Silvio Wilde

Customer Knowledge Management

Improving Customer Relationship through Knowledge Application

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ISBN 978-3-642-16474-3 e-ISBN 978-3-642-16475-0
DOI 10.1007/978-3-642-16475-0
Springer Heidelberg Dordrecht London New York

Cover design: WMXDesign GmbH, Heidelberg

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

I would like to express my gratitude to Ms Cornelia Funke-Pöttrich for her untiring endeavour to 'polish up' the text flow. She had an essential part in the evolution of this book and has always been a source of inspiration. Thanks to her constant revision, the book was transformed into a more easily readable but nonetheless professional work. For me, her proofreading was an important measure of quality assurance. I can highly recommend her editorial skills. Thank you!

Silvio Wilde

Contents

List of Abbreviations

5-Step CDLS	5-Step Customer Data Life Spiral
acc. to	according to
approx.	approximately
B2B	Business-to-Business
B2C	Business-to-Customer
CKM	Customer Knowledge Management
CRI-C	Customer Relationship Improvement Cycle
CRM	Customer Relationship Management
CSR	Corporate Social Responsibility
e.g.	exempli gratia (for example)
etc.	et cetera
EDP	Electronic Data Processing
EU	European Union
fig.	figure
i.e.	id est (that is)
IfM Bonn	Institut fuer Mittelstandsforschung Bonn
IT	Information Technology
KfW	Kreditanstalt fuer Wiederaufbau
KM	Knowledge Management
n.d.	no date
n.p.	no place
PKMA	Pyramid of Knowledge Management Awareness
resp.	respectively
SME(s)	Small and Medium-Sized Enterprise(s)
vs.	versus

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Chapter 1
Introduction

1.1 Preface

Knowledge management looks into the possibilities of taking an active influence on the knowledge resources within a company. Apart from the more traditional production factors like work, capital and land, the fourth production factor 'knowledge' is becoming more and more important.[1] In order to manage knowledge and thus ensure the company's long-term economic stability, a knowledge-oriented approach is needed – and this includes customer knowledge.[2]

1.2 Research Problem

These days, our social reality is in a state of flux, developing from an industrial society via an information society towards a knowledge-based society. Typical of an information society is a flood of information that is no longer manageable without technical means.[3] If you want to take the right decisions, it is however necessary that the relevant information is provided fast, well-targeted and comprehensibly.[4] Knowledge must be available at

[1] Cf. Willke, H. (1998), p. 1.
[2] Cf. Nohr, H., Roos A. (2003), p. 35.
[3] Cf. Ernst, H. (1998), p. 21.
[4] Cf. Bernard, A., Tichkkiewitch, S. (2008), p. 245.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_1, © Springer-Verlag Berlin Heidelberg 2011

the right time, in the right place and with the right quality. The successful provision of information is the future benchmark and is a problem that companies are currently facing. Modern information and communication systems will therefore be measured by how successful they cope with this problem.[5]

The prerequisite for the successful generation of knowledge is a company's ability to efficiently combine the different components and carriers of knowledge. For this purpose, the *individual* knowledge of the members of an organization needs to be transformed into *collective* and *organizational* knowledge.[6] Basically, collective knowledge accumulates through communication between the members of an organization. Communication helps to complement and further develop individual knowledge. Companies therefore need to meet this challenge and foster the process of transferring individual into collective knowledge and vice versa.[7] This process enables companies to gain a knowledge edge, for example over their competitors. We speak of an 'organizational knowledge base' if the entire knowledge of an organization is accumulated through special processes. By transferring individual into collective knowledge and vice versa, the organizational knowledge base is subject to permanent change. Strictly speaking, these changes trigger a continuous learning process within the organization. Organizations must undergo continuous learning.[8]

Companies need to accumulate information on subject areas that relate to their business areas. New insights gained from special publications, product descriptions, work instructions or experiences from people's daily work need to be entered into a knowledge pool. This can then be developed into a CRM tool (customer relationship management tool). Therefore, companies are faced with a double issue: on the one hand using such a tool and on the other hand collecting and structuring relevant knowledge.[9]

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[5] Cf. Maier, R. (2007), p. 36.
[6] Cf. Heckert, U. (2002), p. 19.
[7] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.
[8] Cf. Dosi, G., Nelson, R. R., Winter, G. (2000), p. 54.
[9] Cf. Peelen, E. (2005), p. 56.

1.3 Research Objective

Companies' awareness of the need for sharing information and knowledge is of vital importance. On the one hand, knowledge management requires aids such as advanced technologies and intelligent tools that make knowledge organizable and manageable.[10] On the other hand, internal knowledge management is directly associated with the corporate culture of an organization. Knowledge is a personal property and thus closely linked to the persons who own it. Companies need to understand that the knowledge of their staff is a valuable intellectual capital, an added value that they should put into the focus of their activities.[11] Knowledge management is not exclusively a topic for big groups and multis. Especially SMEs (small and medium-sized enterprises) should rely on the systematic transfer and re-use of existing knowledge to survive in a fast-moving economic environment.[12]

For this reason, the present book investigates the knowledge management in SMEs. Although good customer service is their most important factor,[13] SMEs nevertheless have great difficulties in managing knowledge from, for and about the customer (see Sect. 2.5). Therefore, the link between knowledge and customer relationship and the impact of sharing knowledge will be examined within a case study (Chaps. 6 and 7). The following hypothesis has been formulated and needs to be verified:

Knowledge Management is crucial for an improved Customer Relationship.

i) To validate this hypothesis, it will be examined whether there is a demand for knowledge and where the relevant knowledge comes from. Is an internal source available, or does the company depend on external sources?

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[10] Cf. Harrington, H. J., Voehl, F. (2007), p. 88.
[11] Cf. Cloutier, L. M., Gold, E. R. (2005), p. 125.
[12] Cf. Beijerse, R. (2000), p. 162.
[13] Cf. 'SMEs in focus' (2002), p. 8.

ii) The existing as well as the provided knowledge will be assessed with respect to quantity and quality. It will also be checked whether the required data is available unrequested or whether it is available on demand.
iii) Furthermore, it will be explored if there is a correlation between the availability of and dependence on knowledge which can lead to an improved customer relationship.

This means that the first focus of the survey is on the provision and sharing of knowledge and customer data. The second focal point is the extent to which the company's employees depend on this data.

1.4 Structure of the Book

Chapter 2 contains a definition of SMEs, given by the European Union that is valid for all member states. It also includes a definition of SMEs in Germany, given by the Institut fuer Mittelstandsforschung Bonn and by the Kreditanstalt fuer Wiederaufbau. Chapter 2 also outlines the difficulties and competition factors that SMEs are facing today and helps understand their importance in Europe. Finally, the chapter introduces NEWCO International GmbH as this company will be examined in the case study.

In the course of this book, it will become clear why SMEs need to learn how to manage knowledge – and especially customer knowledge. Chapter 3 therefore focuses on different types of knowledge and explains the different approaches to knowledge management. It describes the process of knowledge development and the interaction among the different types of knowledge.

Chapter 4 deals with knowledge transfer and sharing in order so as to better understand the complexity of knowledge exchange. It describes how knowledge exchange takes place through individuals or groups within an organization. It also reveals how well-tried processes are transferred within an organization even though a company may be faced with various difficulties. An illustration of the barriers to knowledge exchange completes this chapter.

Chapter 5 explains the different ways of transferring customer knowledge. It also deals with the preconditions to sharing general and customer knowledge. A distinction is made between customer relationship and customer knowledge. It is shown how customer-oriented knowledge helps improve the interaction of company staff with their customers, thus proving the necessity for a company to use its customer knowledge resource.

Chapter 6 is the first of two practical parts and serves for questionnaire preparation and result presentation. Based on a case study, the theoretical approaches explained in Chaps. 1–5 are used to examine the hypothesis of this book. The investigation is conducted by means of a survey, separately for the company's administrative and operational areas. The survey explores the importance of knowledge and customer relationship for these two corporate areas. Furthermore, it investigates the availability of knowledge and the staff's dependence on knowledge.

Chapter 7 analyzes the results of the questionnaire. In a series of interviews conducted with the company's staff, the employees discuss the survey results. Based on the case study results, they not only make recommendations for the company as a whole, but also recommendations directed to the individual employees. This is followed by a critical analysis, including the previously identified key success factors.

The conclusion in Chap. 8 sums up all main points of this book. A theoretical and practical summary will be given. This is followed by recommendations for the efficient use of the resource 'knowledge' in order to ensure an improved customer relationship. Finally, an outlook into the future will be given.

1.5 From KM to CRM: 'PKMA', '5-Step CDLS', 'CRI-C' and 'SIS'

The following three questions are most frequently asked by the managers of SMEs and refer to companies without KM experience, to companies with an already existing database and to the process from KM to customer relationship.

1.5.1 Pyramid of Knowledge Management Awareness (PKMA)

How should companies handle Knowledge Management if they had no or few points of contact up to now?

In our today's business environment, it is of vital importance for companies to have knowledge from, for and about their customers. If a company has no or only little experience with knowledge management, it is helpful to follow the 4-step approach described below: the 'Pyramid of Knowledge Management Awareness' (PKMA) (Fig. 1.1).

1. Analyze the current knowledge situation in the company (for example by using a questionnaire).
2. Raise the awareness of the needs/benefits (have a close look at the mistakes made in the past concerning knowledge management).

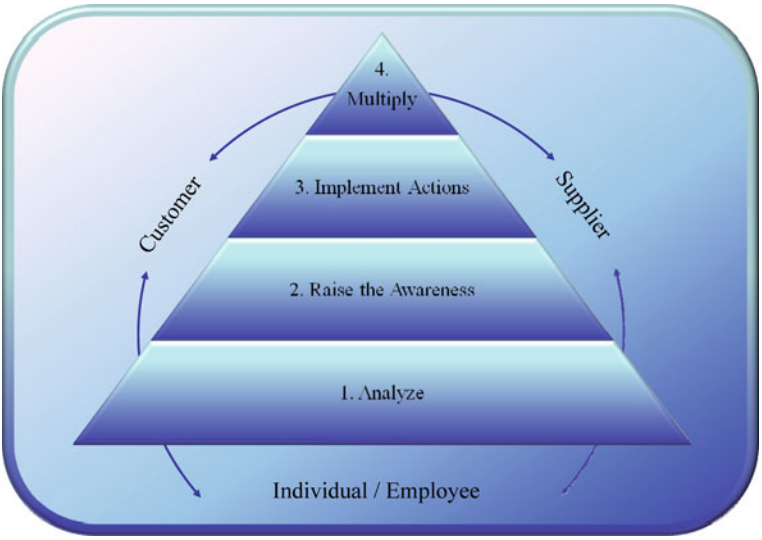

Fig. 1.1 Pyramid of Knowledge Management Awareness (PKMA)[14]

[14] 'Pyramid of Knowledge Management Awareness (PKMA)' by Wilde.

3. Set up a plan and implement actions (for example by introducing a knowledge database or regular training).
4. Share and multiply relevant information (by making practical use of the database).

In this model, the next higher level can only be reached if the level before was successfully completed.

It is crucial to organize the available knowledge – knowledge sourced from the customers, the suppliers and the company's employees – and to learn from past mistakes. But it is even more important to share and multiply this knowledge so as to derive 'added value'. A company's intellectual capital is an intangible asset of high value and key to its long-term success.

1.5.2 5-Step Customer Data Life Spiral (5-Step CDLS)

How should companies improve the quality of their existing knowledge database?

SMEs must undergo a continuous learning process. It is not sufficient to simply create such a tool – this tool must also 'come alive'. Companies with an existing tool often face poor data quality. There is a need to carefully select relevant information. But how can relevant data be identified? The following approach, called '5-Step CDLS' (5-Step Customer Data Life Spiral), is a concept that may help enhance an established CRM/CKM tool (Fig. 1.2).

1. Find out which data is needed.
2. Decide to which extent this data is needed.
3. Decide on whether the information is or will be available internally or must be obtained from external providers.
4. Prioritize the need for data maintenance resp. the need for additional applications.
5. Start the implementation of additional features resp. update/optimize existing data.

It is highly important to involve the staff into this process. In this way, the employees will develop a sense of being part of this

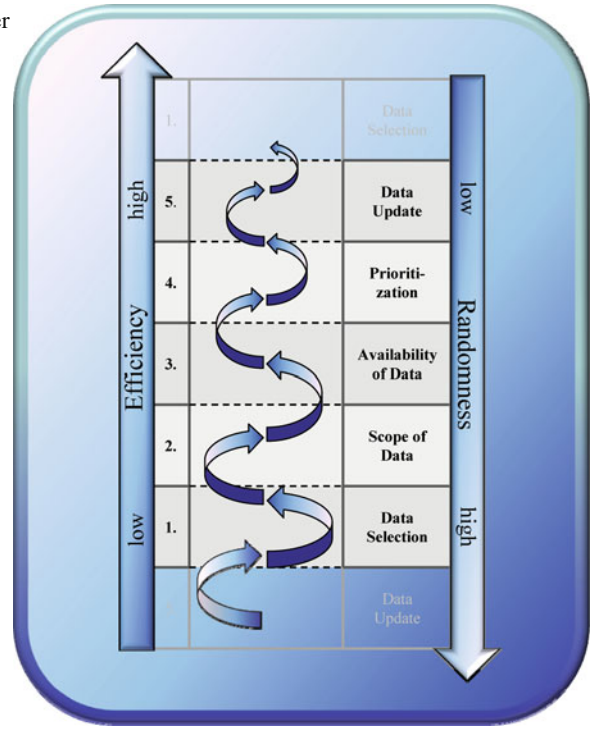

Fig. 1.2 5-Step Customer Data Life Spiral (5-Step CDLS)[15]

process and achieve a higher understanding of its necessity. The practical implementation of the tool requires concrete measures. It is helpful to establish concepts, e.g. (i) an authorization concept (who has access to which data), (ii) an updating concept (who fills in which data resp. who is responsible for updating), (iii) a content organization concept (how can the information flood be handled and the quality be improved). In brief, the existing tool with its unstructured mass of information must be made more efficient.

1.5.3 Customer Relationship Improvement Cycle (CRI-C)

How can Knowledge Management help improve Customer Relationship?

[15] '5-Step Customer Data Life Spiral (5-Step CDLS)' by Wilde.

Before a company can undergo a *customer-oriented* learning process, it needs to tackle the challenge of an *internal* learning process. To ensure a high service level and an optimal customer relationship, companies should consider the following consistent 7-step approach which, in future, may become well-known under the name of 'Customer Relationship Improvement Cycle' or 'CRI-C' (Fig. 1.3).

1. Accumulate the data within the company.
2. Categorize the collected information.
3. Make this knowledge available for the in-company users.
4. Exchange the information among the staff.
5. Contextualize the relevant knowledge and make it available for customers.
6. Constantly update/optimize the information.
7. Complement the knowledge by a database platform.

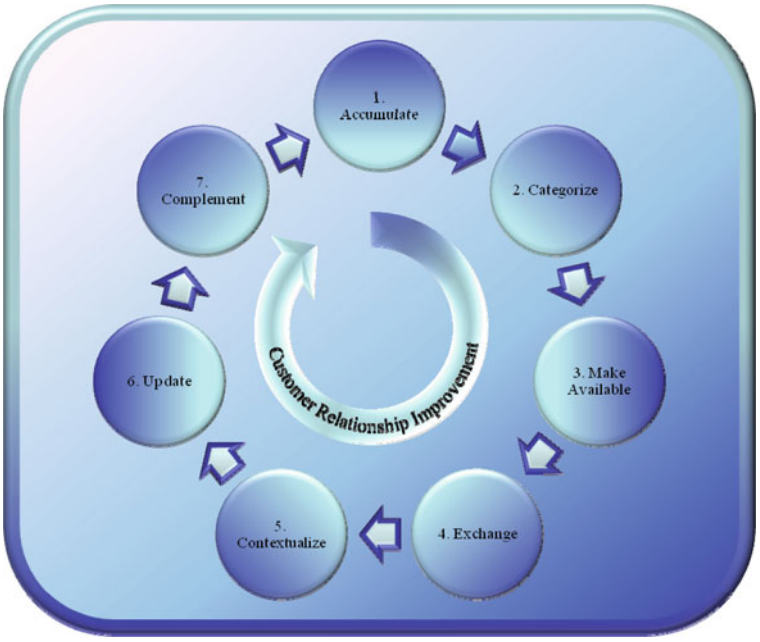

Fig. 1.3 Customer Relationship Improvement Cycle (CRI-C)[16]

[16] 'Customer Relationship Improvement Cycle (CRI-C)' by Wilde.

With the help of this model and in an atmosphere of mutual trust, it is possible to (i) jointly develop products with the customer, (ii) speed up the innovation process, (iii) react faster to changing demands and (iv) gain competitive edge. At the end of the day, the ultimate aim of every company is PROFIT! So: The better the customer relationship, the higher the profit.

1.5.4 Sensitization – Improvement – Sharing (SIS)

Conclusion of these Questions is the following Approach to Customer Relationship Management

When undertaking the project of improving a company's customer relationship management, it is important to have a clear conceptual approach. This can be done based on the 'SIS Model' (**S**ensitization – **I**mprovement – **S**haring). Every single step of this model represents one level in the overall process (Fig. 1.4).

In order to be successful, it is necessary to follow this sequence and complete the different levels step by step.

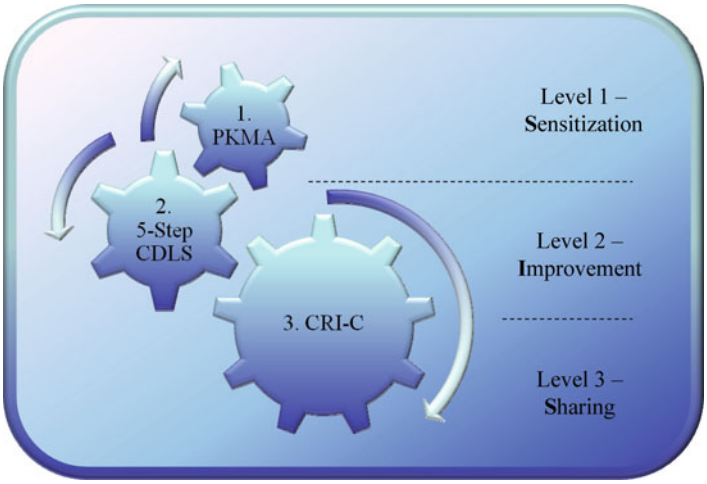

Fig. 1.4 Sensitization – Improvement – Sharing (SIS Model)[17]

[17] 'Sensitization – Improvement – Sharing Model (SIS Model)' by Wilde.

Chapter 2
Small and Medium-Sized Enterprises

2.1 Preface

This chapter outlines the role of small and medium-sized enterprises (SMEs). The first focus is on the nature and importance of SMEs in Europe. The categorization of SMEs in the 1990s as well as today's classification will be explained. This is followed by a detailed table of the new thresholds determined for SMEs within the European Union (EU). After that, both the necessity and the benefit of the new definition of SMEs will be pointed out. With reference to their pivotal role, some hard facts concerning SMEs and their aims will be revealed. Definitions of SMEs in Germany have been provided by the Institut fuer Mittelstandsforschung Bonn (IfM Bonn) and by the Kreditanstalt fuer Wiederaufbau (KfW). After introducing NEWCO International GmbH, the case study of this survey, it will be shown how it links to the definition of SMEs in Germany. At last, the difficulties faced by SMEs as well as the advantages of SMEs will be explained before a final summary is given.

2.2 Nature and Importance of SMEs in Europe

To begin with, it needs to be stated that there is no formal definition of SMEs. At the beginning of the 1990s, the European Observatory for SMEs defined them as enterprises employing less

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_2, © Springer-Verlag Berlin Heidelberg 2011

than 500 employees.[1] At that time, enterprises which employed more than 500 employees were regarded as large sized enterprises.[2] Nowadays, SMEs are defined as enterprises with less than 250 persons employed. In addition to the staff headcount, new thresholds such as the annual turnover and the annual balance sheet, are further criteria.[3] Table 2.1 shows the categorization of all thresholds.

Table 2.1 The new thresholds for SMEs in the European Union[4]

Enterprise category	Headcount: annual work unit		Annual turnover		Annual balance sheet total
Medium	<250	AND	≤ € 50 million (in 1996 € 40 million)	OR	≤ € 43 million (in 1996 € 27 million)
Small	<50		≤ € 10 million (in 1996 € 7 million)		≤ € 10 million (in 1996 € 5 million)
Micro	<10		≤ € 2 million (previously not defined)		≤ € 2 million (previously not defined)

The *headcount* determines in which category an SME falls. The *annual turnover* is based on the earnings realized over a year, after deduction of rebates and excluding value added tax and other indirect taxes. The *annual balance sheet total* refers to the value of a company's main assets. When trying to classify a company, the *headcount* AND *the annual turnover/annual balance sheet total* have to be chosen. The headcount can be easily determined. In a second step, *the annual turnover* OR *the annual balance sheet total* need to be calculated.[5]

[1] Cf. 'The European Observatory for SMEs' (1994), p. 1.
[2] Cf. Bates, P. J., Furminger, M., Haldane, A. (1995), p. 3.
[3] Cf. 'Observatory of European SMEs' (2003b), p. 4.
[4] Cf. http://ec.europa.eu/enterprise/enterprise_policy/sme_definition/index_en.htm; 'The new SME definition' (2005), p. 14.
[5] Cf. 'The new SME definition' (2005), p. 15.

