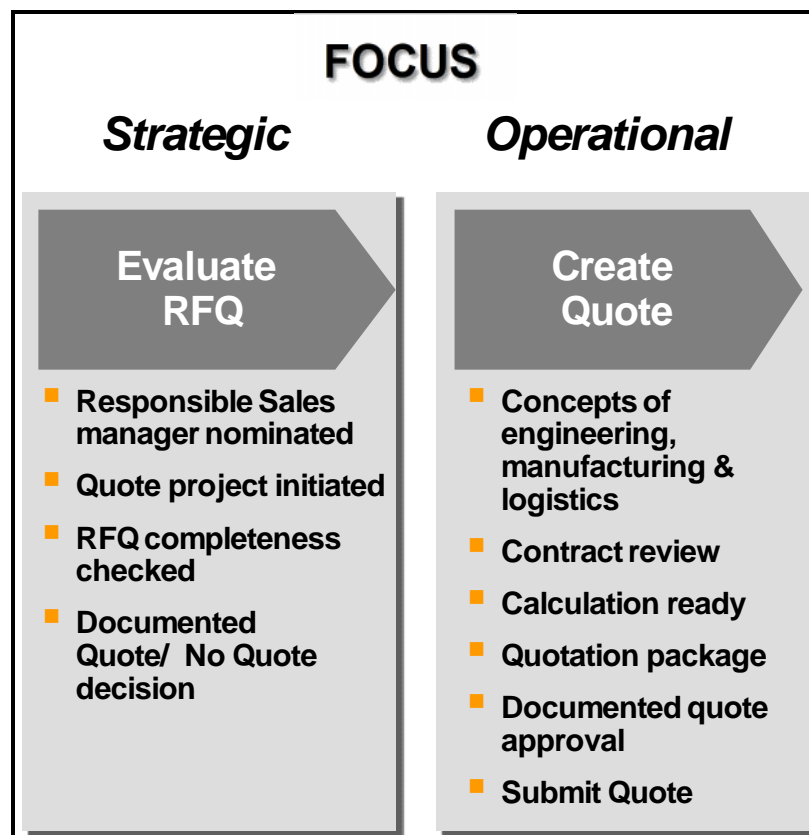


Figure 41 The focus of quote process steps

Based on that, it is possible to assign the procedural steps to these two process steps predominantly, as shown in Figure 42 Procedural steps predominantly related to evaluate RFQ and Figure 43 Procedural steps predominantly related to evaluate Create Quote.