It is necessary to distinguish between these categories to get a clear picture of a company's economic situation. Based on this common definition of SMEs within the EU, comparisons of national and international companies can be consistent and effective.[6]

In 2005, there were approx. 23 million SMEs in the European Union which at that time consisted of 25 member states. Providing around 75 million jobs and representing 99% of all companies within the EU, these enterprises are important contributors to growth, competition and productivity.[7] It can therefore be stated that 'Micro, small and medium-sized enterprises are the engine of the European economy. They are an essential source of jobs, entrepreneurial spirit [. . .] and are thus crucial for fostering competitiveness and employment.'[8] Their competitiveness is improved through good management of the relationship with their distribution networks.[9] For the reasons above, SMEs in Europe are also called the real 'giants' of the European economy.[10]

2.3 SMEs in Germany

The previous section was necessary as there is no uniform definition of small and medium-sized enterprises. Depending on the purpose, several characteristics for the differentiation of SMEs are conceivable.[11] Contrary to the thresholds laid down by the EU, the Institut fuer Mittelstandsforschung Bonn (IfM Bonn) defines SMEs as follows (Table 2.2):

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[6] Cf. 'Commission recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises' (2003a), p. 36.

[7] Cf. 'SME consultation 2007/2008' (2008), p. 1; 'The new SME definition,' op cit., p. 5.

[8] Verheugen, G. (2005), p. 3.

[9] Cf. Alzaga Etxeita, A., Goyarrola Ugaalde, J. (2003), p. 2.

[10] Cf. 'Mittelstand: Leistung durch Vielfalt' (2009), p. 3; 'SMEs in focus' (2002), p. 4.

[11] Cf. 'Der Mittelstand in der Bundesrepublik Deutschland: Eine volkswirtschaftliche Bestandsaufnahme – Dokumentation Nr. 561' (2007), p. 9; 'Die volkswirtschaftliche Bedeutung der Familienunternehmen' (2007), p. 3.

Table 2.2 Thresholds of SMEs in Germany by the IfM Bonn[12]

Size of enterprise	Headcount		Annual turnover
Small	<10	AND/OR	< € 1 million
Medium	10–500		€ 1–50 million

Companies with more than 500 employees and more than 50 million Euros turnover are large enterprises.[13] In 2007, a total of 3.63 million companies[14] existed in Germany. 99.7% of these companies were small and medium-sized enterprises, accounting for 38.3% of all turnovers and 70.6% of all employees in employment.[15]

Unlike the EU definition, there is not only an AND-connectivity between headcount and annual turnover in Germany. The evaluator can decide on his own whether the headcount AND/OR the turnover is used as a criterion resp. criteria.[16] The decision on a criterion often depends on the availability of the relevant data. If, however, a company is defined as an SME in a statistic, it is necessary to indicate the criterion.

The Kreditanstalt fuer Wiederaufbau (KfW) defines companies with a maximum turnover of 500 million Euros as SMEs.[17]

2.4 NEWCO International GmbH

The results of this book are based on an investigation carried out for a really existing company. For reasons of confidentiality, however, the company name was anonymized.

[12] Cf. http://www.ifm-bonn.org/index.php?id=89.

[13] Cf. 'Der Mittelstand in der Bundesrepublik Deutschland: Eine volkswirtschaftliche Bestandsaufnahme – Dokumentation Nr. 561,' op cit., p. 9.

[14] Cf. 'Arbeitsbericht 2008' (2009), p. 11; All companies with more than 17.500 Euros taxable annual turnover resp. companies with minimum one employee subject to social insurance contribution are considered.

[15] Cf. 'Mittelstand: Leistung durch Vielfalt,' op cit., p. 7.

[16] Cf. 'Der Mittelstand in der Bundesrepublik Deutschland: Eine volkswirtschaftliche Bestandsaufnahme – Dokumentation Nr. 561,' op cit., p. 9.

[17] http://www.bwmd.de/Mittelstand/Definition/.

NEWCO International GmbH (hereinafter called NEWCO) is a fictitious sales and trading company for specialty chemicals. NEWCO is located in Cologne/Germany and employs approx. 50 persons. Its turnover in 2008 was approx. 73 million Euros. Its portfolio comprises some 350 products which are delivered to 1500 customers in 80 countries.[18]

NEWCO serves customers worldwide who have come to appreciate the company's comprehensive and uncomplicated service offered by its sales representatives and technical marketing. NEWCO is a reliable and competent partner with a profound know-how, based on decades of experience as a chemical distributor. The company's aim is to develop tailor-made solutions for customers.[19] Thanks to its good distribution network, it has direct access to content that supports the daily business, thus making the business more efficient and reducing the search time.[20]

Based on the definition of SMEs in Germany and when applying the OR-connectivity, NEWCO International GmbH falls in the category of medium-sized enterprises. Its headcount of just under 50 is lower than the 500 employee threshold.[21] However, when applying the definition of the KfW, NEWCO can also be seen as an SME. Its turnover of approx. 73 million Euros is lower than the limit of 500 million Euros.[22]

2.5 Difficulties and Competition Factors of SMEs

Despite their high importance in Europe, SMEs are confronted with a lot of obstacles. One of them is to obtain capital or credit, especially in the start-up phase. This is a constant problem that

[18] Data taken from internal company profile: 'Firmenpräsentation 20090525.pdf' (2009), p. 2.

[19] Data taken from internal company profile: 'Firmenpräsentation 20090525.pdf,' op cit., p. 4.

[20] Cf. Alzaga Etxeita, A., Goyarrola Ugaalde, J., op cit., p. 3.

[21] Cf. 'Firmenpräsentation 20090525.pdf', op cit., p. 2; http://www.ifm-bonn.org/index.php?id=89.

[22] Cf. 'Firmenpräsentation 20090525.pdf', op cit.; http://www.bwmd.de/Mittelstand/Definition/.

SMEs encounter, because they are often unable to offer securities to money lenders and investors. The current financial crisis reinforces this problem.[23]

Another factor is that, due to restricted resources, they have reduced access to new technologies and innovation.[24] Compared to bigger companies, they have a lower capacity for modifying their external environment. Therefore SMEs need to focus on areas that represent real chances of business improvement instead of wasting too much capacity on any opportunity for improvement that may come up.

The fluctuation of employees and their intellectual capital is a further problem that companies are faced with. Especially in SMEs, the loss of employees threatens the availability of intellectual capital.[25] In the last years, the lack of skilled labor has been considered to be the main obstacle for SMEs in Europe, and hence also Germany. In addition, it is difficult for SMEs to find the right balance between confidentiality (hiding information) and sharing knowledge. But this is essential for successful networking.[26] In brief: SMEs have problems caused by the fluctuation of employees – in other words: loss of knowledge. On the other hand, they have difficulties in handling the knowledge. This is confirmed by a survey – carried out by Beijerse in 2000 – on KM practiced in SMEs. He found out that there is a clear lack of systematic knowledge management policies.[27]

The majority of SMEs compete on the service that they provide to the customer and on the quality of their products and services. Therefore, (i) customer service and (ii) quality are the major competitive factors for SMEs (see Fig. 2.1).[28] This can give them considerable competitive edge over big companies. The

[23] Cf. http://www.manager-magazin.de/unternehmen/flexindex/0,2828,650275,00.html; 'The new SME definition' (2005), p. 5.

[24] Cf. 'The new SME definition' (2005), p. 5.

[25] Cf. Coviello, A. et al. (2002), p. 14.

[26] Cf. 'SME and Entrepreneurship Outlook' (2005), p. 124; 'SMEs in focus' (2002), p. 9.

[27] Cf. Beijerse, R. (2000), p. 162.

[28] Cf. 'SMEs in focus' (2002), p. 8; 'Working to Ensure Benefits from the GATS for Members' Small and Medium Sized Enterprises (SMEs)' (2005), p. 1.

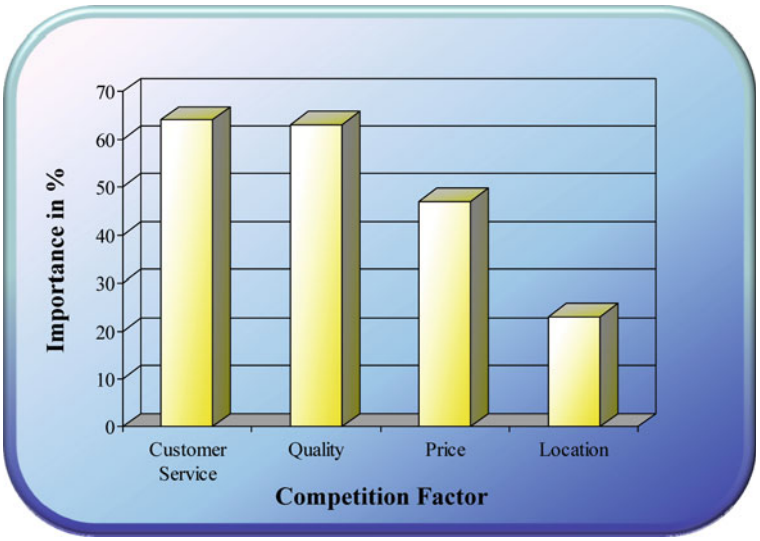

Fig. 2.1 Factors on Which SMEs Consider Themselves Competitive[29]

following diagram shows the priority of competition factors for SMEs.

The graph shows that the factor price figures only in third position while location ranks only in position four. This clearly shows that customer orientation is the most important competition factor for SMEs. Good relationships build trust which is needed for future business. It is obvious that quality is also important for gaining a competitive edge. These two factors are the 'ace in the sleeve of the SME' for gaining competitiveness.[30] Chapter 5 will deal in particular with the aspect of customer relationship.

Another factor that makes SMEs competitive is their flexibility to react to change. Thanks to their small dimensions, SMEs can act and change faster than larger companies. Change means the ability to adapt management tools and strategies to newly arising market demands.[31]

[29] Cf. 'SMEs in focus' (2002), p. 8.

[30] Cf. Bryson, J. R., Daniels, P. W. (2007), p. 302; Hmelnitchi, C., Neamtu, I. (2009), p. 3.

[31] Cf. Coviello, A. et al. (2002), p. 14.

2.6 Summary

In this chapter, the pivotal role of SMEs in the EU was pointed out.[32] It can be stated that SMEs are more and more seen as important drivers for increasing the economy's competitiveness in the global market and essential for sustained, long-term economic stability.[33] They are the driving force in our economy.

In every business, independent of the sector, the size of a company or the kind of activity, it is obvious that the real company value is different from its book value. The difference, known as intellectual capital, is growing continuously, and this is an opportunity for SMEs to improve. Intellectual capital is an important success factor for these companies. The fact that they have to deal with employee fluctuation and therefore loss of knowledge, and the fact that they have difficulties in handling knowledge clearly shows that a knowledge management system is needed.[34]

To sum up, SMEs have some advantages but also need to tackle some crucial issues. To survive in our today's business environment, it is fundamental to minimize resp. eliminate these drawbacks. Knowledge Management supports an SME by making relevant data available at the right time and in the right place. The next chapter will therefore focus on the various facets of Knowledge Management.

[32] Cf. Verheugen, G., op cit., p. 3.
[33] Cf. Menkhoff, T., Wah, C. Y., Loh, B. (2004), p. 6.
[34] Cf. Coviello, A. et al., op cit., p. 14.

Chapter 3
Knowledge Management

3.1 Preface

The previous chapter explained the different definitions of SMEs. It also outlined their difficulties and competition factors. One of these difficulties is the handling of knowledge. Knowledge has been identified as the fourth production factor and hence needs to be managed. It is therefore essential to know how Knowledge Management works.

This chapter starts with a definition of Knowledge Management. A comparison of the various types of knowledge will help distinguish the forms from each other. After explaining the types of knowledge, the concepts and theoretical approaches to Knowledge Management will be introduced. One of these concepts is 'The SECI Model' by Nonaka/Takeuchi that is divided into an epistemological and ontological dimension. The second concept is the 'Munich Knowledge Management Model' by Reinmann-Rothmeier. Within this model, knowledge is compared with the different states of water.

3.2 Definition and Types of 'Knowledge'

As mentioned in the chapters before, Knowledge Management has become increasingly important in recent years. But what exactly is KM? There is no single agreed definition of this term.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_3, © Springer-Verlag Berlin Heidelberg 2011

Nahapiet and Ghoshal defined it as the task of developing and exploiting both tangible and intangible resources of a company. Tangible assets include information and experience-based knowledge about customers, products, competitors etc. Intangible assets include the competencies and knowledge resources of employees in a company.[1]

Knowledge itself is divided into various types and these are explained hereinafter. Recommendations are also made for each type.

3.2.1 Internal vs. External Knowledge

Internal knowledge derives from information sources within an organization, e.g. EDP specialists. By contrast, external knowledge is available from outside, e.g. from the internet or from other companies' experts, and therefore needs to be acquired. The acquisition of knowledge from external sources is often advantageous because there is no need inside the company for the long-term, time-consuming process of knowledge development.[2] In many cases, the use of external knowledge sources is even a must. Nowadays, it is impossible for anybody to have all of the required knowledge and skills. Knowledge is rapidly increasing and the number of information sources is rising as well. In view of these facts, there is no chance for individuals to keep themselves up to date about everything and at all times.[3] Finally, it should be mentioned that internal knowledge within a company can be used directly while external knowledge is not directly available, but can be of high interest.[4]

3.2.2 Theoretical vs. Practical Knowledge

Knowledge can be divided into theoretical and practical knowledge. Theoretical knowledge consists of internal and external

[1] Cf. Nahapiet, J., Ghoshal, S. (1998), p. 242.
[2] Cf. Heckert, U. (2002), p. 20.
[3] Cf. Voelker, R., Sauer S., Simon M. (2007), p. 52.
[4] Cf. Hopfenbeck, W., Mueller, M., Peisl, T. (2001), p. 37.

company-related facts and processes. This is also called factual knowledge resp. 'know-that'. This type of knowledge is easy to put into words whereas practical knowledge is difficult to verbalize and visualize. Practical knowledge includes abilities and skills and is also known as application knowledge or 'know-how'. Theoretical knowledge forms the basis for the communication of knowledge among human beings. Practical knowledge can be gained from carrying out activities and tasks (learning by doing). Afterwards, both the existing and the new experiences gained can be linked with action.[5] In brief, practical knowledge can be divided into two main aspects. One of these is the skills that are needed to achieve goals in a given situation. The second aspect is related to employees' familiarity with their work. By contrast, theoretical knowledge is of an intellectual and descriptive character and includes theories, methods and facts that are needed to know about the work.[6]

3.2.3 Individual vs. Collective Knowledge

Individual knowledge is the knowledge held by each employee in a company. It is mainly present in implicit form, i.e. it basically exists in the head of an individual. Collective knowledge, by contrast, occurs through communication and interaction among employees. As collective knowledge is based on norms, rules or structures prevailing within a company, it is also often referred to as 'organizational knowledge'. On the one hand, it is essential for organizations to transfer individual knowledge into collective knowledge through the cooperation of single knowledge carriers. On the other hand, it is also important to convert collective knowledge into individual knowledge – only then is it possible to set up an organizational knowledge basis.[7] The concept of an 'organizational knowledge basis' has been defined by Probst et al. as follows: An organizational knowledge basis consists of an individual and collective knowledge inventory which is accessible

[5] Cf. Heckert, U. (2002), p. 21.
[6] Cf. Staudt, E., Kailer, N., Kottmann, M. (2002), p. 162.
[7] Cf. Heckert, U. (2002), p. 19.

for an organization in order to solve its tasks. Furthermore, it also includes data and information inventories on which individual and collective knowledge is built.[8]

3.2.4 Tacit vs. Explicit Knowledge

The distinction between tacit and explicit knowledge is of prime importance in the KM process. The characteristic of explicit knowledge is that it can be easily articulated and therefore be saved outside the head of single persons (like a document in a folder or computer file). Consequently, it is processable, transferable and storable by using EDP.[9] Tacit knowledge exists inside the head of individuals. It comprises practical knowledge which is difficult to communicate and therefore difficult to transfer and store in an explicit way. Tacit knowledge is based on an individual's convictions, intuitions and ideals and is of a more unconscious nature. This kind of knowledge is dangerous for companies, because it cannot be separated easily from the knowledge carrier.[10] For example, if long-standing employees quit their jobs, the company must be aware of a massive loss of know-how. To avoid this scenario, it is important to transfer tacit into explicit knowledge.[11]

3.3 Concepts of and Approaches to 'Knowledge Management'

There exist a lot of Knowledge Management models, but only few have established themselves – established in the sense of becoming generally valid, finding high acceptance in practical contexts and gaining recognition in scientific circles. The model of the Knowledge Spiral developed by Nonaka 1994 as well as Nonaka/Takeuchi 1995 complies with these three criteria and will

[8] Cf. Probst, G., Raub, S., Romhardt, K. (2006), p. 22.
[9] Cf. Schreyoegg, G., Geiger, D. (2003), p. 14.
[10] Cf. Gehle, M. (2006), p. 26.
[11] Cf. von Krogh, G., Nonaka, I., Nishiguchi, T. (2000), p. 9.

be presented hereinafter.[12] In addition, the Munich Model by Reinmann-Rothmeier will be explained.

3.3.1 'The SECI Model' by Nonaka/Takeuchi

The approach taken by Nonaka/Takeuchi aims at generating and distributing knowledge within a company. Their model consists of two main elements, the epistemological and the ontological dimension (Fig. 3.1).[13]

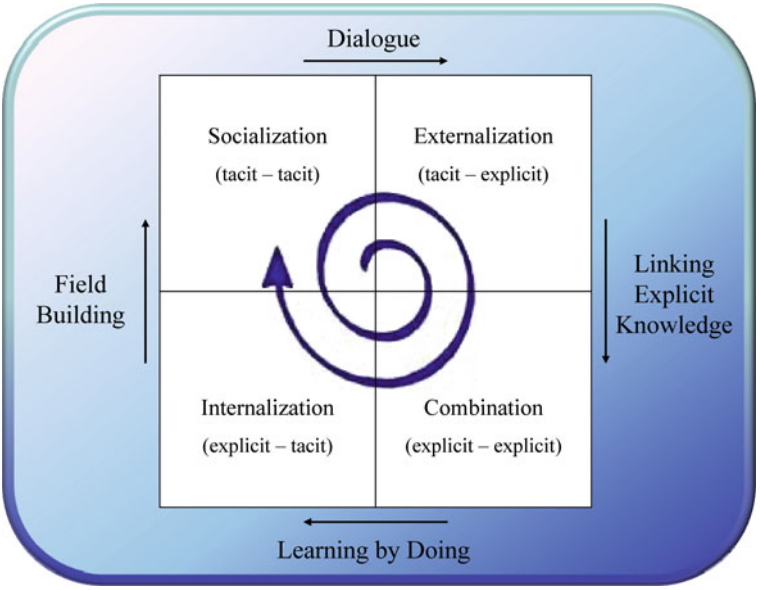

Fig. 3.1 Knowledge Spiral on Epistemological Level[14]

(i) *Epistemology* is the study of knowledge.[15] It describes the various types – tacit and explicit – of knowledge and is divided into four main processes of knowledge exchange. Through the dynamic interaction of the epistemological and the ontological dimension, existing and new knowledge can be extended and results in a knowledge spiral. The four

[12] Cf. Reinmann-Rothmeier, G. (n.d.), p. 3.
[13] Cf. Lehner, F. (2006), p. 39.
[14] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.
[15] Cf. Brown, T., Smith, L. (2002), p. 201.

modes of knowledge conversion interacting in the spiral are **S**ocialization (from tacit to tacit), **E**xternalization (from tacit to explicit), **C**ombination (from explicit to explicit) and **I**nternalization (from explicit to tacit).[16]

- *Socialization* happens when two persons exchange tacit knowledge face-to-face. Examples are a personal dialogue or a conference, but also 'exchange of experience' through observation or imitation.[17]
- Only through *Externalization* can knowledge be developed and made available for the whole company (e.g. through documentation). This is probably the most important form of knowledge development. Tacit knowledge adopts the form of concepts and hypotheses.[18]
- *Combination* is the amalgamation of existing explicit knowledge to develop new explicit knowledge. This form of knowledge exchange is supported through documents, PCs, networks and communication tools.[19]
- *Internalization* is a learning process that is linked to 'learning by doing'. The formation of an own opinion is an example. The explicit knowledge becomes part of the individual's knowledge base and thus an asset for the organization. It is an individual operationalization of knowledge.[20]

The above forms of knowledge development are restricted in their use to the generation of new knowledge. Tacit and explicit knowledge must interact dynamically. The core concepts of knowledge exchange by Nonaka/Takeuchi consist of two different knowledge spirals.[21] The 2nd spiral of knowledge development exists on the ontological level.

[16] Cf. Nonaka, I. (1992), p. 96; Nonaka, I., Takeuchi, H. (1997), p. 71.
[17] Cf. Vollmar, G. (2007), p. 57.
[18] Cf. Nonaka, I., Takeuchi, H. (1995), p. 71.
[19] Cf. Lehner, F. (2006), p. 40; Nonaka, I., Takeuchi, H. (1995), p. 71.
[20] Cf. Eschenbach, S., Geyer, B. (2004), p. 98; Nonaka, I., Takeuchi, H. (1995), p. 71.
[21] Cf. Nonaka, I., Takeuchi, H. (1997), p. 86.

(ii) *Ontology* is a branch of metaphysics that deals with the nature of being.[22] It tries to answer the questions which entities exist and how they can be grouped or related within a hierarchy. In the context of knowledge sharing, the term ontology is a description of the concepts and relationships that can exist for an agent or a community of agents. First, the tacit knowledge of employees needs to be mobilized. This takes place via 4 exchange forms.[23] Knowledge is hereby enhanced and pushed forward to higher ontological levels.[24] This process is triggered by an individual, continues through teams, across departments and divisions well beyond the company borders (Fig. 3.2).[25]

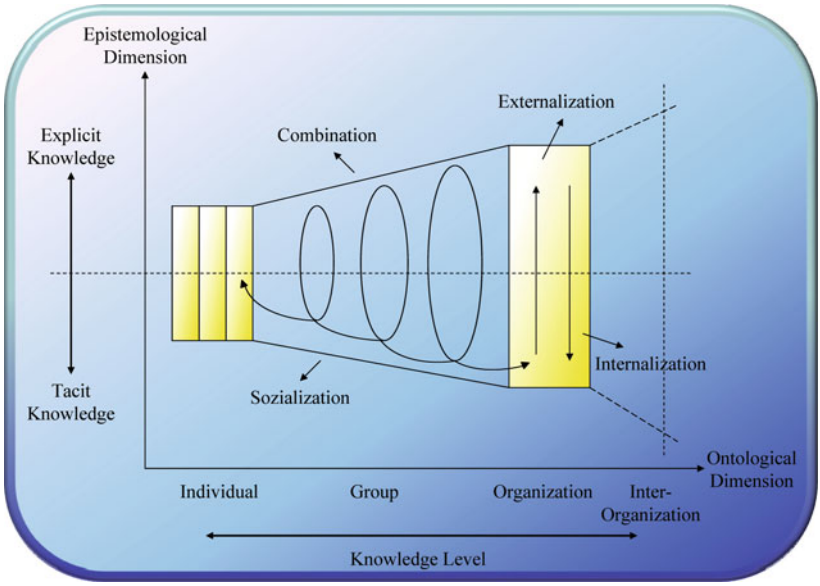

Fig. 3.2 Spiral of Knowledge Development Within an Organization[26]

[22] Cf. Wallace, D. P. (2007), p. 175.
[23] Cf. Lehner, F. (2006), p. 40; Nonaka, I., Takeuchi, H. (1997), p. 85.
[24] Cf. Rutten, R. (2003), p. 68.
[25] Cf. Lehner, F. (2006), p. 41.
[26] Cf. Nonaka, I., Takeuchi, H. (1997), p. 87.

The concept of the knowledge spiral causes a suitable frame within a company.[27] The five preconditions for knowledge development and generation in the SECI Model are Intention, Autonomy, Fluctuation and creative Chaos, Redundancy and the necessary Diversity.

- The first requirement is the *Intention* – in other words: the strong aim of a company to achieve certain goals. Based on this pursuit, strategies, benchmarks and visions evolve which, by necessity are value-oriented. The company's intention is the criterion for evaluating any knowledge that is created. It is also meant to strengthen the commitment of the employees by promoting their further development. The company's intention thus controls the knowledge spiral.[28]
- The employees of a company should perform in *Autonomy* to strengthen their level of commitment and motivation. The organization should establish a system where all autonomous individuals and groups have the same level of information to determine task boundaries by themselves. Self-organized groups build such an autonomy-friendly area as explained by Nonaka/Takeuchi.[29]
- Another precondition is *Fluctuation and creative Chaos.* Due to a fluctuating environment, e.g. changing demands or competition, a situation may develop within a company where the employees fear a crisis. Based on the disturbance of their habits, the staff now has the possibility to break their stereotyped mindset[30] and to develop new concepts. The collapse of routine processes may lead to creative Chaos. This mood of crisis can be generated intentionally by the management.[31]
- Western managers often have negative associations with the term *Redundancy*, e.g. double work or already existing information. In this case, however, Redundancy means additional

[27] Cf. Liebowitz, J. (2004), p. 86.
[28] Cf. Gehle, M. (2006), p. 65.
[29] Cf. Nonaka, I., Takeuchi, H. (1995), p. 81.
[30] Cf. Bontis, N., Choo, C. W. (2002), p. 441.
[31] Cf. Eschenbach, S., Geyer, B. (2004), p. 101; Nonaka, I., Takeuchi, H. (1995), p. 78.

information that is not directly related to purposes. It helps employees to exchange knowledge among different departments, work out new perspectives and integrate into the company as a whole.[32]

- The last requirement is the *necessary internal Diversity.* Employees need sufficient flexibility to react immediately to changes in the business environment, meet the complexity of this environment and demonstrate their internal diversity.[33] This can be achieved by having equal access rights to information and information systems. Further possibilities are the reduction of rigid hierarchies, staff rotation and a new organizational structure.[34]

Both spirals are dynamic: the epistemological through interaction of the four exchange forms and the ontological through repeated interaction among individuals, teams, on company level but also among companies. But only through simultaneous collaboration of both can knowledge be developed and innovations be triggered.[35]

3.3.2 'Munich Knowledge Management Model' by Reinmann-Rothmeier

Contrary to the concept described above, Reinmann-Rothmeier integrates pedagogical-psychological aspects into her KM model. Based on the results and approaches taken by the models displayed above, this model tries to react and adjust their deficits. The Munich Model differentiates between information knowledge – which is similar to explicit knowledge – and practical knowledge which is comparable to tacit knowledge.[36]

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[32] Cf. Lehner, F. (2006), p. 42; Nonaka, I., Takeuchi, H. (1997), p. 101.
[33] Cf. Morey, D., Maybury, M., Thuraisingham, B. (2002), p. 170.
[34] Cf. Lehner, F. (2006), p. 42; Waltz, E. (2003), p 74.
[35] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.
[36] Cf. North, K. (2005), p. 176; Reinmann-Rothmeier, G. (2001), p. 15.

As Reinmann-Rothmeier's KM model compares knowledge with water, this model is also called the 'Water Model of the Munich School' (Fig. 3.3).[37]

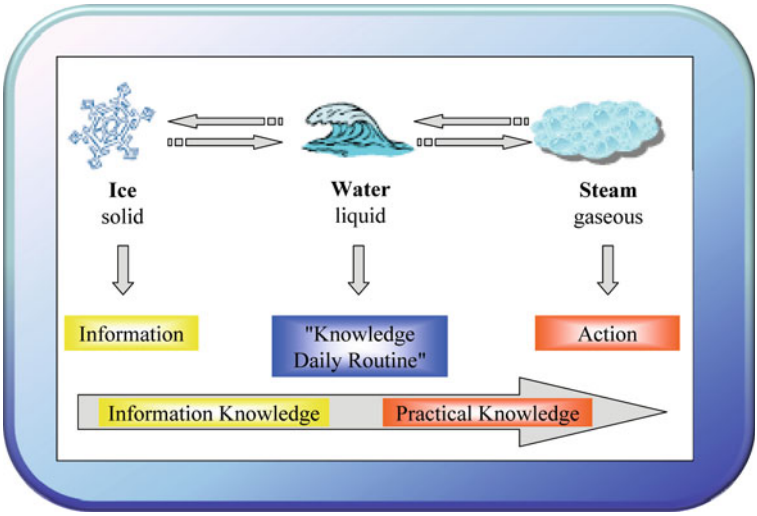

Fig. 3.3 Water Analogy of Knowledge[38]

Water exists in three different physical states: solid, liquid and gaseous. This insight can be transferred to the concept of knowledge. The knowledge that we are confronted with day by day can be compared to the liquid state of water. Water is constantly in motion, it can be dammed or directed, but it cannot be grasped. The same applies to knowledge: the tacit and explicit parts of knowledge can be influenced and formed.[39] When water freezes into ice, it can be transported, piled up and structured. In this state, water is easy to handle. Ice can therefore be compared with information knowledge (explicit knowledge). This type of knowledge can be documented, transported and forwarded.[40] The gaseous state of water is similar to practical knowledge (tacit knowledge).

[37] Cf. Gehle, M. (2006), p. 67.
[38] Cf. Reinmann-Rothmeier, G. (2001), p. 16.
[39] Cf. Maisch, J. (2006), p. 65.
[40] Cf. Gehle, M. (2006), p. 27.

There is no direct access to this type of knowledge, and the same applies to steam.[41]

Based on this model, KM is explained as an approach to influencing knowledge processes in an area of tension between information and action. In addition, the company needs to create a general framework that allows access to all parties involved. Nevertheless, KM has only limited influence on knowledge motion, i.e. the transformation of information into action.[42]

The essence of this model lies in 4 different knowledge processes: *knowledge presentation, knowledge use, knowledge communication* and *knowledge generation.*[43] They simultaneously affect individual and organizational procedures, actions and interests. Also psychological processes of knowledge motion are taken into consideration.[44]

(i) *Knowledge presentation* aims at making knowledge visible, accessible and transportable.[45] At this stage, knowledge is 'frozen' (water analogy) to make it manageable. Through information and communication technology it can be passed on to others.[46] This model also considers personal barriers. Apart from the willingness of an individual to share personal knowledge,[47] skills are requested to share the knowledge in a way that makes it easily accessible. The task of a company's management is to foster a good working atmosphere for knowledge transfer to happen and to promote the individual skills of articulation, visualization and presentation of knowledge.[48]

(ii) *Knowledge use* is the attempt to make knowledge applicable for actions and decisions, to make knowledge 'come alive'.

[41] Cf. Reinmann-Rothmeier, G. (2001), p. 18.
[42] Cf. Dittmar, C. (2004), p. 106; Reinmann-Rothmeier, G., Mandl, H. (1999), p. 27.
[43] Cf. Reinmann-Rothmeier, G. (2001), p. 22.
[44] Cf. Lehner, F. (2009), p. 31.
[45] Cf. North, K. (2005), p. 177.
[46] Cf. Reinmann-Rothmeier, G. (n.d.), p. 18.
[47] Cf. Nonaka, I. (1994), p. 14.
[48] Cf. Maisch, J. (2006), p. 65; Reinmann-Rothmeier, G. (2001), p. 22.

The use of knowledge can be compared to the gaseous state of water. Knowledge becomes visible and thus usable. The implicit parts of knowledge, however, remain 'foggy' and are not directly accessible. Nevertheless, the use of knowledge is linked with motion since knowledge is transferred into action.[49] The use of knowledge can only take place effectively if routine actions and habits are broken. This requires the willingness to break the mould by actively involving the company's employees.[50]

(iii) The focus of *knowledge communication* is the exchange of information and the cross-linking of knowledge. The single steps in the process of knowledge communication are possible with and without technical equipment.[51] In terms of the water analogy, we are talking about the liquid form of water here. Knowledge should be made to 'flow' and the aim is not to interrupt this flow. Through communication, knowledge is in motion and further spread, thus allowing it to grow and to be used by knowledge carriers.[52] For a better communication among the employees within an organization, feelings of trust and mutuality are needed. The exchange of knowledge should be characterized by a reciprocal give-and-take.[53] It is the management's task to create a trustworthy environment and to motivate employees' teamwork and cooperation. Contact barriers should be reduced. This can be done through expert directories with the data of relevant domain experts.[54]

(iv) *Knowledge generation* is the process of converting pure information into contextual and action-relevant knowledge. In this way, individual or collective knowledge can be issued and something new can be created for use in innovative ideas.[55] This means that generation processes ensure

[49] Cf. Reinmann-Rothmeier, G., Mandl, H. (2004), p. 53.
[50] Cf. Gehle, M. (2006), p. 57.
[51] Cf. Kolbe, L. M., Oesterle, H., Brenner, W. (2003), p. 47.
[52] Cf. Reinmann-Rothmeier, G. (2001), p. 24.
[53] Cf. Davenport, T. H., Prusak, L. (2000), p. 34.
[54] Cf. Reinmann-Rothmeier, G. (2001), p. 24.
[55] Cf. Grant, R. M. (2005), p. 176.

> that the source of the 'knowledge river' does not dry up. Only through generation of new knowledge is it possible for a company to be close to its customers and act in a future-oriented way. New knowledge can only be created if employees are able to derive from their own experience and knowledge and put it into other contexts. Furthermore, it is important that employees work in an environment where they can use their creativity and curiosity for generating new knowledge. The present model emphasizes that only such an environment is able to generate new knowledge, identify the potentials and bring the 'right' people together.[56]

The concept of an integrated and effective KM requires individual, social and organizational learning. KM and learning belong together and it is difficult to separate them. It is already a well-known fact that learning plays a pivotal role in companies, but the different concepts and approaches show that more than learning is needed. The approach to knowledge and learning must be systematic, methodical and take place consciously. Finally, it is important to recognize KM as an opportunity to build up, activate and apply the personal and organizational ability to learn.[57]

3.4 Summary

This chapter defined the concept of Knowledge Management. This was followed by a description of the various types of knowledge. Also the differences between internal and external knowledge as well as their advantages and disadvantages were presented. When comparing theoretical and practical knowledge, it is practical knowledge that can be easily verbalized while theoretical knowledge forms the basis of communication. Individual knowledge exists in the heads of persons and collective knowledge takes place through communication.[58] Explicit knowledge

[56] Cf. Ichijo, K., Nonaka, I. (2007), p. 217; Reinmann-Rothmeier, G. (2001), p. 25.
[57] Cf. Reinmann-Rothmeier, G. (2001), p. 21; Stacey, R. D. (2001), p. 14.
[58] Cf. Heckert, U. (2002), p. 21.

exists outside the heads of individuals and can be easily structured whereas tacit knowledge exists inside their heads. It is difficult to store it outside the knowledge carrier. Therefore, it is highly important to convert tacit into explicit knowledge.[59]

'The SECI Model' by Nonaka/Takeuchi consists of two main elements. On the one hand, epistemology describes the interaction of tacit and explicit knowledge. On the other hand, ontology deals with the agents and their relationships of knowledge sharing.[60] On the epistemological level, new knowledge can be created if or when it is provided by knowledge carriers. This is the process of using knowledge and converting it into more complex knowledge.[61] The ontological dimension divides agents into groups on different hierarchy levels within the SECI model. The preconditions mentioned in this chapter must be fulfilled before knowledge generation takes place.[62]

The 'Munich Knowledge Management Model' by Reinmann-Rothmeier compares knowledge with water. In its liquid state, water can be compared to the knowledge we are exposed to every day: it is in motion and cannot be grasped. In its frozen state, water (knowledge) can be documented, structured and transported. Water resp. knowledge in the gaseous state is difficultly accessible and controllable. In order to present knowledge, it has to be made visible and mobile. Before knowledge can be used, it needs to be made applicable. When knowledge is communicated, an exchange of information takes place. The generation of knowledge focuses on transforming pure information into contextual knowledge.[63]

The presented models have shown that knowledge is manageable. These theoretical approaches require an exchange of knowledge. Therefore, the next chapter focuses on the transfer and sharing of knowledge.

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[59] Cf. Gehle, M. (2006), p. 26; von Krogh, G., Nonaka, I., Nishiguchi, T. (2000), p. 9.
[60] Cf. Nonaka, I., Takeuchi, H. (1997), p. 71.
[61] Cf. Despres, C., Chauvel, D. (2000), p. 90.
[62] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.
[63] Cf. Reinmann-Rothmeier, G. (2001), p. 21.

Chapter 4
Knowledge Transfer and Sharing

4.1 Preface

Chapter 2 emphasized the key role played by SMEs in the EU. It also explained why they have difficulties in handling knowledge. After that, Chap. 3 introduced the different types of knowledge, followed by a presentation of the theoretical approaches to managing knowledge.

After having defined and explained the important terms of knowledge management, this chapter will now focus on the process of knowledge transfer and knowledge sharing. At this stage of the book, the in-house exchange of knowledge will be considered, especially the internal sharing of knowledge. This includes, for instance, knowledge about customers as it flows into the company. This knowledge needs to be integrated both into the organization's knowledge base and into the business processes.[1]

4.2 Complexity of Knowledge Sharing

Knowledge sharing and knowledge exchange are complex processes. Communication is a central means that supports the process of knowledge sharing. Knowledge exchange is more than just the provision of information; it also requires the internalization of information. This means that the skepticism regarding new

[1] Cf. Cristofolini, M. (2005), p. 43.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_4, © Springer-Verlag Berlin Heidelberg 2011

information needs to be overcome and the knowledge integrated into one's own knowledge basis.[2]

Knowledge sharing is defined by Broedner et al. as a complex social interaction process through which knowledge is generated and used effectively. This process consists of the specialization and fragmentation of knowledge during its development and through its shared use. Broedner draws a parallel between knowledge sharing and the division of work. The more knowledge is shared, the higher the productivity and thus the better the performance of the company.[3]

Models play an important role for understanding the processes of knowledge exchange. Based on these models, a systematic analysis and exploration of coherencies, target-oriented measures for improving the communication and conscious interventions are possible.[4] There are a lot of models available with an empirical background, but this book focuses on the stages of Best Practice Transfer explained by Szulanski.

4.3 Best Practice Transfer Model by Szulanski

This four-stage model illustrates the characteristic phases that a company runs through when transferring best practices. The transfer of best practices means that well-tried processes are transferred to other departments in an organization so that they can be jointly used and benefited from. This also includes tacit components that are embedded into individual abilities. In each phase, the company needs to confront various difficulties that may have a different impact. The sequence of stages, however, is always the same (Fig. 4.1).[5]

(i) The *Initiation* stage comprises all activities that lead to a transfer. A transfer only takes place when there is a demand for knowledge and when the appropriate knowledge

[2] Cf. Heinrich, L., Roithmayer, F. (1995), p. 49.
[3] Cf. Broedner, P., Helmstaedter, E., Widmaier, B. (1999), p. 49.
[4] Cf. Heinrich, L., Roithmayer, F., op cit., p. 50.
[5] Cf. Hall, J., Sapsed, J., Williams, K. (2000), p. 4; Szulanski, G. (1996), p. 27.

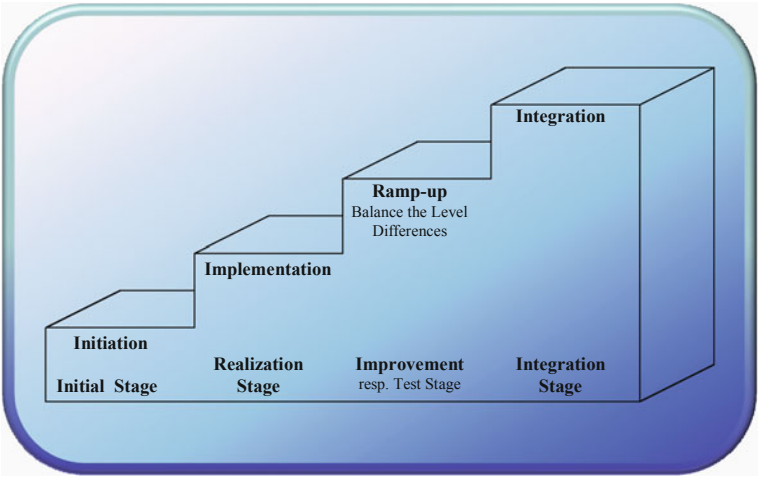

Fig. 4.1 Best Practice Transfer Model[6]

is available within the company. This demand for knowledge and its transfer can, for instance, be triggered by co-workers or by a customer problem and the search for a better solution. If 'better' is found, formerly satisfactory processes can be modified.[7]

(ii) The beginning of the *Implementation* stage is marked by the decision to realize the transfer. In this phase, resources are exchanged between sender (source) and receiver and the transfer is implemented. The receiver can be prepared for the receipt of new knowledge, e.g. through training courses. This stage phases out when the receiver begins to use the transferred knowledge.[8]

(iii) During the *Ramp-up* stage, the focus is on resolving difficulties and unexpected problems. This is necessary in order to meet the expectations linked with the transfer. At the beginning, the receiver is likely to use the newly acquired knowledge ineffectively.[9] But along with its use, e.g. for

[6] Cf. Szulanski, G. (1996), p. 32.
[7] Cf. Harvard Business School (2005), p. 125.
[8] Cf. Lehner, F. (2009), p. 84.
[9] Cf. Szulanski, G. (2003), p. 33.

overcoming level differences, the performance will gradually improve until a satisfactory level has been achieved.[10]

(iv) In the final *Integration* stage, the transferred knowledge, e.g. newly acquired procedures, become routinized. In the course of time, a common wealth of experience is formed. Through shared experience and behavior, the coordination of procedures is supported and institutionalized.[11]

After a closer look at the difficulties encountered on each stage, three factors can be identified that affect the transfer. These 'barriers' are demonstrated in the next section.