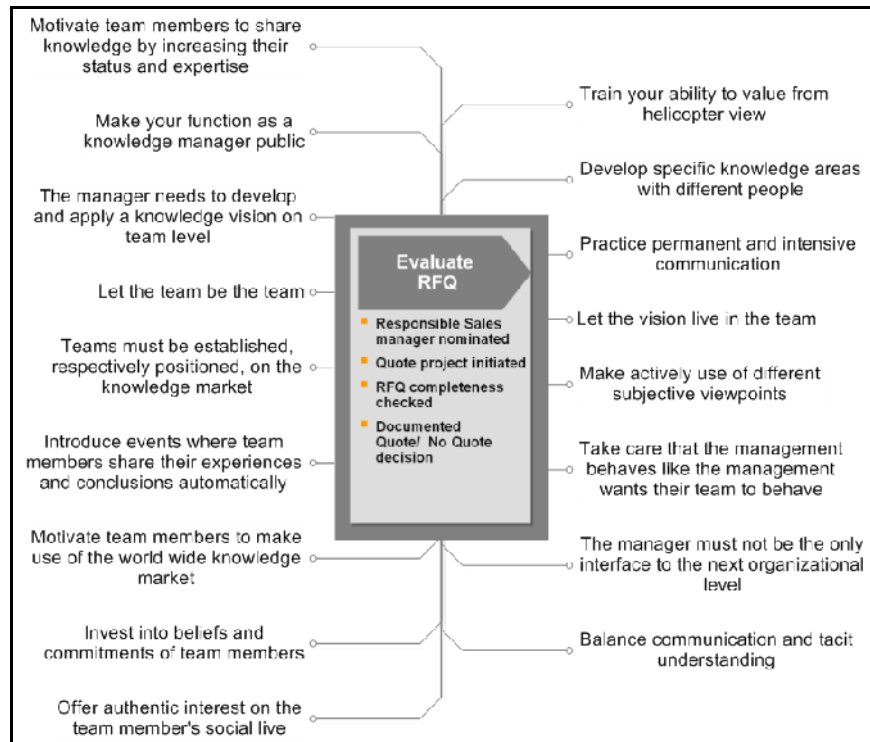


Figure 42 Procedural steps predominantly related to evaluate RFQ

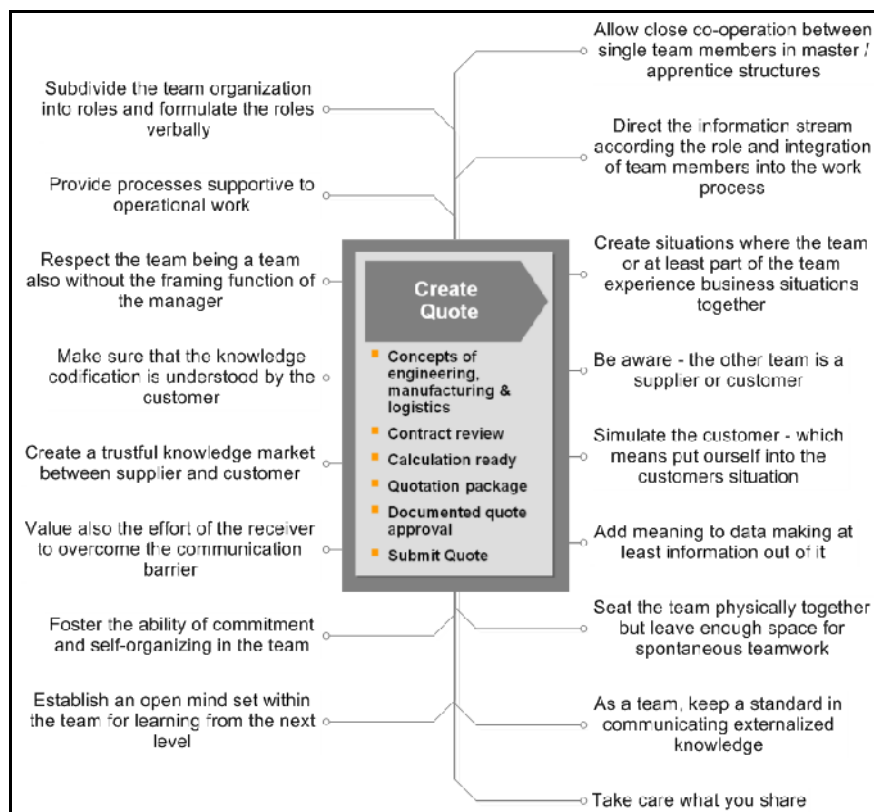


Figure 43 Procedural steps predominantly related to evaluate Create Quote

This allows the validation the result in two dimensions. One dimension is the validation according the established cluster,

the second dimension relates to the process steps *Evaluate RFQ* respectively *Create Quote*.

## 7.6 Validation Result

### 7.6.1 Validation towards clusters

As explained in chapter 7.2, the procedural steps have been assigned to cluster based on their content. The result of the expert interviews described in chapter 7.3 is represented by Table 17 Expert interview result. The votes of the experts are summed up to counts for the individual improvement in percent. An average is calculated for each procedural step. The total per cluster represents the possible performance increase in percent. In addition to the average, in order to allow a deeper analysis in some specific cases, the standard deviation is calculated for each procedural step.

<b>Questionnaire Efficiency Increase</b>										
Procedural Steps for Efficiency Increase of Automotive Sales Teams operating from a 2nd Tier Position										
Please state your opinion how following measures will <i>increase efficiency by reducing quote lead time based on cluster view</i>										
1 % = 1 hour										
Contribution to lead time reduction based on cluster view										
Cluster	Procedural Step	-15 %	-10 %	-5 %	0 %	5 %	10 %	15 %	Average	Standard Deviation
<b>Motivation</b>	Status and expertise of team members is increased if they share knowledge					2	7	4	10,77%	2,05
	Commitment and the ability of self-organizing is fostered					3	5	5	10,77%	0,94
	The team is respected as a team, independent of the manager function				4	3	3	3	6,92%	0,43
	The effort to learn / process information is valued		1		2	5	3	2	5,77%	1,36
	<b>Total Motivation</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>6</b>	<b>13</b>	<b>18</b>	<b>14</b>	<b>8,56%</b>	
Contribution to lead time reduction based on cluster view										
Cluster	Procedural Step	-15 %	-10 %	-5 %	0 %	5 %	10 %	15 %	Average	Standard Deviation
<b>Vision</b>	A vision on team level is established and applied				2	7	1	3	6,92%	2,28
	An open mindset for learning from the next higher level is established				2	6	4	1	6,54%	1,92
	Single team members work close together to learn from experienced experts					3	6	4	10,38%	1,25
	The teams is able to "walk in customers shoes"				2	2	4	5	9,62%	1,30
	<b>Total Vision</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>18</b>	<b>15</b>	<b>13</b>	<b>8,37%</b>	

Contribution to lead time reduction based on cluster view										
Cluster	Procedural Step	-15	-10	-5	0	5	10	15	Average	Standard Deviation
		%	%	%	%	%	%	%		
Communication Culture	The competence / know how embedded in the quotes is understood by the customer				2	6	2	3	7,31%	1,64
	Teammembers can share their experiences and conclusions during events				2	4	7		6,92%	2,05
	The firm shows authentic interest in the team members social live				7	5		1	3,08%	2,49
	Communication and implicit understanding is balanced				1	7	3	2	7,31%	2,28
	Take care what you share - confidentiality is respected			2	6	1	3	1	3,08%	1,85
	A communication standard towards outside the team is established				6	2	2	3	5,77%	1,64
	The manager is not the only interface to the next organizational level		1		5	1	3	3	5,38%	1,50
	Information is customized according the needs of team members			1	2	5	2	3	6,54%	1,36
	Permanent and intensive communication is practiced			2	1	3	2	5	7,69%	1,36
	Supplier resp. customer thinking is also practiced internally					4	6	3	9,62%	1,25
	Information is shared, not only data					5	4	4	9,62%	0,47
	The team is physically located together with enough room for teamwork			1		2	3	7	10,77%	2,28
	Different viewpoints are actively utilized		1	2	1	5	1	3	4,62%	1,46
	The management behaves like the management wants the team to behave		1	1	3	2		6	6,54%	1,85
	<b>Total Communication Culture</b>		<b>0</b>	<b>3</b>	<b>9</b>	<b>36</b>	<b>52</b>	<b>38</b>	<b>44</b>	<b>6,73%</b>

Contribution to lead time reduction based on cluster view										
Cluster	Procedural Step	-15	-10	-5	0	5	10	15	Average	Standard Deviation
		%	%	%	%	%	%	%		
Leadership	The team is subdivided according roles and these roles are verbally formulated			1	5	4	3		3,46%	1,48
	The manager is recognized as knowledge worker			2	4	3	2	2	4,23%	0,80
	The processes support operational work				1	5	1	6	9,62%	2,28
	The team is recognized as knowledgeable in the firm				4	1	5	2	7,08%	1,58
	Supplier and customer have a trustful relationship				2		4	7	11,15%	2,05
	The manager is able to apply a helicopter view				3	4	3	4	7,86%	0,50
	Different team members can develop different knowledge areas			1	2	3	4	3	7,31%	1,02
	The team can experience business situations together					5	4	4	9,62%	0,47
	The firm invests into beliefs and commitments of team members				2	5	3	3	7,69%	1,09
	Team members are motivated to use the world wide knowledge market				1	4	7	1	8,08%	2,49
	<b>Total Leadership</b>		<b>0</b>	<b>0</b>	<b>4</b>	<b>24</b>	<b>34</b>	<b>36</b>	<b>32</b>	<b>7,62%</b>
		>-15%	-10%	-5%	0%	5%	10%	15%	Average	
	<b>Total</b>	<b>0</b>	<b>4</b>	<b>13</b>	<b>72</b>	<b>117</b>	<b>107</b>	<b>103</b>	<b>7,44%</b>	

Table 17 Expert interview result

Cluster	Efficiency Increase
Motivation	8,56%
Vision	8,37%
Communication Culture	6,73%
Leadership	7,62%

Table 18 Efficiency increase per cluster

The average efficiency increase per cluster is shown in Table 17 Expert interview result with a value of 7,44%. Important is, that is related to the average per cluster. The result of the single clusters are shown in Table 18 Efficiency increase per cluster. This means, if all procedural steps are implemented successfully, an impressive maximum efficiency increase of about 30 % (calculated value 31,28 %) can be obtained. The share of the clusters on the total efficiency increase is shown with Figure 44 Cluster contribution to overall result.

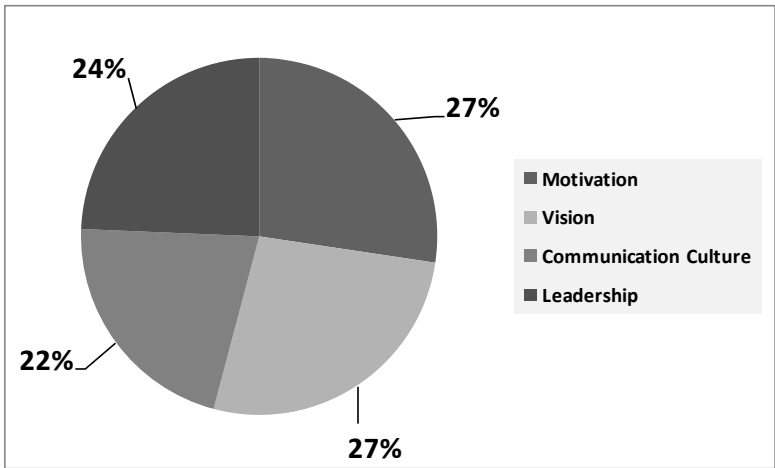


Figure 44 Cluster contribution to overall result

The validation shows for some of the procedural steps interesting results which are worth to be commented. The related validation results are shown in Table 19 Discussion of specific findings. The following text refers to these specific individual steps.