4.4 Barriers to Knowledge Exchange

Based on his study 'Internal Stickiness of Knowledge Transfer', Szulanski identifies three factors that may affect the transfer. Many authors believe that the transfer fails through lack of motivation. But Szulanski recognized that the *type and the ambiguous character of knowledge* (tacit knowledge or knowledge with another context) is one of the main barriers (Table 4.1).[12]

As knowledge cannot be gathered unambiguously and free from context,[13] its successful transfer largely depends on the knowledge basis of the receiver. What the receiver needs is the ability to evaluate new knowledge and to store and remember it.[14] The higher the tacit element of the knowledge to be transferred, the higher the personal commitment between sender and receiver needs to be. It is a general truth that a disturbed relationship between sender and receiver is obstructive to knowledge transfer. All other variables have an impact on the transfer process, but were identified as not being significant within the scope of this study. Here a short explanation.[15]

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[10] Cf. Wallace, D. P. (2007), p. 119.
[11] Cf. Feher, P. (2006), p. 128; Szulanski, G. (1996), p. 27.
[12] Cf. Lehner, F. (2006), p. 52.
[13] Cf. Nonaka, I. (2005), p. 326.
[14] Cf. Fink, K. (2003), p. 183.
[15] Cf. Wallace, D. P. (2007), p. 119.

Table 4.1 Internal stickiness of knowledge transfer[16]

Factors of influence	Indicators	Significance (acc. to the study)
1. Type of knowledge	Ambiguity	Significant
	Unprovenness	Not significant
2. Sender	Lack of motivation	Not significant
	Not perceived as reliable	Not significant
3. Receiver	Lack of motivation	Not significant
	Lack of learning ability	Significant
	Lack of retentive capacity	Not significant
4. Context	Barren of organizational context	Not significant
	Arduous relationship	Significant

(i) *Unprovenness:* It has been assumed that established knowledge is easier to transfer than 'new' knowledge. It is more difficult to encourage potential transfer partners and to integrate controversial knowledge.[17]

(ii) *Lack of motivation on sender's side:* The sender is not willing to invest time and effort in the transfer of knowledge as there is no incentive to share the knowledge. This lack of motivation can even be caused by anxieties concerning position and power.[18]

(iii) *Not perceived as reliable:* If the sender is considered as unreliable, this may have a negative influence on the transfer. Suggestions made for example by an apprentice are more difficult to implement than suggestions coming from a long-time employee.[19]

(iv) *Lack of motivation on receiver's side:* The receiver refuses to accept foreign knowledge because of his pride or wounded ego (also known as 'Not-Invented-Here-Syndrome').[20]

[16] Cf. Szulanski, G., op cit., p. 53.
[17] Cf. Lehner, F., op cit., p. 53.
[18] Cf. Christensen, P. H. (2003), p. 83.
[19] Cf. Szulanski, G., op cit., p. 36.
[20] Cf. Christensen, P. H. (2003), p. 83; Lehner, F., op cit., p. 53.

(v) *Lack of retentive capacity:* This describes the receiver's failure to accept and institutionalize the use of new knowledge. If there is a lack of this skill, problems occurring during the integration phase will be blamed on the transfer. The receiver will continue to cling to old concepts.[21]
(vi) *Barren of organizational context:* If the corporate culture is unproductive, future transfer processes can be inhibited. The organization's structure and systems naturally influence the number of transfer trials and their results.[22]

4.5 The Concept of *Ba*

The concept of *Ba* was developed by the Japanese philosophers Kitaro Nishida and Shimizu and describes a shared space that serves as a foundation for knowledge creation. This space does not need to be of a physical nature; it can also exist mentally, virtually or in any combination of these three forms.[23]

Nonaka describes *Ba* as 'a context which harbors meaning'.[24] If we assume that knowledge is a subjective construction and knowledge generation is an interactive process, then *Ba* is a crucial requirement for knowledge generation. Knowledge communication and interaction require a shared understanding and shared meaning – otherwise we would talk at cross-purposes.[25] Meaning is not universally valid as it is based on subjective realities and individual meanings. This means that a shared understanding and individual meanings need to be developed together. Whenever our subjective perceptions are transformed into shared recognition and collective meaning, *Ba* exists. And exactly in this space the development of knowledge becomes possible.[26] 'To participate in a *Ba* means to get involved and transcend one's own limited perspective or boundary. This exploration is necessary in order to

[21] Cf. Coakes, E. (2003), p. 34.
[22] Cf. Szulanski, G., op cit., p. 27.
[23] Cf. Eschenbach, S., Geyer, B. (2004), p. 99.
[24] Nonaka, I., Konno, N. (1998), p. 40.
[25] Cf. Botha, A., Kourie, D., Snyman, R. (2008), p. 30.
[26] Cf. Nonaka, I., Konno, N., op cit., p. 41; Wierzbicki, A., Nakamori, Y. (2007), p. 282.

profit from the 'magic synthesis' of rationality and intuition that produces creativity. (. . .) Within *Ba*, real-time knowledge creation is achieved through self-transcendence.'[27]

Transcending one's own knowledge is seen as source of creativity by Nonaka and Konno. Knowledge is a perishable commodity, because it is dynamic, infinite and not tangible. To be the source of creativity and innovation, knowledge needs to be mobilized at the right time and place.[28] *Ba* reflects this place as the so-called 'resource concentration'.[29] Within *Ba*, individual, collective, organizational, tacit and explicit knowledge come together and all types are in a dynamic correlation. Hence *Ba* becomes a place where learning on all levels (individual learning, collective learning and organizational learning) will be possible as the following graph illustrates (Fig. 4.2).[30]

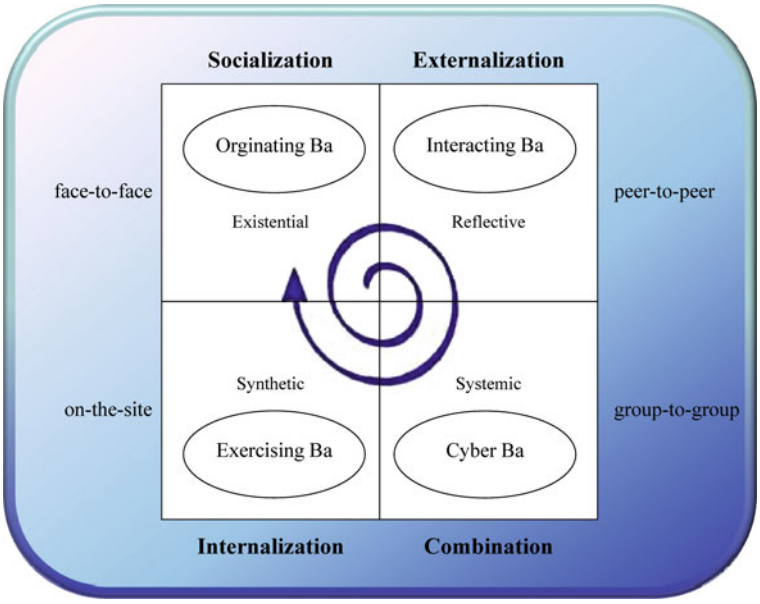

Fig. 4.2 The Four Types of *Ba*[31]

[27] Nonaka, I., Konno, N., op cit., p. 41.
[28] Cf. Vollmar, G. (2007), p. 77.
[29] Nonaka, I., Konno, N. op cit., p. 41.
[30] Cf. Harorimana, D. (2009), p. 29.
[31] Cf. Nonaka, I., Konno, N., op cit., p. 46.

Ba supports all four types of knowledge conversion in a dynamic process.

(i) *Originating Ba* is a space where individuals share feelings, emotions and experiences. Physical contacts among people lead to an exchange of tacit knowledge. Socialization is supported.[32]
(ii) *Interacting Ba* is the place where tacit knowledge is made explicit. Dialogues are the key to such conversations. Individuals with different knowledge and different skills work together in this type of *Ba*.[33]
(iii) *Cyber Ba* refers to a virtual space of interaction and corresponds to the combination of knowledge creation. New explicit knowledge can be gained through existing knowledge and is provided by means of information technology within the company.[34]
(iv) *Exercising Ba* needs time and space for putting the thinking emerged from all other *Ba* activities into action. It enables the change from explicit to tacit knowledge. The use of explicit knowledge in daily situations promotes the process of internalization. *Training on the job* corresponds to this type of *Ba*.[35]

The concept of *Ba* mainly deals with the *generation* of knowledge. Certainly, there are also requirements mentioned that are relevant to existing knowledge.[36] In order to transfer this theoretical approach to knowledge development into practice, five preconditions need to be fulfilled that are explained in the SECI Model in Sect. 3.3.1.

[32] Cf. Despres, C., Chauvel, D. (2000), p. 60.
[33] Cf. Dhillon, G., Stahl, B. C., Baskerville, R. (2009), p. 17.
[34] Cf. Gottschalk, P. (2005), p. 91.
[35] Cf. Truch, E. (2004), p. 103.
[36] Cf. Nonaka, I., Konno, N., op cit., p. 47.

4.6 The Learning Organization

This section explores the knowledge management aspect of organizational learning. Knowledge management and its learning aspect imply that an organization needs to make use of and extend its intellectual capital and knowledge assets. Organizational knowledge comprises the collected knowledge of individuals who share their knowledge when interacting with other employees.[37] Two key characteristics can be derived from this. On the one hand, organizational knowledge is knowledge that is shared among the members of an organization. On the other hand, organizational knowledge is spread. This means it is created and managed by individuals who act autonomously within a decision area. As these two characteristics are conflicting, it is difficult to manage organizational knowledge. Therefore, it is necessary to establish an intelligent information infrastructure that supports knowledge management.[38]

A learning organization is defined by Senge as '[. . .] an organization that is continually expanding its capacity to create its future'.[39] These days, organizations constantly need to refresh and update their intellectual capital. This is the process of organizational learning.[40] Learning in organizations can be subdivided into two types. *Adaptive learning* is essentially 'survival learning' whereas *generative learning* is learning that enhances an organization's capacity for creation.[41]

(i) *Adaptive learning* takes place when employees in an organization respond to internal or external changes by detecting errors which they then correct. Individual work conforms to set standards and norms and focuses on solving problems.[42]

[37] Cf. Dosi, G., Nelson, R. R., Winter, G. (2000), p. 54.
[38] Cf. Botha, A., Kourie, D., Snyman, R., op cit., p. 84.
[39] Senge, P. (1990), p. 85.
[40] Cf. Dalkir, K. (2005), p. 250.
[41] Cf. Senge, P. (2006), p. 14.
[42] Cf. McMillan, E. M. (2004), p. 165.

(ii) *Generative learning* takes place when lacks are detected and corrected in a way that results in a modification of the organization's policies, rules, targets and assumptions associated with the norms. Employees who apply generative learning follow the standards and rules that are set, but scrutinize these norms to redesign the rules so that the problems do not occur again.[43]

As a rule, it can be stated that traditional organizations are more aligned to *adaptive learning* whereas a learning organization tends towards the *generative learning* process. Although generative learning takes place on a higher level than adaptive learning, both types of learning need to be joined.[44]

Knowledge is created through learning. When an individual learns, personal knowledge is created. By contrast, collective knowledge is created when an individual or a group submits knowledge through collaboration. This means that the group learns. If the knowledge of a group is new for other groups in the organization, knowledge becomes organizational knowledge and thus the organization learns. Through the creation of new knowledge, individual and organizational learning therefore is combined.[45]

It needs to be mentioned, though, that an organization cannot create knowledge without individuals.[46] Individuals are essential for a company. 'A firm is nothing else but what it knows, how it harnesses and coordinates what it knows [. . .]'.[47] It is therefore the task of a company to provide the context, to support and to stimulate the activities for creating knowledge. Learning takes place by receiving, acting and reflecting and this process finally results in a spiral.[48]

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[43] Cf. Sessa, V. I., London, M. (2006), p. 168.
[44] Cf. Botha, A., Kourie, D., Snyman, R., op cit., p. 86.
[45] Cf. Burke, P. J., Jackson, S. B. (2007), p. 15; Shani, A. B., Docherty, P. (2003), p. 22.
[46] Cf. Nonaka, I., Takeuchi, H. (1995), p. 239.
[47] Prusak, L. (2001), p. 7.
[48] Cf. Botha, A., Kourie, D., Snyman, R., op cit., p. 86.

4.7 Summary

This chapter focused on the exchange of knowledge. It was pointed out that knowledge transfer and knowledge sharing are complex processes. The interaction of individuals has been identified as the elementary part within the knowledge exchange process.[49] Knowledge sharing mostly depends on the individual's behavior. Szulanski identified two reasons for the failure to transfer knowledge: the type and the ambiguous character of knowledge.[50] A successful transfer of knowledge therefore depends on the reflected knowledge that is generated by individuals.[51]

Knowledge generation is an interactive process that must be based on a shared meaning and shared understanding. This means that knowledge needs to be developed together so that subjective perceptions can be transformed into collective meaning.[52] If communication and transfer of information take place among employees, knowledge can be developed. This helps the company to extend its capacity of mindset.[53] Individual employees learn through knowledge interaction. When submitting knowledge to a team, the group learns. Finally, by sharing the knowledge of one group with other groups, the company develops into a learning organization. This is the moment when in-house exchange of knowledge has been established.[54]

To survive in our today's competitive business environment, it is necessary to successfully manage knowledge within a company. But to gain competitive edge, it is moreover necessary to use and integrate customer knowledge. The following chapter will therefore focus on customers, the relationship with and the knowledge about them.

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[49] Cf. Nonaka, I., Takeuchi, H., op cit., p. 239.
[50] Cf. Szulanski, G., op cit., p. 53.
[51] Cf. Wallace, D. P., op cit., p. 175.
[52] Cf. Nonaka, I., Konno, N., op cit., p. 41.
[53] Cf. Senge, P., op cit., p. 14.
[54] Cf. Burke, P. J., Jackson, S. B., op cit., p. 15; Shani, A. B., Docherty, P., op cit., p. 22.

Chapter 5
Customer Relationship – Customer Knowledge

5.1 Preface

The further development of knowledge and the interaction among the different types of knowledge are key factors to company success. The knowledge exchange processes in a company, especially among knowledge carriers of different hierarchies, are essential for providing relevant information. Both have been explained in Chaps. 3 and 4.

Customers are the basis of a company's economic success. Therefore, this chapter will now focus on knowledge across company borders, i.e. on customer knowledge. The main emphasis will be on the aspects of interaction, communication and knowledge transfer between companies and their customers. First, a trustful customer relationship needs to be built up. In a second step, the customer knowledge needs to be integrated into routine business processes so that employees act in a customer-oriented manner and offer customized products and services.[1]

5.2 Customer Relationship Management

A company that wants to establish a good customer relationship needs to know its customers. Only if their demands, needs and expectations are known can suitable – in other words

[1] Cf. Cristofolini, M. (2005), p. 43.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_5, © Springer-Verlag Berlin Heidelberg 2011

customized – products and services be offered. By managing the existing knowledge about the customer, it is possible to build and maintain a satisfactory and mutually beneficial relationship. Through a high customer loyalty, a company can gain competitive edge.[2]

CRM helps improve the interfaces to customers and also aims at enhancing customer satisfaction. CRM can therefore be defined as a customer-oriented and IT-based management concept with the objective of establishing long-term and profitable customer relationships. To assess future customer behavior and offer the best possible care, it is necessary to exploit, evaluate and regularly update the company's knowledge about the customer.[3]

If a company aims at improving its customer loyalty and thus its success, the company's CRM needs to fulfill various subtasks. CRM can be divided into 3 types with different tasks.

i) The aim of *Collaborative CRM* is to optimize customer contacts. The duration and frequency of direct interaction between customers and companies is to be minimized in favor of automated, passive interaction. Classic means of communication such as phone, fax and postal services must be complemented by modern electronic technologies such as e-mail and SMS services to set up a 'Customer Interaction Center'.[4] By involving the customer directly, tailored information can be obtained.[5]
ii) By contrast, *Operational CRM* provides the members of Marketing, Sales and Customer Service with relevant customer and market information. Those employees who are responsible for customer care thus have permanent access to the collected data. Through each contact, they further complete the customer profile and thus can take a comprehensive view of the customer. Information concerning delivery time, inventory etc. helps to make reliable statements on customers.

[2] Cf. Doole, I., Lancaster, P., Lowe, R. (2005), p. 61.
[3] Cf. Peelen, E. (2005), p. 56.
[4] Cf. Buttle, F. (2004), p. 9.
[5] Cf. Peel, J. (2002), p. 176.

In brief: Operational CRM aims at the optimization of customer care.[6]

iii) While Collaborative CRM and Operational CRM support the business processes with customers, *Analytical CRM* focuses on collecting, processing and analyzing customer data by means of Business Intelligence Applications (Data Warehouse, Data Mining etc.). The objective is to identify sales potentials as well as cost drivers in Marketing, Sales and Customer Service.[7] In short, data warehouses can be gold mines of information.[8]

When incorporating the employees and designing suitable in-company processes, these different types of CRM can help enhance the company's productivity, increase its sales and improve its quality level.[9]

5.3 Customer Knowledge Management

CRM is primarily focused on the in-house knowledge of customers. As a result, the customer himself and the knowledge about him are insufficiently and unsystematically integrated into the organizational processes. The implementation of CKM tries to fill this gap. If customer knowledge is to be used in a target-oriented manner, it is necessary to make it accessible, to develop it and to share it systematically. By integrating CKM, the customers can become active knowledge partners to the company.[10]

The proper handling of customer-oriented knowledge is getting more and more important. As products and services are becoming increasingly short-lived but also more sophisticated, the processes of development, manufacturing and merchandising are subject to

[6] Cf. Nemati, H. R., Barko, C. D. (2004), p. 189.
[7] Cf. Buttle, F., op cit., p. 9.
[8] Cf. Swift, R. S. (2001), p. 64.
[9] Cf. Doole, I., Lancaster, P., Lowe, R., op cit., p. 61.
[10] Cf. Gibbert, M., Leibold, M., Probst, G. (2002), p. 460.

constant change.[11] This change is linked to the fact that customer requirements and needs are becoming more and more special. These days, it is important for companies to perceive and adapt to the changes as early as possible to ensure their long-term success.[12] Naturally, this requires a stronger customer orientation as well as continuous improvement of products and services. It is also important to launch new products. For this purpose, companies need to know and meet the needs and wishes of their customers. If companies want to ensure their customers' long-term loyalty and also want to win new customers, they clearly need customer-oriented knowledge.[13]

5.3.1 Types of Customer Knowledge

The integration of customer knowledge into operational activities is relatively new. The relevant literature differs between *knowledge about the customer, knowledge from the customer* and *knowledge for the customer.*

i) *Knowledge about the Customer*
This type of customer-oriented knowledge comprises information about the customer regarding his purchase and payment behavior, his motivation, buying habits and demands. This form of knowledge is acquired mainly in a passive way, i.e. not actively by interaction with the customer. It is the result of analyses, interviews and observations as done, for example, by market research institutions.[14]

ii) *Knowledge from the Customer*
Knowledge from the customers mostly arrives at the company in a direct way. The customer informs the organization about his experiences with products, services, processes or his expectations. Also interpretations of the market or the customer's knowledge of his competitors or technologies as

[11] Cf. Back, A., Enkel, E., von Krogh, G. (2007), p. 4.
[12] Cf. Riempp, G. (2003), p. 25.
[13] Cf. Ostertag, A. (2004), p. 25.
[14] Cf. Cristofolini, M., op cit., p. 41.

well proposals for solution belong to this category of knowledge. Consequently, the company takes actively part in the customer's stock of knowledge.[15]

iii) *Knowledge for the Customer*
When the customer shares his knowledge with another company, this company is then in a position to identify possible knowledge gaps and to further develop the customer's 'non-knowledge'. The customer should be supported with 'knowledge for the customer' in order to close the revealed knowledge deficits. An example of this is information regarding products as well quality and prices.[16]

The following overview shows the different types of customer-oriented knowledge and their typical contents (Table 5.1).

Table 5.1 Types of customer knowledge[17]

	Knowledge about the customer	Knowledge from the customer	Knowledge for the customer
Company/person	• B2B: industry, creditworthiness • B2C: age, sex, income . . .	• Own objectives, strategies, own expectations, interests . . .	• Specify problems and ascertain the demand
Product/service	• Product portfolio, purchase history, contract duration . . .	• Strengths/weaknesses of quality compared to the competitor	• Scope of offer, quality features, prices . . .
Actions of the company	• Type, intensity, frequency of customized activities	• Strengths/weaknesses of activities compared to the competitor	• Special offers, individual talks, special conditions . . .
Reactions of the customer	• Turnover, gross margin, customer lifetime value, customer satisfaction, complaints	• Insights and intentions concerning products and services	• Achieved customer status (e.g. in customer binding programs) or discount stages

[15] Cf. Leibold, M., Probst, G., Gibbert, M. (2005), p. 274; Cristofolini, M., op cit., p. 41.
[16] Cf. Kincaid, J. W. (2003), p. 14; Cristofolini, M., op cit., p. 41.
[17] Cf. Boehler, H. (2002), p. 273.

Certainly, there are overlaps in the various knowledge categories. 'Knowledge for the customer' can be easily distinguished from the 'knowledge about the customer' and 'knowledge from the customer'. But it is difficult to exactly separate 'knowledge about the customer' from 'knowledge from the customer'. These two types of knowledge can be best subdivided into active (knowledge from the customer) and passive (knowledge about the customer) knowledge.[18]

5.3.2 *Further Differentiations of Customer-Oriented Knowledge*

Knowledge can be further subdivided by carrier and form. It is not limited to its tacit or explicit nature, but can also have an individual or collective nature. A differentiation between internal and external knowledge, i.e. knowledge about the customer and knowledge from the customer is possible, too.[19]

For power reasons and in order to ensure their own employment, knowledge about the customer can be treated and protected like private property by individual employees. This means that the knowledge carrier has no motivation to share his knowledge with others. It is therefore difficult to extricate the tacit knowledge of an employee and to collectivize it through communication. If collectivization is not hindered through egoistic motives, individual and explicit knowledge can be exchanged to become organizational knowledge.[20] The same applies to tacit knowledge. Hence, it is possible to transform individual into collective knowledge and tacit into explicit knowledge.[21] This is highly important for companies, because knowledge about customers is mainly kept in the mind of a customer service employee although it is essential, e.g. for successful transactions with the customer.[22]

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[18] Cf. Cristofolini, M., op cit., p. 42.
[19] Cf. Cristofolini, M., op cit., p. 43; Voelker, R., Sauer S., Simon M. (2007), p. 51.
[20] Cf. Ackermann, M., Pipek, V., Wulf, V. (2003), p. 29.
[21] Cf. Nonaka, I. (2005), p. 82.
[22] Cf. Cristofolini, M., op cit., p. 43.

Table 5.2 Characteristics of customer-oriented knowledge[23]

	Explicit knowledge	Tacit knowledge
Individual knowledge	• Customer data in a specially managed customer file • Contact person with function	• Customer's assessment of the market development • Innovative ideas of the customer • Personal preferences of the customer • Detailed procedures at the customer • Customer's reaction to complaints
Collective knowledge	• Customer's disclosed assessment of the market development • Clearly articulated customer demands or collected through market research • Terms and invoicing practice • Transaction data • Customer master data	• Contact person with his/her power position • Future behavior of single customers • Requirements to be met by the market service • Rough future development of turnover • Jointly developed perceptions of the customer behavior

Table 5.2 shows the characteristics of customer-oriented knowledge.

The explicit knowledge, shared by all employees within an organization, is relatively easy to collect and store. For instance, customer master data as well as research results fall under this category. Modern information and communication technology helps to store and distribute this knowledge.[24] Besides, there is also explicit, individual knowledge that is not shared with other members of a company. This may be knowledge that is only relevant for the knowledge carriers themselves or, as mentioned before, knowledge that is deliberately not shared. Customer data that is

[23] Cf. Cristofolini, M., op cit., p. 45.

[24] Cf. Harorimana, D., Watkins, D. (2008), p. 436.

saved on the PC of an individual and thus not provided to others belongs to this category.[25]

Tacit parts of knowledge can be present as collective knowledge when this knowledge has not been explicated but is shared by several employees, e.g. within a department or business unit. Forecasts of future turnover, future customer service requirements or routine work are examples of tacit, collective knowledge.[26]

For efficiency reasons, information is not often explicated. It is not worthwhile exploring every innovative idea of a customer, for example for complexity reasons. In this case, direct and intensive exchange between customer and employees has proved to be more efficient.[27]

Through the acquisition and well-considered use of customer knowledge, companies are in a position to satisfy the requirements and needs of their customers. An improved market position can be achieved and strengthened and the company can successfully distinguish itself from competitors in the market. The use of knowledge from, for and about the customer helps promote the loyalty of and interaction with the customer. Consequently, CKM and understanding the characteristics of customer-oriented knowledge is profitable for both companies and customers.[28]

5.3.3 Benefits for Organizations Through Integration of Customer Knowledge

The importance of knowledge is frequently stressed in this book but will be explained hereinafter in further detail. Companies which have recognized the importance of the resource *knowledge* and make effective use of the relevant knowledge for their aims can benefit from considerable advantages and can gain a

[25] Cf. Huysman, M., de Wit, D. (2002), p. 149.
[26] Cf. Junghagen, S., Linderoth, H. C. J. (2003), p. 96.
[27] Cf. Cristofolini, M., op cit., p. 43.
[28] Cf. Al-Shammari, M. (2008), p. xv.

competitive edge. Especially the knowledge acquired from customers is helpful in achieving the aspired competitive position or in maintaining resp. strengthening this position.[29]

Based on the attainment and beneficial use of customer knowledge, companies can satisfy customer demands in a better way. By collecting knowledge from and about customers, business processes can be optimized and procedures improved. Knowledge that is developed during a business process can be used for new processes with the same customer or can be used to add value to other customer relationships.[30]

Customer knowledge entails huge benefits in the areas of innovation and product development. By integrating the knowledge and experience obtained from the customer, product properties and development processes can be optimized. Long-term pilot and test stages can be reduced drastically by knowledge cooperation between companies and customers.[31]

As early as in the product development stage, customers can express their specific change requests. As a result, improvement and change requests after the product launch are seldom. Also the product design can be altered during the development process – either on the company's own initiative or jointly with the customer. In this way, post-processing steps are reduced or made redundant. Especially the collaboration with so-called *lead users* is essential.[32] By using the knowledge from one customer for another customer, the sales market can be extended and the market position strengthened in comparison to competitors.[33]

The integration of customer knowledge also helps increase the innovation skills of companies. Companies which cooperate intensively and have a constant knowledge exchange with their customers can optimize their use of resources. Such companies know all about customer needs and how they can meet them.[34]

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[29] Cf. Kausch, C. (2007), p. ix.
[30] Cf. Bizmanualz Inc. (2008), p. 73.
[31] Cf. Davenport, T. H., Leibold, M., Voelpel, S. (2006), p. 20.
[32] Cf. Russ, M. (2009), p. 311.
[33] Cf. Al-Ali, N. (2003), p. 133.
[34] Cf. Caloghirou, Y., Constantelou, A., Vonortas, N. S. (2006), p. 96.

Marketing measures can thus be planned and executed more effectively. The knowledge about and from the customer regarding the quantity of sales makes the planning more transparent. This can lead to a reduction of merchandising risks.[35]

All in all, the company's success can be enhanced and its competitiveness be improved. Also existing customer relationships can be strengthened to ensure long-term customer connectivity by intensive interaction.[36]

5.3.4 Benefits for Customers Through Knowledge Cooperation with Organizations

It is quite obvious that companies can profit from the knowledge exchange with their customers. However, this works both ways: Also the customer can benefit from such a relationship.[37] Most customers are not aware of the advantages involved and therefore often focus on the question 'Why shall I disclose my knowledge?' Companies know the skepticism of their customers and are familiar with the difficulties of knowledge exchange and use among their own employees.[38] The above question can therefore only be answered by pointing out the potential benefits that result through cooperation.

When customers send requests and inform companies about their needs, it is possible to translate these into concrete services and satisfy the customers' needs.[39] If a customer is sufficiently motivated to start knowledge cooperation with a supplier company, he can be sure to benefit by obtaining customized products and individual service.[40]

If a customer contributes actively to innovative product developments, he will have earlier access to innovations than other

[35] Cf. Lambin, J. J. (2000), p. 7.
[36] Cf. Roccasalvo, G. P. (2003), p. 45.
[37] Cf. Kausch, C., op cit., p. 212.
[38] Cf. Ostertag, A., op cit., p. 83.
[39] Cf. Davenport, T. H. (2000), p. 42.
[40] Cf. Sandmeier, P. (2006), p. 43.

customers. This can lead to a competitive edge in B2B over other companies within the same line of business.[41] If parts of the production are outsourced to cooperative customers, they can generate additional economic benefits as compensation for their contribution to the innovation process.[42]

Through the integration of customer knowledge, a company has the possibility to distinguish itself from other companies in the business. In this case, the company takes over the position of a consultant for other customers. The accumulated knowledge can also be provided to others who, in their turn, will feel better informed, supported and confirmed in their purchase decision.[43]

As mentioned before, customers are often not aware of the mutual benefits that may result from knowledge exchange. Despite obvious advantages, they are sometimes not willing to share their knowledge. Organizations therefore need to offer incentives that motivate customers to engage in knowledge cooperation.[44] Monetary incentives are unrealistic, because companies cannot afford to pay for collaborations with customers. Partnerships can be a solution, for example sharing the future revenues that can be earned from joint product developments or jointly profiting from patents or marketing rights. But this type of involvement is seldom, because companies are eager to protect their property rights.[45] There are, however, other motivating factors or incentives. Discounts can be offered when purchasing a jointly developed product. Free-of-charge deliveries for test purposes can be coupled with the condition to report about experiences made with this product.[46]

The image improvement gained through cooperation – for both customers and companies – must not be neglected. Especially in the B2B sector, unknown companies can gain high benefits

[41] Cf. Ichijo, K., Nonaka, I. (2007), p. 150.
[42] Cf. Roccasalvo, G. P., op cit., p. 48.
[43] Cf. Ostertag, A., op cit., p. 86.
[44] Cf. Jetter, A. et al. (2006), p. 135.
[45] Cf. Carter, S., Jones-Evans, D. (2006), p. 88.
[46] Cf. Ostertag, A., op cit., p. 83.

through collaboration with highly renowned 'big players'.[47] In this way, SMEs can demonstrate their innovation skills and show that they have their own know-how. This strategy can also help to promote the brand recognition and strengthen their market position.[48]

5.4 Summary

Customer Relationship Management mainly focuses on in-house knowledge, i.e. managing the knowledge about the customer. The aim is to improve customer orientation and to establish a long-term and profitable customer relationship. But CRM is not able to fully achieve these aims, because it integrates the customer only insufficiently. Customer satisfaction remains limited.[49] Therefore, a transfer among companies and their customers is required which is done by implementing Customer Knowledge Management. CKM is able to fill the gap. The customer is more integrated than in CRM and becomes an active knowledge partner. As a result, knowledge from, for and about the customer can be used more efficiently.[50] 'CKM is about gaining, sharing and expanding the knowledge residing in customers, to both customer and corporate benefit'.[51]

The following chapter constitutes the first part of the practical investigation. It examines and verifies the theoretical approaches to knowledge management and knowledge sharing, using the example of NEWCO.

[47] Cf. Wiendahl, H. P., Dreher, C., Engelbrecht, A. (2005), p. 64.
[48] Cf. Ostertag, A., op cit., p. 83.
[49] Cf. Peelen, E., op cit., p. 56.
[50] Cf. Gibbert, M., Leibold, M., Probst, G., op cit., p. 459.
[51] Gibbert, M., Leibold, M., Probst, G., op cit., p. 460.

Chapter 6
Practical Investigation

6.1 Preface

SMEs are 'the motor' of the economies in Germany and Europe. Chapter 2 provided various definitions of SMEs and informed about the competitive factors and difficulties that SMEs are facing today. Chapter 3 dealt with the SMEs' difficulties concerning loss of knowledge on the one hand and knowledge management on the other. It clearly showed their need for differentiation and knowledge management. Chapters 4 and 5 investigated the quality of knowledge exchange – in a company and between a company and its customers.

This chapter outlines the theoretical approaches on which the practical part is based. In addition, it presents the results of the investigation. Since the main focus of this book is on knowledge management and customer relationship management in SMEs, NEWCO International GmbH was chosen as a typical example and introduced in Sect. 2.4. Its knowledge management, including knowledge transfer and exchange, will be investigated with the help of a questionnaire. In order to validate the hypothesis, the demand, quantity and quality of knowledge and data will be examined. Furthermore, the correlation between NEWCO's customer relationship and its knowledge management will be explored.

The terms 'question' and 'statement' are used with the same meanings in Chaps. 6 and 7.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_6, © Springer-Verlag Berlin Heidelberg 2011

6.2 Research Methodology

This case study sets out to evaluate the impact of knowledge in a company. For this purpose, it is necessary to make knowledge measurable.[1] This will be done by a questionnaire (Part A) and by interviews (Part B). The objective of the case study is to transfer the theoretical approaches into a practical investigation.

Part A contains structured, closed-ended questions and will be used to assess the value of knowledge within a company, in combination with a customer relationship management tool.

NEWCO International GmbH is already aware of the importance of knowledge. For this reason, the company implemented a knowledge database years ago. According to the SIS Model (Sensitization – Improvement – Sharing), NEWCO has completed the first level and is currently active on the 'Improvement' level (see Sect. 1.5). Based on this status quo, the questions for the investigation were created. In addition, also questions were generated that refer to level 3 'Sharing' in order to evaluate NEWCO's ability to use knowledge for their customers.

Part B is based on employee interviews and will investigate to what extent knowledge management can help the 'human capital'. In order to achieve meaningful results, experts from the administrative and the operational area were interviewed. The employees L. Follam (Finance and Controlling) and K. Rudolf (Business Planning and Administration, Business Development) work in the administrative area. R. Bogatschna (Customer Service), P. Gallay (Sales Representative) and A. Lammert (Marketing and Sales) work in the operational area.

6.3 Research Design

The questionnaire (Part A) was submitted to the test persons in German, because the company to be examined is located in Germany. The complete German and English versions can be found in Tables 9.1 and 9.2. The research questions reflect what

[1] Cf. Bradburn, N. M., Sudman, S., Wansink, B. (2004), p. 179.

the author wants to specifically understand and investigate by doing his study. To follow the nature of qualitative research, it was necessary to ask well-grounded, feasible (i.e. answerable) research questions that are worth answering.[2]

The questionnaire was submitted by e-mail to 47 employees. The company to be examined is divided into two fields of activity: an administrative area and an operational area. In order to keep these areas apart, every employee was asked to tick the relevant area on top of the questionnaire. For response measurement a valuation system according to the Likert scale was used (Table 6.1).

Table 6.1 Valuation system[3]

No.	Statement	Does not apply	Applies less	Applies rather	Applies fully
1.	...	1	2	3	4

Unlike the Likert scale, this case study does not use a five-point scale so as to avoid central tendency responses. The answers are scored on a scale from 1 to 4, starting with 1 (Does not apply) for the lowest and finishing with 4 (Applies fully) for the highest value.[4] If, for example, an employee 'rather' agrees with a statement, the tick is made in the corresponding field and scores three points. This system helps to value each answer.

The interview starts with an analysis of the visualized survey results, broken down into categories (Knowledge and Customer Relationship) and sub-categories (Availability and Dependence). After that, a critical discussion of the results achieved per area and per question (Part A) takes place. This is followed by a recommendation on how the existing knowledge tool (in this case a CRM tool) can be optimized so that relevant data is available in an organized form despite today's information explosion.[5] The questions of the interview are detailed in Table 9.3.

In order to verify the hypothesis, i.e. evaluate the link between knowledge sharing and customer relationship, these two

[2] Cf. Maxwell, J. A. (2005), p. 65.
[3] Own creation according to the Likert scale.
[4] Cf. Brace, I. (2008), p. 73.
[5] Cf. Dalkir, K. (2005), p. 40.

constitute the main category. In a sub-category, the availability of and dependence on knowledge are examined in further detail.

After having explained the valuation system, the next section will now deal with the interpretation of each statement.

6.4 Theoretical Approaches of the Case Study

This section provides an explanation of each questionnaire statement. To fully understand the meaning of each statement, the table also indicates the category and sub-category. This helps to allocate each statement to the relevant column.[6] The purpose resp. the intention of each statement is indicated. The consecutive numbering helps distinguish between the responses.[7] A short explanation of the intention of each question is given in Table 9.4.

The questionnaire consists of 16 questions/statements. The first eight of them measure the category *Knowledge* and the first four refer to the sub-category *Availability*. The next four refer to the general availability of knowledge, with each question becoming more specific. Two questions refer to the provision of knowledge by the company and the remaining two ones deal with the provision of knowledge by the employees (Table 6.2).

Table 6.2 Category knowledge – focus on availability[8]

No.	Statement	Category	Sub-category
1.	All relevant documents which I need to do my job properly are provided by the company.	Knowledge	Availability
2.	I receive additional tips from co-workers to carry out my tasks.	Knowledge	Availability
3.	The knowledge required for my field of work is sufficiently made available by the company.	Knowledge	Availability
4.	I make my own knowledge – acquired on the job – available to the company without being asked.	Knowledge	Availability

[6] Cf. Oppenheim, A. N. (2001), p. 270.
[7] Cf. Brace, I., op cit., p. 138.
[8] Own creation.

The *1st question* determines to what extent an employee receives basic information from the company. The focus is on the necessary general knowledge provided by the organization for each position in the company. This means (i) the transfer of collective into individual knowledge (see Sect. 3.2.3),[9] (ii) the transfer of explicit into tacit knowledge (as described in the 'combination mode' of epistemology in the SECI Model in Sect. 3.2.1)[10] and (iii) the provision of theoretical knowledge (Sect. 3.2.2).[11] These answers show the scope of data as described in step 2 of the 5-step approach (Customer Data Life Spiral – 5-Step CDLS, see Sect. 1.5). In addition, this question serves as a test mechanism for question 3 to determine the plausibility of the answers. This is necessary to make conscious decisions concerning the received information.[12]

The intention of the *2nd question* is to find out whether and to what extent employees help each other. The receipt of necessary additional information from co-workers is the core of this question and relates to the exchange of tacit knowledge. This means the transfer of tacit into tacit knowledge, also called 'Socialization' in the SECI Model by Nonaka/Takeuchi (Sect. 3.3.1).[13] Also theoretical knowledge is transferred into practical/application knowledge that is based on personal experience (Sect. 3.2.2).[14] The receiver gets information – requested or unrequested – from cooperative co-workers. This refers to the motivation of sender and receiver as described in Szulanski's 'Internal Stickiness of Knowledge Transfer' in Sect. 4.4.[15]

The *3rd question* is meant to clarify if there is access to requested knowledge on demand. The question is also linked to the authorization concept for getting access to relevant data.

[9] Cf. Probst, G., Raub, S., Romhardt, K. (2006), p. 22.
[10] Cf. Lehner, F. (2006), p. 40; Nonaka, I., Takeuchi, H. (1995), p. 71.
[11] Cf. Heckert, U. (2002), p. 21.
[12] Cf. Willis, G. B. (2005), p. 37.
[13] Cf. Vollmar, G. (2007), p. 57.
[14] Cf. Heckert, U., op cit., p. 21.
[15] Cf. Szulanski, G. (1996), p. 53.

The result discloses the availability of internal knowledge (in-company tools) as well as external knowledge obtained via the internet (Sect. 3.2.1).[16] The question therefore deals with collective and also explicit knowledge (Sects. 3.2.3 and Sect. 3.2.4).[17] The result also provides information on whether relevant knowledge is shared (see step 4 of the 'Pyramid of Knowledge Management Awareness' (PKMA). In addition, question 3 serves as a test for question 1 to determine the plausibility of the responses.[18]

The result of *question 4* reveals in which way a person's knowledge is made available for others so they can benefit from this personal knowledge as well. This refers to steps 3 and 7 of the Customer Relationship Improvement Cycle (CRI-C) (see Sect. 1.5). Contrary to number 2, this question focuses on the provision of knowledge by a single person to the whole organization. This can be compared with the 'Externalization' process by Nonaka/Takeuchi – conversion of tacit into explicit knowledge (Sect. 3.3.1).[19] The sender provides knowledge unrequested despite the barriers to knowledge exchange that were specified in Sect. 4.4.[20] It can be an indication of a dynamic knowledge exchange without rigid top-down structure.