**A**

Procedural Step	-15	-10	-5	0	5	10	15	Average	Standard Deviation
	%	%	%	%	%	%	%		
Status and expertise of team members is increased if they share knowledge					2	7	4	10,77%	2,05
Commitment and the ability of self-organizing is fostered					3	5	5	10,11%	0,94
The team is respected as a team, independent of the manager function				4	3	3	3	6,92%	0,43

**B**

An open mindset for learning from the next higher level is established				2	6	4	1	6,54%	1,92
Single team members work close together to learn from experienced experts					3	6	4	10,30%	1,25
The teams is able to "walk in customers shoes"				2	2	4	5	9,62%	1,30

<b>C</b>										
Team members can share their experiences and conclusions during events				2	4	7			6,92%	2,05
The firm shows authentic interest in the team members social live				7	5			1	3,08%	2,49
Communication and implicit understanding is balanced				1	7	3		2	7,31%	2,28
<b>D</b>										
Information is shared, not only data					5	4		4	9,62%	0,47
The team is physically located together with enough room for teamwork			1		2	3		7	10,77%	2,20
Different viewpoints are actively utilized		1	2	1	5	1		3	4,62%	1,46
<b>E</b>										
The team is subdivided according roles and these roles are verbally formulated				1	5	4		3	3,46%	1,48
The manager is recognized as knowledge worker				2	4	3		2	4,23%	0,80
<b>F</b>										
The team is recognized as knowledgeable in the firm				5	1	5		2	6,54%	1,79
Supplier and customer have a trustful relationship				2		4		7	11,15%	2,05
The manager is able to apply a helicopter view				2	4	3		4	8,46%	0,83

Table 19 Discussion of specific findings

*A) Status and expertise of team members is increased if they share knowledge*

The high average score for this procedural step confirms stronger than expected that the individuals expect reward for sharing knowledge, as well as that this reward can materialize in status and expertise acknowledgement, and not only salary. This, if handled successfully, offers a strong leverage for knowledge management and the related efficiency increase.

*A) Commitment and the ability of self-organizing is fostered*

This is contrary to some expectations that team members may decline commitment based on the barriers of self responsibility erected in some big corporations. The possibility to self organize seems not only to be welcome, but more or less a requirement.

*B) Single team members work close together to learn from experienced experts*

Expectations are fully confirmed in this point, but the willingness to admit to this concept was over exceeded. The

result encourages to increase efforts in order to accelerate the application of this procedural step.

*C) The firm shows authentic interest in the team member's social life*

One of the most interesting outcomes, which may be related to different cultural expectations, since the procedural step is derived from Nonaka and seems not to be relevant for European sales teams. Based on the result, it seems that there is some proud to decouple the "personal social live" from the company, which does not forbid some overlaps – but the expectation is to be autonomous.

*D) The team is physically located together with enough room for teamwork*

Confirms what was expected – cooperation is supported by working closely together. This underlines the challenges of international cooperation over different locations and time zones. Other procedures or methods need to compensate the lack of being located on one place or even in one office.

*E) The team is subdivided according roles and these roles are verbally formulated*

The relative low score regarding this procedural step is surprising and its root cause would be interesting to be explored more deeply. There may be some relation between describing the role on one hand, and nominating individuals out of the team on the other hand.

*F) Supplier and customer have a trustful relationship*

Not surprisingly to be confirmed, but the extend of confirmation is impressive and promising at the same time. Impressive because the expectation was that there is already a more degenerated understanding of the supplier / customer relationship, and promising because it shows that there is still a

high empathy towards the customer and the individuals working there.

## 7.6.2 Validation towards focus

As described in chapter 7.4, the reference process can be introduced in order to show more clearly the impact of knowledge management on efficiency increase. But the introduction of this reference process offers more than just increased transparency regarding the application of the procedural steps. It allows also to introduce a second variant of allocating the identified procedural steps – in this case to a more strategic focus represented by ‘Evaluate RFQ’ and a more operative focus represented by ‘Create Quote’. Details to that are explained in chapter 7.4.