The next four questions also belong to the category *Knowledge*, but the focus is now on the sub-category *Dependence.* This group of statements starts with a general question concerning the dependence on knowledge, followed by a more specific dependence question. Question 7 refers to the 'freedom in the daily work' and this section of statements will be closed by evaluating the dependence on expert knowledge (Table 6.3).

[16] Cf. Heckert, U., op cit., p. 20.

[17] Cf. Probst, G., Raub, S., Romhardt, K., op cit., p. 22; Schreyoegg, G., Geiger, D. (2003), p. 14.

[18] Cf. Willis, G. B., op cit., p. 37.

[19] Cf. Nonaka, I., Takeuchi, H., op cit., p. 71.

[20] Cf. Lehner, F., op cit., p. 52.

Table 6.3 Category knowledge – focus on dependence[21]

No.	Statement	Category	Sub-category
5.	I depend on external knowledge to do my job successfully.	Knowledge	Dependence
6.	In my daily work I rely to a great extent on additional information from co-workers.	Knowledge	Dependence
7.	I independently make decisions within my area of responsibility.	Knowledge	Dependence
8.	Expert knowledge provided within the company (data sheets, technical literature, in-company presentations, product lists) is an essential part of my daily work.	Knowledge	Dependence

The purpose of *question 5* is to determine if the existing knowledge within the company is sufficient for doing one's daily work. The respondent's answer reveals if the internally provided knowledge is complete, whether there is a lack of internal knowledge and whether there is a demand for external knowledge (see Sect. 3.2.1).[22] Also the dependence on external knowledge gained from other parties is exposed. This corresponds to step 3 in the 5-step approach 'Customer Data Life Spiral' (see Sect. 1.5).

Question 6 enquires about the dependence on additional information, i.e. knowledge acquired from co-workers. This refers to what Nonaka/Takeuchi call 'Socialization': the transformation of tacit knowledge into tacit knowledge (Sect. 3.3.1).[23] Also question 2 dealt with the transformation of this type of knowledge (tacit). In this section, however, the dependence on tacit knowledge is explored, not its availability. The result of question 6 indicates that such knowledge exists, but is not made available within the company. There is a need for understanding additional information. This refers to the 'Initiation Stage' in the Best Practice Transfer Model by Szulanski as shown in Sect. 4.3.[24]

[21] Own creation.

[22] Cf. Heckert, U., op cit., p. 20; Voelker, R., Sauer S., Simon, M. (2007), p. 52.

[23] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.

[24] Cf. Szulanski, G., op cit., p. 52.

This underlines the importance of knowledge availability and exchange as described in steps 3 and 4 of the continuous process for an improved customer relationship (CRI-C).

Question 7 is aimed at the employees' independence in their daily work which is closely connected to the decision-making process. It reveals in which way explicit knowledge is transformed into tacit knowledge and if it is used. Statement 7 reflects the 'Internalization' dimension in the SECI model. It can also be compared with the concept of 'Autonomy' on the ontological side (Sect. 3.3.1).[25] By using the existing knowledge, it is put into action (Sect. 3.3.2).[26] The result indicates to what extent decisions can be made based on the provided knowledge. It needs to be considered that knowledge must be sufficiently provided (quantity) and be good enough (quality). If the recipient's expectations are met, the 'right' decisions can be taken[27] and the individual knowledge is extended.

Question 8 enquires if the existing expert knowledge in the company is sufficient to comply with the hierarchic structures and rules. Also the dependence on this expert knowledge is examined. Expert knowledge is generated by the persons in charge of providing relevant knowledge. Knowledge that is supplied by a department is used by another one to generate new knowledge. This refers to the 'Combination' dimension in the SECI model: transformation of existing explicit into new explicit knowledge (Sect. 3.3.1).[28] It can also be compared to the concept of knowledge presentation – making knowledge accessible – by Reinmann-Rothmeier (Sect. 3.3.2).[29]

The focus of the next eight questions is on the category *Customer Relationship* where the following four questions relate to the sub-category *Availability* of customer data. The statements start by measuring the general availability of customer data and

[25] Cf. Eschenbach, S., Geyer, B. (2004), p. 98; Nonaka, I., Takeuchi, H., op cit., p. 71.
[26] Cf. Reinmann-Rothmeier, G. (2001), p. 18.
[27] Cf. McGrath, F., Remenyi, D. (2003), p. 91.
[28] Cf. Nonaka, I., Takeuchi, H., op cit., p. 84.
[29] Cf. Reinmann-Rothmeier, G., op cit., p. 18.

Table 6.4 Category customer relationship – focus on availability[30]

No.	Statement	Category	Sub-category
9.	I have access to relevant customer data within the company.	Customer relationship	Availability
10.	The existing CRM tool provides me with the required information for my daily work.	Customer relationship	Availability
11.	The existing CRM tool provides me with additional information beyond my daily work.	Customer relationship	Availability
12.	I make all customer information compiled by me available to other staff members.	Customer relationship	Availability

become more specific in questions 10 and 11 which refer especially to the existing in-house CRM tool. The last question of this section refers to the provision of customer data by employees (Table 6.4).

Question 9 deals with the general availability of customer data and its accessibility in the company (see the step 'Availability of Data' in the 5-Step CDLS). The dimensions 'Combination' and 'Internalization' of the SECI Model reflect this statement: provision of explicit knowledge to generate tacit resp. new explicit knowledge (Sect. 3.3.1).[31] In addition, this question serves as a test mechanism for question 15 to determine the plausibility of the answers.[32]

Question 10 enquires about the special availability of customer data in the existing CRM tool. It also clarifies whether the necessary customer data exists. According to the 'Water Analogy', knowledge is 'frozen' and therefore visible and accessible (see Sect. 3.3.2).[33] The result may indicate that further filing systems for customer data storage are used in the company, thus creating redundancies.[34] This question examines whether the existing

[30] Own creation.
[31] Cf. Nonaka, I., Takeuchi, H., op cit., p. 84.
[32] Cf. Willis, G. B., op cit., p. 37.
[33] Cf. North, K. (2005), p. 177; Reinmann-Rothmeier, G. (n.d.), p. 18.
[34] Cf. Dyche, J., Levy, E. (2006), p. 153.

CRM tool resp. its structure shows any deficits. It also provides information about the need for data maintenance resp. the need for additional applications (see 'Prioritization' in the 5-Step CDLS).

The *11th question* determines if there is additional data available within the existing CRM tool. This means the existence of further data, beyond the pure customer data, to offer individualized and personalized service to the customer. It is examined whether additional information is available that helps the employee to assess the customer in a better way. If there is a lack of such information, the company misses the chance to improve its customer relationship.[35]

Question 12 reveals to what extent employees' own customer knowledge is made available to others so that they can benefit from this personal knowledge as well. Knowledge must be updated and complemented (steps 6 and 7 in the CRI-C). The focus is on the provision of individual customer knowledge to the organization as a whole and eventually to each and every staff member. This can be compared to the 'Externalization' process already mentioned in Question 4.[36] Through knowledge communication the knowledge is in motion and thus allowed to grow as described in 'Knowledge Communication' by Reinmann-Rothmeier (Sect. 3.3.2).[37] This is especially important for companies whose tasks are structured by products. It may therefore happen that more than one department does business with the same customer.[38]

The last four statements refer to the category *Customer Relationship* and the sub-category *Dependence* on knowledge data. The questions proceed from evaluating the general dependence on customer data, followed by the influence of customer relationships on the employees' daily work. Question 15 explores the necessity of being successful whereas the final question

[35] Cf. Reynolds, J. (2002), p. 37.
[36] Cf. Nonaka, I., Takeuchi, H., op cit., p. 71.
[37] Cf. Reinmann-Rothmeier, G., op cit., p. 24.
[38] Cf. Kotler, P., Armstrong, G. (2005), p. 529.

Table 6.5 Category customer relationship – focus on dependence[39]

No.	Statement	Category	Sub-category
13.	In my daily work, I rely to a great extent on customer data.	Customer relationship	Dependence
14.	Customer relationships influence the prioritization of my tasks.	Customer relationship	Dependence
15.	The success of my daily work depends to a great extent on the customer data provided within the company.	Customer relationship	Dependence
16.	I depend on the existing CRM tool for the proper execution of my tasks.	Customer relationship	Dependence

determines the staff's dependence on the existing CRM tool (Table 6.5).

Question 13 examines the general dependence on customer data and also the influence of this data on the decision-making process. If there is a clear need, the data has to be provided as collective knowledge as defined by Probst et al. (Sect. 3.2.3).[40] If the Sales Department is structured by products and not by customers, it is important to consider all four modes of tacit and explicit knowledge as described in the SECI Model by Nonaka/Takeuchi (see Sect. 3.3.1).[41] According to the theoretical approach of the 'Munich Knowledge Management Model' by Reinmann-Rothmeier, the three steps of presentation, communication and generation of knowledge need to be focused on when a high degree of dependence has been identified (Sect. 3.3.2).[42]

Question 14 focuses on the personal relationship between employee and customer. It is evaluated if some customers get preferential treatment due to a good relationship (soft facts).[43] The result can also indicate that all customers are treated equally.

[39] Own creation.

[40] Cf. Probst, G., Raub, S., Romhardt, K., op cit., p. 22.

[41] Cf. Kotler, P., Armstrong, G., op cit., p. 529; Nonaka, I. (1992), p. 96; Nonaka, I., Takeuchi, H., op cit., p. 71.

[42] Cf. North, K., op cit., p. 176; Reinmann-Rothmeier, G., op cit., p. 15.

[43] Cf. Ranchhod, A. (2004), p. 34.

Not only hard facts or rational facts, but also interpersonal relationship can influence the employee's tasks.[44] The results also stress the importance of a close customer relationship and the need for the CRI-Cycle.

Question 15 determines the general necessity and significance of knowledge about the customer. The result shows the impact that this knowledge has on the employee's daily work. It is an indication of the quantity and quality of the provided customer data and the importance of the use resp. implementation of the 5-Step Customer Data Life Spiral. The results also indicate the benefits that can be achieved.[45] In addition, this question serves as a test for question 9 to determine the plausibility of the responses.[46]

The *16th and last question* checks the staff's special dependence on the existing CRM tool in their daily work. It examines whether the existing tool provides customer data in sufficient quantity and quality.[47] It also checks if the employee needs to have access to this tool (authorization concept).[48]

The 16 questions above all consider the theoretical approaches described earlier in this study. These include (i) the dimensions of the 'Knowledge Spiral on Epistemological Level' by Nonaka/Takeuchi, (ii) the ontological dimension and thus (iii) indirectly the *Ba* concept. Also stages from (iv) the 'Best Practice Transfer Model' as well as (v) barriers to knowledge exchange described by Szulanski and (vi) the 'Water Analogy of Knowledge' by Reinmann-Rothmeier have been taken into account.

After having explained the intentions of the questionnaire statements, the next section will now be dedicated to presenting the results of the survey.

[44] Cf. Baker, M. J., Hart, S. (2008), p. 38.
[45] Cf. Mangia, L. (2004), p. 788.
[46] Cf. Willis, G. B., op cit., p. 37.
[47] Cf. Mangia, L., op cit., p. 788.
[48] Cf. Bhargava, B., Zhong, Y. (2002), p. 94.

6.5 Results of the Survey

This section only shows the results of the survey, followed by an analysis of diagrams. The importance of the responses will be elucidated in the next section.

The questionnaire was provided to 47 employees of the target company. 14 of them work in the administrative area whereas 33 work in the operational area. A total of 11 questionnaires were returned from the administrative area. This corresponds to a response rate of 78.57%.[49] The detailed answers of the respondents from the administrative area can be found in Table 9.5. They are based on the above-mentioned Likert Scale (see Sect. 6.3). 27 questionnaires were returned from the operational area, corresponding to a response rate of 81.82%.[50] The detailed answers of the respondents from the operational area can be found in Table 9.6. All returned questionnaires are valid, i.e. each statement was marked only once.

As already mentioned in the previous section, a test mechanism was used for checking the plausibility of the answers.[51] The following results were achieved:

In the *Knowledge* sector, question 1 (Q1) and question 3 (Q3) are aimed at a similar interpretation and therefore used as test questions. The plausibility check was done by calculating the amount of deviation. All questionnaire statements with a deviation of ≥ 2 have been considered. For example, the response of questionnaire A1 for question 1 is valued with 4 points (applies fully), whereas question 3 is valued with 2 points (applies less). The difference between both statements is ≥ 2. In the category *Knowledge* there is a deviation of 18.18% in the administrative area. The operational area shows a deviation of 3.70%.[52] In the customer relationship category, question 9 (Q9) and question 15 (Q15) tend to elicit comparable answers and are therefore used as test questions for this sector. While the administration area shows

[49] 11 responses/14 questionnaires = 78.57 %
[50] 27 responses/33 questionnaires = 81.82 %
[51] Cf. Willis, G. B., op cit., p. 37.
[52] Cf. Table 9.7.

4 statements (36.36%) with a deviation of ≥ 2, the operational area does not show any difference.[53] All deviations were found in different questionnaire statements and therefore do not need further consideration.

6.5.1 *Knowledge and Customer Relationship – Administrative Area*

The following graphs visualize the results of the survey. Each point represents the average of answers scored by 1 respondent per category (Knowledge and Customer Relationship) and sub-category (Availability and Dependence). The graph below focuses on the administrative area. Detailed results are listed in Table 9.9.

The X-axis indicates the degree of dependence whereas the Y-axis shows the availability. Each axis starts with figure 1 (does not apply) and ends with 4 (applies fully). The axes as well as the scale have been used in the next 4 diagrams (Fig. 6.1).

The graph *Knowledge and Customer Relationship* reveals strong differences with respect to the availability of and the dependence on knowledge. Basically, however, there is a nearly identical proportion between the availability and the dependence

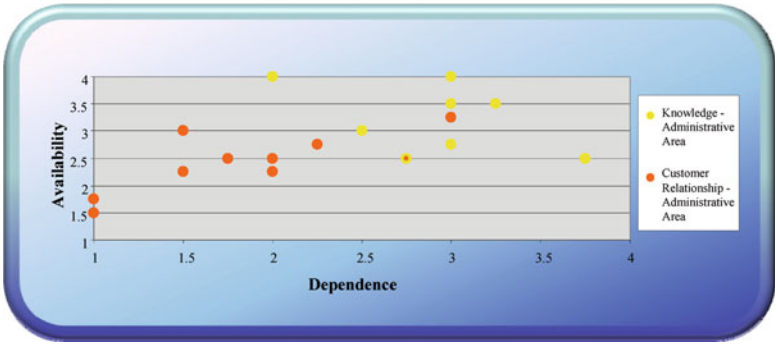

Fig. 6.1 Results: Knowledge and Customer Relationship – Administrative Area[54]

[53] Cf. Table 9.8.
[54] Cf. Table 9.9.

for both areas. This analysis clearly shows that there is a different demand for general knowledge and for customer knowledge.[55] General knowledge is more important than customer knowledge,[56] i.e. data from, for or about the customer.

When taking a first glance at the area of *Knowledge*, it becomes obvious that knowledge is available and that there is a high dependence on it. This can be assessed as positive even if there are some low-value votes. But when taking a closer look, it shows that the administrative area receives more knowledge than it needs. As a result, this area feels sufficiently informed.[57]

By contrast to the results of the Knowledge category, the availability of Customer Data resp. the *Customer Relationship* is relatively low. In addition, there is only a low dependence on this data. 2 respondents obviously have no contact to customers. Although the availability of customer data is relatively low, it is better than needed. The results are widely spread but cumulate in the lower midfield.[58]

6.5.2 *Knowledge and Customer Relationship – Operational Area*

The results of the survey for the operational area are visualized in the following graph. Detailed results are listed in Table 9.10 (Fig. 6.2).

At first glance, there is no striking difference between *Knowledge* and *Customer Relationship*. Instead, there are many overlaps. The availabilities and dependencies nearly coincide. The importance of these examined fields is relatively high. The diagram also shows that nobody is independent of Knowledge or Customer Knowledge. By contrast to the administrative area, the

[55] Cf. Gallay, P. (2009), interview; Rudolf, K. (2009), interview.

[56] Cf. Follam, L. (2009), interview.

[57] Cf. Follam, L., op cit.; Gallay, P., op cit.; Lammert, A. (2009), interview; Rudolf, K., op cit.

[58] Cf. Bogatschna, R. (2009), interview; Gallay, P., op cit.; Rudolf, K., op cit.

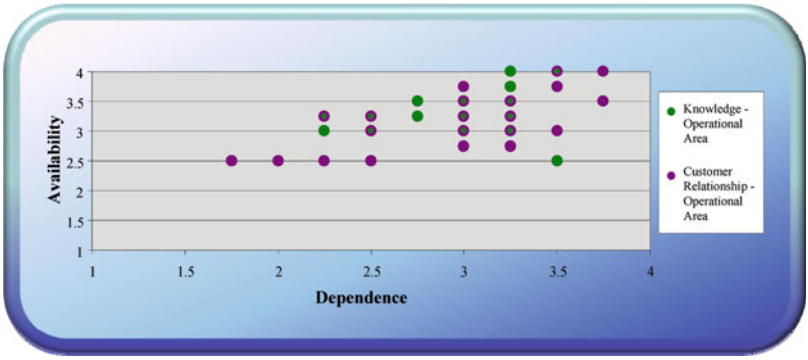

Fig. 6.2 Results: Knowledge and Customer Relationship – Operational Area[59]

majority of points cluster around the upper midfield which can be seen as a positive result.[60]

The availability of and dependence on *Knowledge* is high and is regarded as sufficient by the majority of respondents. The results are primarily positive.[61]

The *Customer Relationship* results in the operational area are more widely spread than those scored for Knowledge. There are enormous differences with respect to the level of dependence. This is either due to the fact that the business is not primarily customer-focused or that the business cannot be forecast. Probably, 4 respondents tried to give neutral answers while other respondents gave more distinct comments.[62]

6.5.3 *Knowledge – Administrative Area vs. Operational Area*

The following diagram compares the Knowledge-related results between the administrative and the operational area (Fig. 6.3).

[59] Cf. Table 9.10.

[60] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Rudolf, K., op cit., interview.

[61] Cf. Bogatschna, R., op cit.; Follam, L. (2009), interview; Rudolf, K., op cit.

[62] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Rudolf, K., op cit.

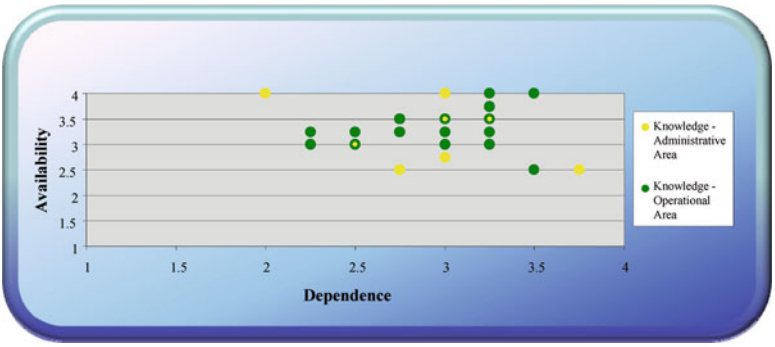

Fig. 6.3 Comparison: Knowledge – Administrative Area vs. Operational Area[63]

In *both areas* the ratio is nearly equal. The level of dependence and the availability of General Knowledge are therefore comparable. It can also be stated that knowledge in both areas is of high relevance and considered to be indispensable. There is a strong dependence on and a well-balanced availability of knowledge.[64]

The *administrative area* shows a few extreme values. There are 2 outlier respondents. One of them has a high dependence on knowledge, but availability is only low for him. The other respondent has a low dependence whereas the availability of knowledge is high. It is also remarkable that 2 respondents in the administrative area rate the availability of knowledge as very high (maximum achievable points are 4) whereas 2 other respondents indicate the lowest level of availability (achieved points are 2.5).[65]

Availability and dependence in the *operational area* are well-balanced. 3 respondents show a nearly perfect proportion of availability and dependence. Apparently, the operational area benefits more from the provided knowledge.[66]

[63] Cf. Tables 9.9 and 9.10, category Knowledge.
[64] Cf. Gallay, P., op cit.; Lammert, A., op cit.
[65] Cf. Follam, L. (2009), interview; Lammert, A., op cit.
[66] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.

6.5.4 Customer Relationship – Administrative Area vs. Operational Area

The next diagram compares the survey results between the administrative and operational area with respect to Customer Relationship.

The results of *both areas* are widely spread. The dissimilarity between these areas is distinct, but that was to be expected. The results of the administrative area vary between 'does not apply' and 'applies rather' while the operational area tends to have a better rating covering the range from 'applies less' to 'applies fully'.[67]

Customer Relationships are only of low importance in the *administrative area* and therefore do not play a pivotal role in daily business. The responses cover a wide range. A few employees are independent of customer data whereas other colleagues show a higher degree of dependence. All in all, it can be stated that there are fewer points of contact with customers than in the operational area. This area is rarely provided with customer data, but on the other hand this is not urgently needed (with a few exceptions).[68]

The *operational area* is provided with a high information volume, but this is indispensable for doing the business. It is conspicuous that the higher the dependence, the higher the availability of customer data. Hence, there is a balanced relationship between them, despite the 4 outliers mentioned in Sect. 6.5.2.[69]

Compared to the operational area, the administrative area has fewer interfaces with the outside world as the necessary data is provided internally. Due to the enormous differences with respect to the availability of and dependence on customer data (see Fig. 6.4), it is necessary to *weight* the categories Knowledge and Customer Relationship differently for the administrative and

[67] Cf. Lammert, A., op cit.; Rudolf, K., op cit.
[68] Cf. Follam, L. (2009), interview; Gallay, P., op cit.; Lammert, A., op cit.
[69] Cf. Bogatschna, R., op cit.; Follam, L. (2009), interview.

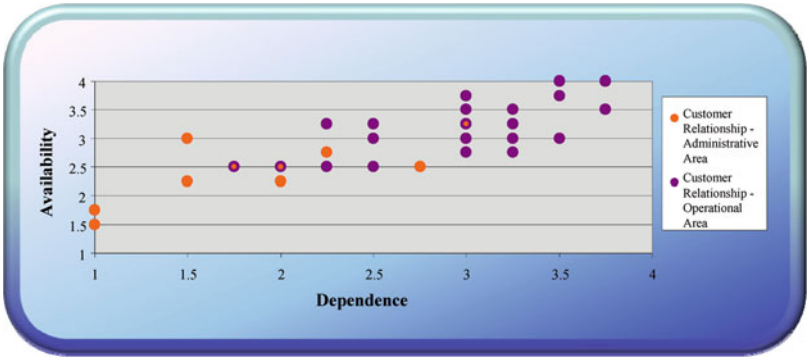

Fig. 6.4 Comparison: Customer Relationship – Administrative Area vs. Operational Area[70]

the operational area.[71] The weighting will be explained in more detail in Sect. 7.3 and 7.5.

6.5.5 Knowledge and Customer Relationship – Administrative Area vs. Operational Area

The following spider graph visualizes the average of the results per question, separated into the administrative and operational area. The central point of the diagram stands for figure 1 (doesn't apply) while the outer marks stand for figure 4 (applies fully). For a better demonstration of the results, no scale has been used. The detailed figures are listed in Table 9.11 (Fig. 6.5).

With respect to *Knowledge*, the results of the administrative and the operational area are almost identical (exception: questions 1 and 8). There is a balanced proportion of availability (questions 1 and 4) and dependence (questions 5 and 8). The results

[70] Cf. Tables 9.9 and 9.10, category Knowledge.
[71] Cf. Bogatschna, R., op cit.

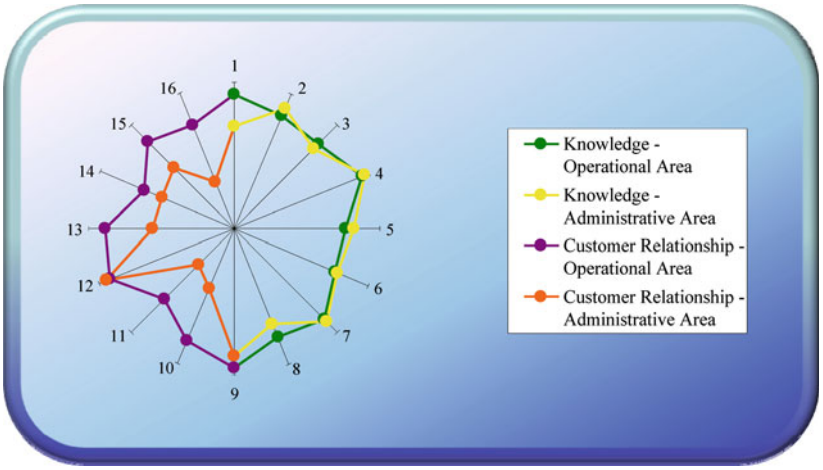

Fig. 6.5 Comparison: Knowledge and Customer Relationship – Administrative Area vs. Operational Area[72]

of questions 4 and 7 are high and should be treated in more detail. At first glance, the amount of knowledge supplied is extensive.[73]

The results scored for *Customer Relationship* cover a large range. Few answers are identical (questions 9 and 12) between both areas; most answers are dissimilar. The provision of customer information definitely needs to be improved, especially for the administrative area. The trends identified for both areas correspond more or less. If the customer relationship declines on operational level, the relationship to the customer shows the same development on administrative level – and vice versa. The degree of variation is stronger in the administrative area and there is a larger distance to the customer.[74] This difference makes a treatment of weighted results necessary as mentioned in Sect. 6.5.4.[75]

[72] Cf. Table 9.11, average results per question.

[73] Cf. Gallay, P., op cit.; Lammert, A., op cit.

[74] Cf. Bogatschna, R., op cit.; Follam, L. (2009), interview; Lammert, A., op cit.; Rudolf, K., op cit.

[75] Cf. Bogatschna, R., op cit.

6.6 Summary

Being the first of the two key chapters of this book, Chap. 6 deals with the practical implementation of the theoretical approaches (see Chaps. 1, 2, 3, 4, and 5). It was examined how knowledge and customer relationship management are handled in the daily business of a company. Also the link between the availability of and dependence on knowledge and customer relationship was explored. For this purpose, a survey was carried out based on a questionnaire.

The survey results have shown a similar availability of and dependence on knowledge within the administrative and operational area of NEWCO International. Much more distinct was the difference with respect to the customer relationship. The investigation has also revealed that the transfer of expert knowledge and customer knowledge partly takes place. But the responses have also shown that there are still some weaknesses that should be eliminated. This can be done by following the recommendations given by the interviewees – both for the organization and for the employees (see next chapter).

Chapter 7
Critical Debate

7.1 Preface

SMEs are of vital importance in our worldwide economy. Their characteristics were described in Chap. 2. While Chap. 3 dealt with the management of knowledge, Chap. 4 focused on the exchange of knowledge within a company. Chapter 5 also dealt with knowledge management, but put the main emphasis on the business partner 'customer'.

This chapter shows how the theoretical approaches (Chaps. 1–5) can be translated into practice. Possible deficits will be identified (by the survey) and suitable recommendations (based on employee interviews) will be given to fill the gaps. The first focus of the survey is on the provision and sharing of knowledge and customer data at NEWCO. The second focal point is the extent to which the company's employees depend on this data. As part of the critical analysis, NEWCO's competitive edge and its key success factors will be highlighted.

7.2 Discussion of the Results

This section again deals with the average results per question of the survey (see Table 9.11) (Table 7.1).

The interviews carried out at the target company served as a basis for analyzing the results. Each question – together with the

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_7, © Springer-Verlag Berlin Heidelberg 2011

Table 7.1 Average results per knowledge-related question – focus on availability[1]

No.	Statement	Administrative area	Operational area
1.	All relevant documents which I need to do my job properly are provided by the company.	66%	86%
2.	I receive additional tips from co-workers to carry out my tasks.	84%	79%
3.	The knowledge required for my field of work is sufficiently made available by the company.	73%	77%
4.	I make my own knowledge – acquired on the job – available to the company without being asked.	91%	89%

relevant results of the administrative and operational area – will be discussed and analyzed.

7.2.1 Question 1

The results show that the operational area receives more basic information than the administrative one. Nevertheless, not all the required general knowledge is provided by the company (step 2 – Scope of Data – in the 5-Step CDLS). It is only on request that the employees receive the necessary knowledge from the organization. The values achieved – 66% in the administrative versus 86% in the operational area – are unacceptable. The optimum level is, of course, 100%. The employees of both areas are partially occupied with the self-provision of relevant data for their jobs. It also happens that the administrative area is responsible for issuing and

[1] Own creation.

structuring knowledge (data).[2] Consequently, the conversion of collective into individual and of explicit into tacit knowledge (see Sects. 3.2.3 and 3.3.1) takes place only with some restrictions.[3]

7.2.2 Question 2

These results reflect that the lack of knowledge identified for question 1 can be compensated by tips exchanged among individuals in the administrative area. This shows that the employees are aware that the knowledge available in the company is only insufficient. There is a higher level of communication and helpfulness in the administrative area than in the operational area. Employees help each other through the exchange of information. In the operational area, the transfer of knowledge is lower.[4] An exchange of tacit knowledge to create new tacit knowledge and a conversion of theoretical into practical knowledge takes place (Sects. 3.2.2 and 3.3.1),[5] but could still be improved. The motivation to transfer knowledge exists. This means that there is a willingness to receive and send information. This is the same result reached by the study of Szulanski (see Sect. 4.4).[6]

7.2.3 Question 3

Both areas achieved dissatisfying results. This might indicate that not the right information is provided or that there is a higher demand for knowledge. Either the company did not realize that there is a higher demand or the employees did not know that

[2] Cf. Bogatschna, R. (2009), interview; Gallay, P. (2009), interview; Lammert, A. (2009), interview; Rudolf, K. (2009), interview.

[3] Cf. Nonaka, I., Takeuchi, H. (1995), p. 71; Probst, G., Raub, S., Romhardt, K. (2006), p. 22.

[4] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.

[5] Cf. Heckert, U. (2002), p. 21; Vollmar, G. (2007), p. 57.

[6] Cf. Szulanski, G. (1996), p. 53.

the relevant knowledge had already been provided.[7] Apparently, internal knowledge is not made available and there is a clear demand for a better supply by the company (Share and Multiply level of the PKMA). The results entail a new question: Are the bad results caused by the company's authorization system for getting access to internal or external data?[8] (see Sect. 3.2.1)

7.2.4 Question 4

Ninety-one-percentage in the administrative area and 89% in the operational area are good results. They confirm that the employees share their knowledge with each other, even unrequested, so that again the results of Szulanski's study of 'Internal Stickiness' can be confirmed (Sect. 4.4).[9] The results also show that employees meet step 3 'Availability' in the CRI-Cycle. This indicates a well developed level of cooperation and helpfulness. As the results do not reach 100%, it can be assumed that a minimum of competitiveness exists among the colleagues.[10] A transfer of tacit into explicit knowledge takes place,[11] but it needs to be evaluated how and where the provided knowledge is available (Table 7.2).[12]

7.2.5 Question 5

It is evident that not all knowledge can be stored within a company. Nevertheless, the results give evidence of a high

[7] Cf. Bogatschna, R., op cit.
[8] Cf. Follam, L. (2009), interview; Heckert, U., op cit., p. 20.
[9] Cf. Lehner, F. (2006), p. 52.
[10] Cf. Bogatschna, R., op cit., interview; Rudolf, K., op cit.
[11] Cf. Nonaka, I., Takeuchi, H., op cit., p. 71.
[12] Cf. Bogatschna, R., op cit.

Table 7.2 Average results per knowledge-related question – focus on dependence[13]

No.	Statement	Administrative area	Operational area
5.	I depend on external knowledge to do my job successfully.	77%	71%
6.	In my daily work I rely to a great extent on additional information from co-workers.	73%	70%
7.	I independently make decisions within my area of responsibility.	84%	82%
8.	Expert knowledge provided within the company (data sheets, technical literature etc.) is an essential part of my daily work.	66%	75%

dependence on external knowledge (Sect. 1.5 – 5-Step CDLS). The dependence on a third party and thus the procurement of external knowledge costs time and money and should therefore be minimized. The generation of knowledge should be enforced internally.[14] However, a healthy dependence on external knowledge can be advantageous (see also Sect. 3.2.1).[15] Special courses (e.g. sales and negotiation training, rhetoric seminars) should be carried out by external service providers.[16]

7.2.6 Question 6

Obviously, additional information is not relevant for all employees. The results could also be an indication that the quality of data is not sufficient or that, due to heterogeneous tasks, every employee already has the required knowledge. 73% and 70%

[13] Own creation.
[14] Cf. Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.
[15] Cf. Heckert, U., op cit., p. 20.
[16] Cf. Rudolf, K., op cit.

are acceptable values if the additional information is forwarded in reality to convert tacit knowledge into tacit knowledge as described by Nonaka/Takeuchi.[17] It is important that the 'right' information is passed on so that targets can be achieved more easily and problems be solved more quickly. The 'Initial Stage' in Szulanski's Best Practice Transfer Model reflects the demand for knowledge transfer: it is triggered by co-workers or by a problem (see Sect. 4.3).[18] Especially in routine processes, additional data may be important. Often, this data can be gained through employees' daily work and should be made available to others (steps 3 and 4 in the CRI-C).

7.2.7 Question 7

The results reflect a high freedom of decision. The employees can work independently and make decisions in their area of responsibility although there is still room for improvement.[19] The 'Water Analogy of Knowledge' by Reinmann-Rothmeier describes the use of existing knowledge in a similar way. The high freedom of decision allows the employee to 'put knowledge into action' (Sect. 3.3.2).[20] Probably, the employees do not know their own competencies. 84% and 82% point to guidelines that are dictated and have to be observed. Experience has also shown that the employees of the operational area need to consult each other and agree a lot of things.[21] The 'freedom' granted in their daily work helps strengthen their commitment to the company and boost their motivation. The same is explained in the concept of 'Autonomy' in the ontological dimension (see Sect. 3.3.1).[22]

[17] Cf. Nonaka, I., Takeuchi, H. (1997), p. 84.
[18] Cf. Szulanski, G., op cit., p. 52.
[19] Cf. Rudolf, K., op cit.
[20] Cf. Reinmann-Rothmeier, G. (2001), p. 18.
[21] Cf. Gallay, P., op cit.; Rudolf, K., op cit.
[22] Cf. Nonaka, I., Takeuchi, H., op cit., p. 71.

7.2.8 Question 8

The results show that the expert knowledge provided in the company is insufficient. As the question is directed to special knowledge, it seems that there is only a low level of dependence. It may also be that not the right expert knowledge is provided. The internally provided knowledge is more helpful for the operational area (75%) although both areas identify a need for improvement. Another aspect is that the provided knowledge is not appreciated because of the bad data quality. It could also be that the importance of this expert knowledge is not recognized.[23] It can be stated that explicit knowledge is used to create new explicit knowledge which also refers to the 'Combination' dimension in the SECI model (see Sect. 3.3.1).[24] Independent of its quality, expert knowledge exists, is visible, accessible and transportable within the company. This finally helps the employees to improve their skills as described by Reinmann-Rothmeier (Sect. 3.3.2) (Table 7.3).[25]

Table 7.3 Average results per customer relationship-related question – focus on availability[26]

No.	Statement	Administrative area	Operational area
9.	I have access to relevant customer data within the company.	82%	89%
10.	The existing CRM tool provides me with the required information for my daily work.	41%	78%
11.	The existing CRM tool provides me with additional information beyond my daily work.	32%	64%
12.	I make all customer information compiled by me available to other staff members.	89%	86%

[23] Cf. Bogatschna, R., op cit.; Follam, L., op cit.; Lammert, A., op cit.
[24] Cf. Nonaka, I., Takeuchi, H., op cit., p. 84.
[25] Cf. Reinmann-Rothmeier, G., op cit., p. 18.
[26] Own creation.

7.2.9 Question 9

Customer data is – to some extent – available, but availability needs to be optimized. The result of 82% for the administrative area reflects its limited contact to customers. The survey shows that there is a relatively high access to customer data. Some employees need to maintain data although their job has nothing to do with system and data maintenance (see steps 3–5 in the 5-Step CDLS).[27] The employees are busier updating customer data than actually using this data.[28] Thus, explicit knowledge is used to create new explicit knowledge ('Combination' dimension of the SECI Model) rather than convert the explicit into tacit knowledge ('Internalization' dimension) as explained in Sect. 3.3.1.[29]

7.2.10 Question 10

Obviously, the administration area (41%) does not benefit from the CRM tool. The main reason is that this tool was designed to support the operational area. This, by contrast, profits much more from this tool. The result for both areas is therefore quite different. The 78% scored for the operational area indicate a lack of data within the existing CRM tool although all customer data should be saved within this tool. In practice, however, customer information often needs to be procured from other data sources or specialist departments (Sect. 1.5 – 5-Step CDLS).[30] For this reason, further filing systems are used. Experience has shown that the data within this tool are badly maintained (e.g. the names of contact persons are not up to date). This automatically leads to a low quality of customer data. In the case of the interviewee K. Rudolf, data had to be procured via the internet.[31] When comparing the availability

[27] Cf. Gallay, P., op cit.
[28] Cf. Follam, L., op cit.; Gallay, P., op cit.; Rudolf, K., op cit.
[29] Cf. Nonaka, I., Takeuchi, H., op cit., p. 84.
[30] Cf. Bogatschna, R., op cit.
[31] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Rudolf, K., op cit.

of customer data within the CRM tool with the 'Water Analogy' by Reinmann-Rothmeier, it can be stated that customer knowledge exists and is partly accessible (it is 'frozen'). But the core statement is that not only the availability is important, but rather the data quality is essential (Sect. 3.3.2).[32]

7.2.11 Question 11

The results of 32% (administrative area) and 46% (operational area) show again the big difference between both areas of the company. In addition, the results are quite low. For the administrative area, the findings from question 10 also apply for question 11: employees working in administration hardly need/use the CRM tool. The result for the operational area is probably due to the bad data quality already mentioned before. Due to a lack of time, comprehensive data maintenance is presumably not possible. This lack of time might be caused by the high fluctuation of employees. For these reasons, there is a certain defensive attitude towards the CRM tool. Although additional information on suppliers, products, forwarders and marketing activities exists in this tool, the majority of employees does not benefit from it. One explanation can be that the employees' tasks are too specific and therefore the requested information cannot be provided. Sometimes, the employees have hardly any time to familiarize themselves with the features of this tool. Another focal point is to what extent additional data from the CRM tool is really needed for the employees to do their jobs and how big the interest is. The existing CRM tool provides much more information than just customer data, but this is used by only few colleagues and sometimes not even regarded as added value. Another indication that the customer is not in the focus of attention.[33]

[32] Cf. Reinmann-Rothmeier, G. (n.d.), p. 18.

[33] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Rudolf, K., op cit.

7.2.12 Question 12

With 89% in the administrative area and 86% in the operational area the achieved results are quite good but can still be improved. Nevertheless, this shows that colleagues help each other and are willing to forward customer data. Only little competitiveness could be noticed. The results of question 4 are comparable for both corporate areas.[34] At first glance, the customer knowledge of individual employees is made available to the company so that other staff members can benefit from it as described in steps 3 and 7 of the CRI-C. But it is still unclear where this data is available and if everybody has access to it. In general, knowledge communication takes place in the examined company, thus allowing knowledge to grow and to be used by knowledge carriers as described by Reinmann-Rothmeier in Sect. 3.3.2.[35] This should ideally lead to a learning organization.[36] The employees' tasks are structured by products so that a lot of staff members deal with the same customer. Hence, communication among them is very important.[37] As already stated in question 7, experience has shown that there is a high demand for clarification and agreement among the members of the operational staff (Table 7.4).[38]

7.2.13 Question 13

The results show that customer data have a lower priority for the administrative area, but that was to be expected. Its function is more to support the operational area with relevant information, including customer data. However, legal regulations, corporate compliance and general guidelines are more important

[34] Cf. Gallay, P., op cit.; Rudolf, K., op cit.
[35] Cf. Reinmann-Rothmeier, G., op cit., p. 24.
[36] Cf. Burke, P. J., Jackson, S. B. (2007), p. 15; Shani, A. B., Docherty, P. (2003), p. 22.
[37] Cf. Kotler, P., Armstrong, G. (2004), p. 529.
[38] Cf. Gallay, P., op cit.