### **Strategic Focus – Evaluate RFQ**

Focus	Procedural Step	-15	-10	-5	0	5	10	15	Average	Standard Deviation
		%	%	%	%	%	%	%		
<b>Evaluate RFQ</b>	Status and expertise of team members is increased if they share knowledge					2	7	4	10,77%	2,05
	A vision on team level is established and applied				2	7	1	3	6,92%	2,28
	Teammembers can share their experiences and conclusions during events				2	4	7		6,92%	2,05
	The firm shows authentic interest in the team members social live				7	5		1	3,08%	2,49
	Communication and implicit understanding is balanced				1	7	3	2	7,31%	2,28
	The manager is not the only interface to the next organizational level		1		5	1	3	3	5,38%	1,50
	Permanent and intensive communication is practiced			2	1	3	2	5	7,69%	1,36
	Different viewpoints are actively utilized		1	2	1	5	1	3	4,62%	1,46
	The management behaves like the management wants the team to behave		1	1	3	2		6	6,54%	1,85
	The manager is recognized as knowledge worker			2	4	3	2	2	4,23%	0,80
	The team is recognized as knowledgeable in the firm				5	1	5	2	6,54%	1,79
	The manager is able to apply a helicopter view				2	4	3	4	8,46%	0,83
	Different team members can develop different knowledge areas			1	2	3	4	3	7,31%	1,02
	The firm invests into beliefs and commitments of team members				2	5	3	3	7,69%	1,09
	Team members are motivated to use the world wide knowledge market				1	4	7	1	8,08%	2,49
<b>Total Evaluate RFQ</b>		<b>0</b>	<b>3</b>	<b>8</b>	<b>38</b>	<b>56</b>	<b>48</b>	<b>42</b>	<b>6,77%</b>	

Table 20 Evaluation of procedural steps related to Evaluate RFQ

## Operational Focus – Create Quote

Focus	Procedural Step	-15	-10	-5	0	5	10	15	Average	Standard Deviation
		%	%	%	%	%	%	%		
Create Quote	The team is respected as a team, independent of the manager function				4	3	3	3	6,92%	0,43
	The effort to learn / process information is valued		1		2	5	3	2	5,77%	1,36
	An open mindset for learning from the next higher level is established				2	6	4	1	6,54%	1,92
	Single team members work close together to learn from experienced experts					3	6	4	10,38%	1,25
	The teams is able to "walk in customers shoes"				2	2	4	5	9,62%	1,30
	The competence / know how embedded in the quotes is understood by the customer				2	6	2	3	7,31%	1,64
	Take care what you share - confidentiality is respected			2	6	1	3	1	3,08%	1,85
	A communication standard towards outside the team is established				6	2	2	3	5,77%	1,64
	Information is customized according the needs of team members			1	2	5	2	3	6,54%	1,36
	Supplier resp. customer thinking is also practiced internally					4	6	3	9,62%	1,25
	Information is shared, not only data					5	4	4	9,62%	0,47
	The team is physically located together with enough room for teamwork			1		2	3	7	10,77%	2,28
	The team is subdivided according roles and these roles are verbally formulated			1	5	4	3		3,46%	1,48
	The processes support operational work				1	5	1	6	9,62%	2,28
	Supplier and customer have a trustful relationship				2		4	7	11,15%	2,05
	Commitment and the ability of self-organizing is fostered					3	5	5	10,77%	0,94
The team can experience business situations together					5	4	4	9,62%	0,47	
<b>Total Evaluate Create Quote</b>		0	1	5	34	61	59	61	8,03%	

Table 21 Procedural steps related to Create Quote

The details of the validation according a more strategic or a more operational impact are shown on Table 21 Procedural steps related to Create Quote. The overall result according this structure is shown in Table 22 Share of efficiency increase related to focus and Figure 45 Share of efficiency increase related to focus, allocating close to a half of the efficiency increase to each section, *Evaluate RFQ* and *Create Quote*.

Focus	Efficiency Increase
Evaluate RFQ	6,77%
Create Quote	8,03%

Table 22 Share of efficiency increase related to focus



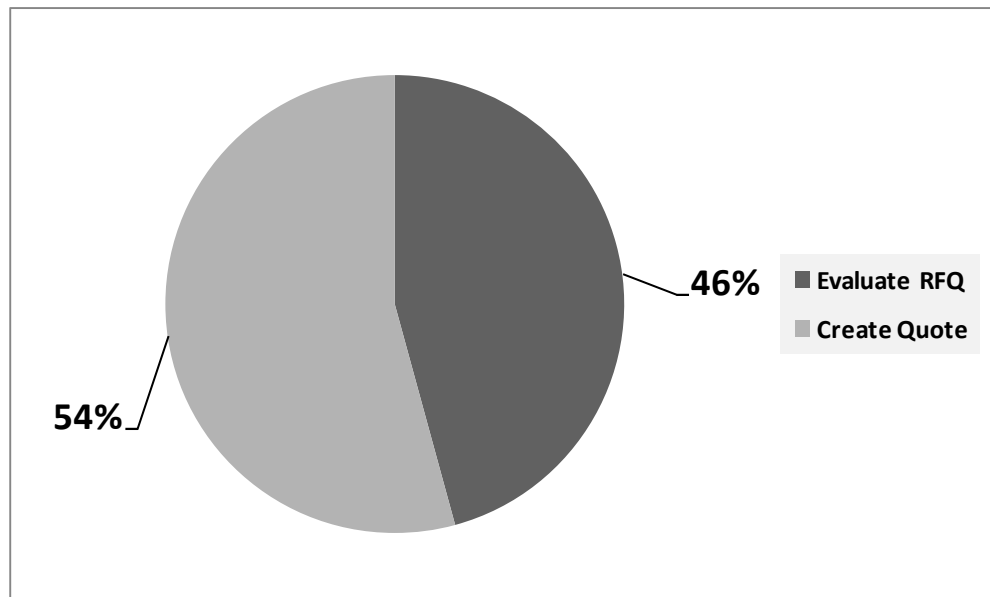


Figure 45 Share of efficiency increase related to focus

## 7.7 Validation summary

Since the topic is rather abstract in its origin, it needed some effort to introduce it into a very operative environment. The comparison of 1% of improvement equals about one hour helped a lot for this introduction. Also, linking the procedural steps of the questionnaire to the developed reference process steps helped a lot to boil down the developed procedure to practical application, and had the positive side effect of a second viewpoint on the validation result. The most important outcome of the validation and also the proof for hypothesis of this thesis is the potential efficiency increase of 30%, or, rephrased, a reduction of quote lead time by 30%. The share of these 30% to the clusters is rather balanced and therefore do not allow any specific conclusions. Anyway, the clustering showed to be very helpful for filling in the questionnaire, supplying better guidance for the experts. Overall, even if most of the results are in line with the expectation, some of them are surprising either in dominance or in direction. These areas could be a good base for further research.

## 8 CONCLUSION AND FUTURE PROSPECTS

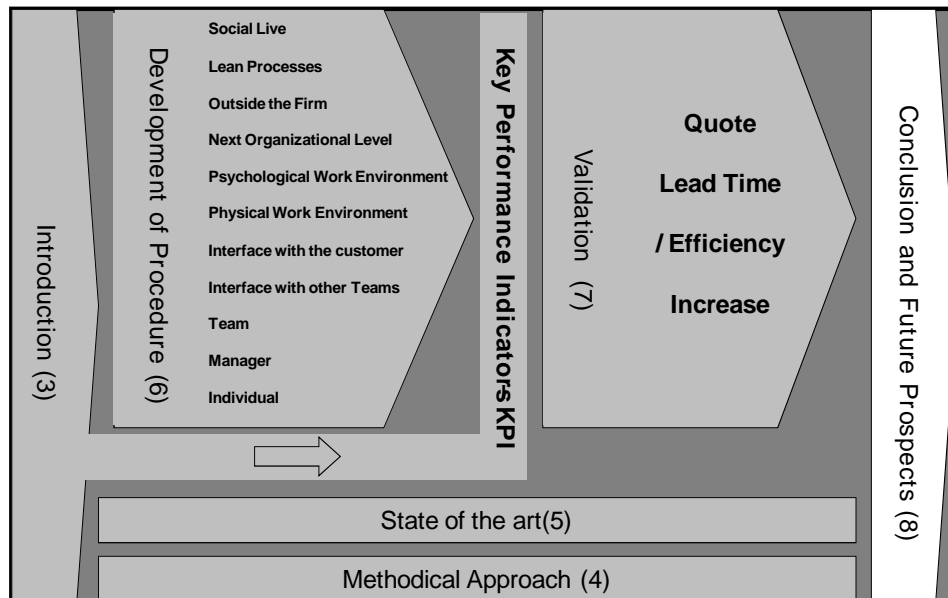


Figure 46 Conclusion and future prospects

The most important finding is, that knowledge management, in a way of knowledge enhancement and transfer, can be applied on team level structures independently from any corporate structures. Based on that, a possibility for further investigation is to transfer the findings to other departments, with a special focus on which aspects and boundary conditions need to be adapted. This, at the same time, implies that this procedure of knowledge enhancement and transfer should also be investigated on corporate level, maybe encountering logical boundaries due to the size of organizations.

Another option for further research is to investigate how such knowledge management procedures are received by employees within a company, because this could be another indication how to implement such procedures, and, at least with the same importance, how an organization can make sure that such procedures stay sustainable effective after implementation. This would need to include the question which framing conditions need to be created and maintained in order to make long term

success of implementation of knowledge enhancement and transfer possible.

Regarding long term validation, an idea is to validate the procedural steps also according increased quote quality, which was not possible within the scope of this thesis due to the long term aspect of measuring the quote quality perceived by the customer.

However companies currently handle knowledge management, 'implicit' or 'explicit', putting a stronger focus on it can make companies more competitive – which could be also the main framing question for further investigation: How can systemic knowledge management improve the competitive position ?

## 9 BIBLIOGRAPHY

Ackermann M.S. et al (2003): Sharing Experience – Beyond Knowledge Management, Massachusetts Institute of Technology, Massachusetts, USA

---

Al-Hawamdeh S. (2002): Knowledge Management: re-thinking information management and facing the challenge of managing tacit knowledge, Information research, 8(1), paper no.143, [available at <http://InformationR.net/ir/8-1/paper143.html>]

---

Beinhauer M. (2004): Knowledge Communities, Josef Eul Verlag, Köln, GERMANY

---

Böhmer Clemens (2003): Wissensmanagement in der Automobilindustrie, Diplomarbeit an der Wirtschaftsuniversität Wien, Vienna, AUSTRIA

---

Bullinger HJ., Kiss-Preußinger e., Spath D. (2003): Automobilentwicklung in Deutschland – wie sicher ist die Zukunft?, Fraunhofer IRB Verlag, Stuttgart, GERMANY

---

Bullinger HJ. (Hrsg.), (2001): Knowledge meets Process – Wissen und Prozesse managen im Intranet, Fraunhofer IRB Verlag, Stuttgart, GERMANY

---

Fenton D., Albers J.A. (2007): Journal of Knowledge Management Practice, Vol.8, Pacific Lutheran University, Tacoma, USA

Davenport Thomas H., Prusak Laurence (2000): Working Knowledge – How organizations manage what they know, Paperback, Harvard Business School Press, Boston, USA

---

Firestone J.M., McElroy M.W. (2005): Doing Knowledge Management, The Learning Organization, Vol. 12 Iss: 2, pp.189 – 212, Emerald Group Publishing Group, Bingley, UK

---

Hislop D., (2009): Knowledge Management in Organizations, Oxford University Press Inc., New York, USA

---

Holden Nigel J. (2002): Cross-Cultural Management – A Knowledge Management Perspective, Pearson Education, Harlow, GB

---

Karagiannis D., Reimer U.(2002): Practical Aspects of Knowledge Management, 4<sup>th</sup> International Conference, PAKM 2002, Vienna, Austria, Springer Verlag Berlin Heidelberg, GERMANY

---

Lehner F. (2000): Organisational Memory – Konzepte und Systeme für das organisatorische Lernen und das Wissensmanagement, Carl Hanser Verlag, München, GERMANY

---

Mertins D., Heising P., Vorbeck J., editors, 2003: Knowledge Management Concepts and Best Practices, Springer Verlag Berlin Heidelberg, GERMANY

---

Mitchell Mark T. (2006): Michael Polanyi – The Art of Knowing, ISI Books & Collegiate Network, Inc., Welmington, USA

Neuweg Georg Hans (2001): Könnerschaft und implizites Wissen: zur lehr-lerntheoretischen Bedeutung der Erkenntnis- und Wissenstheorie Michael Polanyis; Waxmann Verlag GmbH, GERMANY

---

Nonaka Ikujiro, Toyama Ryoko, Hirata Toru (2008): Managing Flow, Palgrave MacMillan, Basingstoke, GB

---

Nonaka Ikujiro, Takeuchi Hirotaka (1995): The Knowledge-Creating Company – How Japanese Companies Create the Dynamics of Innovation, Oxford University Press, New York, USA & Oxford, GB

---

Polanyi Michael (1969): Knowing and Being, ed. Marjorie Grene, Routledge & Kegan Paul, London, GB

---

Polanyi Michael (1966): The Tacit Dimension, Garden City, Doubleday & Company, New York, USA

---

Polanyi Michael (1958): Personal Knowledge – Towards a Post-Critical Philosophy, The University of Chicago Press, Chicago, USA

---

Sihn W. (2009): Automotive Industry Overview, Fraunhofer-Projektgruppe für Produktions- und Logistikmanagement & TU Wien, Institut für Managementwissenschaften, Bereich Betriebstechnik und Systemplanung, Vienna, AUSTRIA

Stapleton, James J. (2003): Executive's Guide to Knowledge Management – The last Competitive Advantage, John Wiley & Sons, Inc., New Jersey, USA

---

Styhre A. (2003): Understanding Knowledge Management – Critical and Postmodern Perspectives, Liber Ekonomi, Malmö, SWEDEN

---

Wilson T.D. (2002): The nonsense of 'knowledge management', Information Research, 8(1), paper no.144, [available at <http://InformationR.net/ir/8-1/paper144.htm>]

# 10LISTS

## 10.1 List of tables

<i>Table 1 List of Abbreviations</i>	5
<i>Table 2 Knowledge Management – Objectivist Perspective (Hislop 2009:27)</i>	17
<i>Table 3 Knowledge Management – Practice-based Perspective (Hislop 2009:34)</i>	17
<i>Table 4 Theory of Organizational Knowledge Creation (Nonaka, Takeuchi 1995:61)</i>	23
<i>Table 5 Procedures targeting individual humans</i>	45
<i>Table 6 Procedures targeting the manager of the team</i>	49
<i>Table 7 Procedures targeting the team as an organization</i>	51
<i>Table 8 Procedures targeting the interface with other teams</i>	53
<i>Table 9 Procedures targeting the interface with the customer</i>	56
<i>Table 10 Procedures targeting the physical work environment of the team</i>	57
<i>Table 11 Procedures targeting the psychological work environment</i>	61
<i>Table 12 Procedures targeting the next organizational level</i>	64
<i>Table 13 Procedures targeting the interfacing to outside</i>	65
<i>Table 14 Procedures targeting a knowledge application which fosters lean processes</i>	66
<i>Table 15 Procedures targeting the interaction with the team members social live</i>	68
<i>Table 16 Questionnaire for expert interviews</i>	78
<i>Table 17 Expert interview result</i>	82
<i>Table 18 Efficiency increase per cluster</i>	82
<i>Table 19 Discussion of specific findings</i>	84
<i>Table 20 Evaluation of procedural steps related to Evaluate RFQ</i>	86
<i>Table 21 Procedural steps related to Create Quote</i>	87
<i>Table 22 Share of efficiency increase related to focus</i>	87



## 10.2 List of figures

Figure 1 The sales chain (Morello 2002:89) _____	8
Figure 2 Structure of the Thesis _____	10
Figure 3 Key Performance Indicators (KPI's) _____	11
Figure 4 Methodical Approach _____	12
Figure 5 Overview of aspects discussed in chapter state of the art	18
Figure 6 The fuzzy view of the novice (Neuweg 2001:340) _____	20
Figure 7 The real in the light of theory (Neuweg 2001:341) _____	21
Figure 8 A transfer situation (Neuweg 2001:342) _____	21
Figure 9 Theory motivated assimilation (Neuweg 2001:342) _____	22
Figure 10 Breaking out (Neuweg 2001:343) _____	22
Figure 11 Reframing (Neuweg 2001:343) _____	23
Figure 12 Two dimensions of knowledge creation (Nonaka, Takeuchi 1995:57) _____	24
Figure 13 Four modes of knowledge conversion (Nonaka, Takeuchi 1995:62) _____	25
Figure 14 Communication and implicit knowledge (Neuweg 2001:10) _____	27
Figure 15 Knowledge Spiral (Nonaka, Takeuchi 1995:71) _____	30
Figure 16 Contents of knowledge created by the four modes (Nonaka, Takeuchi 1995:72) _____	31
Figure 17 Spiral of organizational knowledge creation (Nonaka, Takeuchi 1995:73) _____	32
Figure 18 The knowledge-creating process: SECI model (Nonaka et al 2008:19) _____	32
Figure 19 A process model of the knowledge based firm (Nonaka et al 2008:27) _____	33
Figure 20 Ba as a shared context in motion (Nonaka et al 2008:35)	35
Figure 21 Development of procedure _____	38
Figure 22 Supplier Pyramid (Sihn, 2009:47) _____	38
Figure 23 The individual within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57) _____	44
Figure 24 Role Description Department Sales&Portfolio, Continental Automotive Austria _____	45
Figure 25 The manager and knowledge worker (based on Nonaka, Takeuchi 1995:62) _____	47

<i>Figure 26 The team within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)</i>	50
<i>Figure 27 Teams on peer level within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)</i>	52
<i>Figure 28 Interaction with customers within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)</i>	54
<i>Figure 29 Communication and transferring tacit knowledge to the customer (based on Neuweg 2001:10)</i>	56
<i>Figure 30 The physical work environment based on Figure 13 The knowledge-creating process: SECI model (Nonaka et al 2008:19)</i>	58
<i>Figure 31 Interaction with the next organizational level within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)</i>	62
<i>Figure 32 Knowledge transfer and processes (based on Neuweg 2001:10)</i>	67
<i>Figure 33 Interaction with other levels of the firm and social live within the two dimensions of knowledge (based on Nonaka, Takeuchi 1995:57)</i>	67
<i>Figure 34 Validation of procedures</i>	68
<i>Figure 35 Procedural steps for implementation of knowledge management</i>	69
<i>Figure 36 Procedural steps embedded in Motivation</i>	70
<i>Figure 37 Procedural steps embedded in vision</i>	71
<i>Figure 38 Procedural steps embedded in communication culture</i>	72
<i>Figure 39 Procedural steps embedded in leadership</i>	75
<i>Figure 40 Reference Process</i>	78
<i>Figure 41 The focus of quote process steps</i>	79
<i>Figure 42 Procedural steps predominantly related to Evaluate RFQ</i>	80
<i>Figure 43 Procedural steps predominantly related to evaluate Create Quote</i>	80
<i>Figure 44 Cluster contribution to overall result</i>	83
<i>Figure 45 Share of efficiency increase related to focus</i>	88
<i>Figure 46 Conclusion and future prospects</i>	89