Table 7.4 Average results per customer relationship-related question – focus on dependence[39]

No.	Statement	Administrative area	Operational area
13.	In my daily work, I rely to a great extent on customer data.	52%	83%
14.	Customer relationships influence the prioritization of my tasks.	50%	63%
15.	The success of my daily work depends to a great extent on the customer data provided within the company.	55%	79%
16.	I depend on the existing CRM tool for the proper execution of my tasks.	32%	71%

in the administrative area. The result of 52% shows that contact to customers exists in partial areas. The staff working in these areas therefore depends on customer data. By contrast, the operational area has a much higher dependence on customer data. The achieved result is acceptable but still shows scope for improvement.[40]

7.2.14 Question 14

Both corporate areas scored similarly moderate results; obviously there are few customers to whom intensive contact exists. It is amazing that customer relationships do not play a pivotal role for the operational area.[41] For this reason, it can be concluded that 'customers are not always the king'.[42] On the other hand, the low results can be an indication that all customers are treated equally. No matter how intensive the contact to the customer,

[39] Own creation.
[40] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Rudolf, K., op cit.
[41] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Lammert, A., op cit.
[42] Gallay, P., op cit.

prioritization takes place at the individual employee's own discretion (soft fact) or based on hard facts.[43] A result of 63% in the operational area means that personal priorities play a minor role while factual goals take a higher priority. Subareas like Marketing are extremely dependent on good customer relationships. The administrative area has to improve its awareness of customer needs so as not to jeopardize the follow-up business. This means that decisions and measures in the administrative area should always be taken under consideration of the customer's point of view. If there is a too strong focus on corporate key figures, this is not very helpful for establishing good customer relationships.[44] In the present case of NEWCO International GmbH, this non-personal relationship between employee and customer, i.e. the lack of soft facts,[45] is not at all conducive to the business. This analysis has clearly shown that there is a high need for taking a conceptual approach to enhancing the customer relationship as outlined by the Customer Relationship Improvement Cycle (CRI-C).

7.2.15 Question 15

Again, there is striking difference between both results. As mentioned in the discussion of question 13, the administrative area has a stronger focus on legal regulations, corporate compliance and general guidelines. Nevertheless, 55% is a high value when taking into account that this area has few contacts to customers. It seems that administrative staff has a more passive perception of customer data and therefore this data plays a minor role. The fact that the provided customer data is not addressee-oriented could be another reason for the low result. The same applies to the operational area. 79% shows that there is a certain dependence on the

[43] Cf. Baker, M. J., Hart, S. (2008), p. 38; Lammert, A., op cit.
[44] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Lammert, A., op cit.
[45] Cf. Ranchhod, A. (2004), p. 34.

customer data provided within the company.[46] But it also shows (i) that there are additional success factors[47] or (ii) that not all relevant customer data is provided or (iii) that the quality of this data is not sufficient.[48] For these reasons, it is high time to improve the quality of customer data by using the continuous 5-Step CDLS (Sect. 1.5).

7.2.16 Question 16

The results of both corporate areas are surprisingly low. The administrative area (32%) does obviously not depend on the existing CRM tool. This could be due to the poor quality of the data as already mentioned several times.[49] A limited range of options could also be a reason for the non-use and independence. Nevertheless, the result for the administrative area should be definitely higher than 50% and the CRM tool used more frequently, because terms of payment, credit lines etc. are also maintained in this place. The result of 71% for the operational area is also astonishingly low. This might indicate that alternative information sources of customer knowledge exist and that the necessary customer data is procured from these alternative sources. This, naturally, also applies to the administrative area. The CRM tool should be the central database within the company and the frequency of use by the operational area higher than 90%.[50]

The last two sections of this chapter analyze and discuss the results of the survey in greater detail. Based on the findings, recommendations can be made and this will be the focus of the next section.

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[46] Cf. Bogatschna, R., op cit.; Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.; Mangia, L. (2004), p. 788.
[47] Cf. Bogatschna, R., op cit.
[48] Cf. Gallay, P., op cit.; Mangia, L. (2004), p. 788.
[49] Cf. Mangia, L., op cit., p. 788; Rudolf, K., op cit.
[50] Cf. Gallay, P., op cit.; Rudolf, K., op cit.

7.3 Recommendations Resulting from the Case Study

The survey and the interviews have shown that good approaches to knowledge transfer already exist at NEWCO International GmbH. At the same time, however, certain lacks were identified. Based on the results, recommendations can be made to fill the gaps and improve the knowledge management process and the customer relationship. These recommendations can be divided into proposals for the company as a whole and proposals for the employees. First, the proposals for the organization will be explained.

i) The results of the survey have shown that general knowledge is available, but not sufficiently throughout the company and sometimes only on request. Therefore, NEWCO International should carefully analyze which further knowledge is needed to provide a greater supply of basic information. Through well-aimed questions it can be evaluated which data is relevant to provide the 'right', in other words necessary, information. It would thus be possible to minimize the deficit in knowledge availability.[51] The employees could concentrate on the work itself instead of wasting time on the hunt for knowledge. The flow of work should not be interrupted.[52]
ii) NEWCO International should extend its offer of internal training courses. By communicating/transferring one's own knowledge, knowledge distribution takes place – an essential process for a learning organization.[53] It should be considered whether the 'Marketing Circle', practiced in the past at NEWCO, could be implemented again. This would help exchange current knowledge, customer knowledge, contemporary topics as well as the status of current projects. The

[51] Cf. Lammert, A., op cit.
[52] Cf. Rudolf, K., op cit.
[53] Cf. Dosi, G., Nelson, R. R., Winter, G. (2000), p. 54; Gallay, P., op cit.

knowledge distribution should be supported and promoted by the Management of NEWCO.[54]

iii) The results of questions 4 and 12 (employees make their own knowledge and customer information available to the company) are positive – on condition that they reflect real life practice. Nevertheless, a score of 100% was not reached. Staff members are willing to share information, but it needs to be clarified if this knowledge is provided in a structured way and where this information is stored. It also needs to be seen if everybody has access to this data.[55] The motivation to contribute and share information should definitely be strengthened.[56]

iv) The level of cooperation and helpfulness within NEWCO International GmbH is satisfactory, but could be a bit enhanced. Employees help each other, and it is the company's task to preserve this familiar atmosphere. It is also the job of superiors to keep the competitiveness among their staff members in a healthy balance.[57]

v) NEWCO International shows a relatively high dependence on external knowledge. This should be minimized. It should also be clarified whether the company has the facilities to store and provide all of the required knowledge internally. In order to reduce the dependence on external consultants, possibilities for integrating external knowledge need to be identified. It should also be clarified in which way the company depends on external partners and what the cost-benefit ratio is. As mentioned before, the company should invest more strongly in internal knowledge exchange which eventually leads to knowledge growth.[58]

vi) Within their area of responsibility, the employees of NEWCO International work independently. The resulting freedom of decision should be preserved to underline the

[54] Cf. Gallay, P., op cit.

[55] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Lammert, A., op cit.

[56] Cf. Rudolf, K., op cit.

[57] Cf. Bogatschna, R., op cit.

[58] Cf. Gallay, P., op cit.; Lammert, A., op cit.

Management's trust in their employees. This flexibility needs to be maintained. However, attention should be paid that this trust is not abused and does not result in single employees running 'one-man shows'. Last but not least, the company needs to check its control mechanisms.[59]

vii) It is a positive fact that a CRM tool already exists. But NEWCO needs to work on the poor data quality and the lack of sufficient information. Therefore, the following recommendations can be made concerning the CRM tool. (i) The company should check which relevant data from, for or about the customer is missing and this needs to be updated. (ii) The benefits of the CRM tool need to be determined and, if necessary, to be improved. (iii) It should also be checked whether the tool could be better adapted for use by the administrative area. (iv) For this purpose, the company needs to know which additional features are needed and to check whether system adjustments can be made so that both corporate areas can use this tool in a better way. (v) It should be checked if the staff is aware of the benefits that this tool offers. (vi) If not, suitable training for the use of this tool could be offered. (vii) This would also reduce the defensive attitude towards the CRM tool. (viii) A key user should be appointed who keeps all knowledge related to the tool (not to the data) in one central place. (ix) All employees should be sensitized to the need for proper and regular data maintenance. (x) The company must clearly allocate tasks so that staff members or departments know which data they are expected to maintain. (xi) It should also be checked whether all employees have access to the CRM tool – in other words: the authorization concept needs to be reviewed.[60]

viii) The knowledge provided within NEWCO International is not used to promote the customer relationship. But exactly this relationship must be continuously strengthened to 'keep businesses alive'. This target can be achieved by telephoning

[59] Cf. Bogatschna, R., op cit.; Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.
[60] Cf. Gallay, P., op cit.; Lammert, A., op cit.

or by direct visits to the customer, however not by exclusive e-mail contact.[61]

ix) NEWCO definitely needs to check its resources. This includes the time factor (see the staff's lack of time for familiarizing themselves with the CRM tool) and the provision of data (see the answers of the survey: 1. high dependence on but low availability of knowledge and 2. low dependence on but high availability of information).[62]

The survey has shown that it is not only the task of the company to take care of successful knowledge transfer. Each individual is part of the communication and knowledge exchange process. Logically, some recommendations are therefore also directed to the employees of NEWCO.

i) Although general knowledge and customer knowledge are partly provided at NEWCO, the significance of this data is not always fully recognized. Each staff member should be aware of the importance of the provided data. Single employees probably do not know how much general knowledge and knowledge about the customer is available. This must definitely be changed.[63]

ii) The employees should ask clear questions to their colleagues or superiors. If necessary, the 'senders' should reassure themselves that the importance of their question was properly understood, thus avoiding a waste of time. If necessary, the question should be written down.[64]

iii) The administrative area should develop a higher sensitivity to customer interests. Decisions made on the basis of figures alone may jeopardize the future business (e.g. setting a credit limit). This point is closely linked to the recommendation of building a better customer relationship.[65]

[61] Cf. Gallay, P., op cit.
[62] Cf. Lammert, A., op cit.
[63] Cf. Bogatschna, R., op cit.; Lammert, A., op cit.; Rudolf, K., op cit.
[64] Cf. Rudolf, K., op cit.
[65] Cf. Gallay, P., op cit.

Figure 6.3 has shown that the availability of and dependence on 'Knowledge' is comparable for both corporate areas. However, the administrative area has a stronger focus on general knowledge than the operational area. The category 'Customer Relationship' reveals larger differences. Naturally, the operational area has a closer link to customers.[66] For this reason, the categories Knowledge and Customer Relationship should be *weighted* and analyzed more specifically as already indicated in Sects 6.5.4 and 6.5.5. The weighting of both areas/categories should be based on the following ratio, resulting from the interviews:

Table 7.5 Weighting the categories per corporate area[67]

	Administrative area		Operational area	
Area/category	Knowledge	Customer relationship	Knowledge	Customer relationship
Weighting	79%	21%	22%	78%

In this section, explicit recommendations for NEWCO International have been given. This was followed by a different weighting of the explored categories for both corporate areas. This will be now be used for a final scoring step in the following section.

7.4 Critical Analysis

The visualized results of the survey (Sects. 6.5.1, 6.5.2, 6.5.3, 6.5.4, and 6.5.5) have shown that the availability of and dependence on knowledge for the administrative and operational area of NEWCO is on a comparably high level. It has also been shown that there is a special relationship between the availability of and dependence on *general knowledge*. On the other hand,

[66] Cf. Lammert, A., op cit.

[67] Own creation according to Table 9.12; Bogatschna, R., op cit.; Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.; Rudolf, K., op cit.

there were enormous differences with respect to the availability of and dependence on *customer data*. The operational area depends much more on customer data resp. customer relationships. Since the administrative area has less contact to customers, its dependence on this data is naturally lower.[68]

The responses recorded in the questionnaire prove that a conversion of theoretical knowledge into practical knowledge and vice versa takes place although there is still room for improvement. Nevertheless, the employees are willing to help each other.[69] The provision of explicit knowledge, resulting from tacit knowledge (individuals' mindset), is confirmed especially by the answers to questions 4 and 12 (provision of general knowledge and customer knowledge). The reverse conversion from explicit to tacit knowledge is verified by the results of question 7.

NEWCO employees are independent in making decisions within their area of responsibility. Thus an exchange of these types of knowledge takes place, too.[70] Thanks to the communication and helpfulness among staff, individual knowledge is transformed into collective knowledge. As a result of this communication process, collective knowledge can also be transformed into individual knowledge.[71] The survey and the interviews have clearly shown that the company depends to a relatively high degree on external consultants.[72] Due to the limited internal resources, the fluctuation of employees and the insufficient provision of required documents (responses to questions 1 and 3), the dependence on external service providers will continue until remedial measures are taken.[73]

Figure 7.1 visualizes the knowledge exchange process at NEWCO International GmbH.

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[68] Cf. Lammert, A., op cit.; Rudolf, K., op cit.

[69] Cf. Bogatschna, R., op cit.; Gallay, P., op cit.; Heckert, U., op cit., p. 21.

[70] Cf. Gallay, P., op cit.; von Krogh, G., Nonaka, I., Nishiguchi, T. (2000), p. 9; Rudolf, K., op cit.

[71] Cf. Bogatschna, R., op cit.; Heckert, U., op cit., p. 19; Lammert, A., op cit.

[72] Cf. Follam, L., op cit.; Lammert, A., op cit.

[73] Cf. Bogatschna, R., op cit.

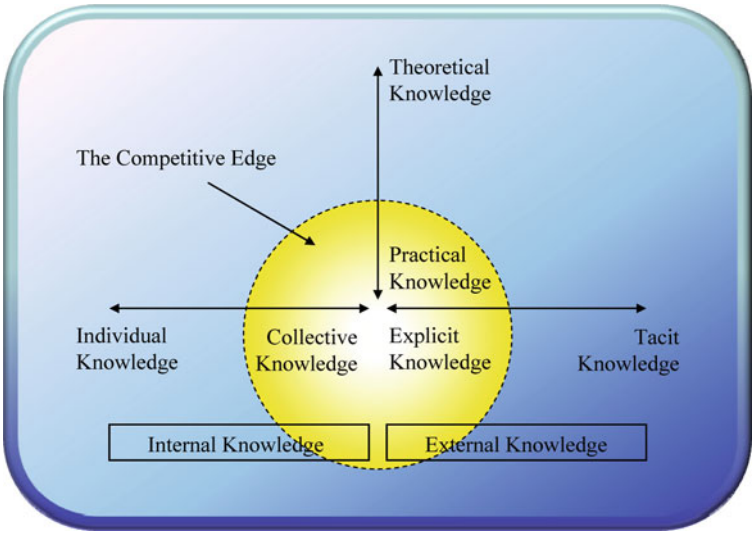

Fig. 7.1 Achievable Competitive Edge for NEWCO International GmbH[74]

The diagram shows the process of knowledge sharing at NEWCO International. For the reasons mentioned above, external knowledge is only partly converted into internal knowledge. The derived knowledge (both general and customer knowledge), resulting from the exchange of theoretical, practical, tacit, explicit, individual as well as collective knowledge and the internal/external knowledge assures the company's competitive edge. But: What still needs to be improved is that the company has the right knowledge from, for and/or about the customer available at the right time, in the right place and with the right quality, thus ensuring a high service level and an optimum customer relationship.[75]

In addition to the exchange of knowledge, it is important for a company to grow. In the course of the investigation, four success factors could be identified for NEWCO International. These factors are *independence, motivation,* the *CRM tool* and *helpfulness among staff*. These factors help the company, through interaction, to develop into a learning organization (Fig. 7.2).

[74] Own creation.

[75] Cf. Maier, R. (2007), p. 36; Rudolf, K., op cit.

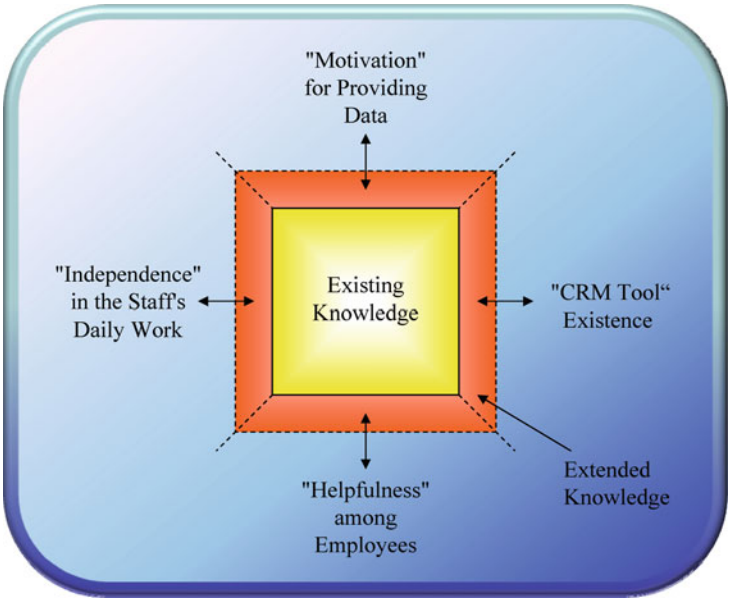

Fig. 7.2 Key Success Factors at NEWCO International GmbH[76]

It is important for NEWCO to promote and further strengthen these four factors. But it is also important to take the identified weaknesses into account. Although the questionnaire responses have shown that it is indeed possible to achieve good results, a lot of recommendations can be made to achieve even better results and improve the company's performance with respect to Knowledge Management.

These include: (i) minimize the dependence on external service providers, (ii) identify exactly the knowledge that employees need, (iii) support and promote the knowledge exchange, (iv) foster the motivation for sharing data (especially customer data), (v) encourage helpfulness and minimize competitiveness, (vi) preserve the level of independence in daily work, (vii) improve the existing CRM tool, (viii) use the provided knowledge to strengthen the customer relationship, (ix) check the company's resources, (x) make employees aware of the importance of the

[76] Own creation.

provided data, (xi) ask questions more clearly, (xii) improve the quality of data, (xiii) develop a higher sensitivity for customer interests.[77]

As this book also examines the customer relationship, it needs to be emphasized that 'the customer is not always the king'[78] at NEWCO International. The relationship between employees and customers is not yet strong enough. Work is prioritized on the basis of rational facts, and this can be seen both in a positive and negative way.[79] The negative aspect is that there is obviously a weak customer relationship and that the business still lacks sustainability. On the other hand, it is a positive fact that all customers are treated equally so that no one can feel at a disadvantage.[80]

7.5 Summary

In order to analyze and critically discuss the survey results, 5 interviews were conducted. The interviewees were also asked to make recommendations how to eliminate the company's deficits. Poor data quality and lack of customer orientation figure among the major deficits. At NEWCO, 'the customer is not always the king'.[81] In other words: There is a clear lack of service commitment to the company's customers.[82]

To achieve a final and meaningful conclusion, the two categories (knowledge and customer relationship) need to be weighted as recommended by the interviewees. For this purpose, the standard rating scale of a university[83] was used. All sub-categories have the same weight, because there should be a balance between the availability of and the dependence on

[77] Cf. Bogatschna, R., op cit.; Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.; Rudolf, K., op cit.
[78] Gallay, P., op cit.
[79] Cf. Rudolf, K., op cit.
[80] Cf. Baker, M. J., Hart, S. (2008), p. 38; Rudolf, K., op cit.
[81] Gallay, P., op cit.
[82] Cf. Bogatschna, R., op cit.; Follam, L., op cit.; Gallay, P., op cit.; Lammert, A., op cit.; Rudolf, K., op cit.
[83] Table 9.13.

knowledge and customer relationship. When using the suggested weighting of Table 7.5, the administrative area achieved 71.9%[84] whereas the operational area scored 77.1%.[85] As the company must be considered as a whole, NEWCO International achieved a weighted average of 74.5%.[86] Compared with university grades, this corresponds to a grade of 2.7.

All in all, this is not a bad result, but in these times of fierce competition and growing need to distinguish oneself from competitors in the same market, NEWCO would be well advised to improve its knowledge management and optimize its customer relationship – and to do this fast. The 5-Step CDLS and the CRI-C are useful models for improving data and customer relationship. With the help of these tools, NEWCO can finally gain competitive edge.

[84] Table 9.14.
[85] Table 9.15.
[86] (71.9% + 77.1%)/2 = 74.5%.

Chapter 8
Conclusion

8.1 Theoretical/Practical Summary

The objective of this book was to verify the significance of knowledge sharing for an enhanced customer relationship management. For this purpose, the following hypothesis was formulated and had to be validated:

Knowledge Management is crucial for an improved Customer Relationship

Based on the results of this book, a final assessment is now provided. The initial question is whether there is a demand for knowledge and where the relevant knowledge comes from. It also clarifies whether the internal sources are sufficient or if external sources are needed. It assesses the quantity and quality of the existing and the provided data. Finally, it examines the correlation between the availability of and the dependence on knowledge and customer data.

In times of rapid change, growing globalization and the accompanying fiercer competition, companies need to be flexible so that they can react quickly to external influences and impulses. It is important to recognize these impulses and deal with them internally. Existing and potential customers provide information on their future needs that must be satisfied by the supplying company. The management has to promote the self-organization within the company so that it can act in a flexible way.[1]

[1] Cf. Schmiedel-Blumenthal, P. (2001), p. 51.

S. Wilde, *Customer Knowledge Management*,
DOI 10.1007/978-3-642-16475-0_8, © Springer-Verlag Berlin Heidelberg 2011

In order to manage the fourth productive force, i.e. *knowledge*, and to ensure the company's long-term survival in the market, a knowledge-oriented approach must be taken – in other words: a 'knowledge based view of the firm'.[2] Such an approach is expressed by the Knowledge Management, the Customer Relationship Management as well as the Customer Knowledge Management Concept. While KM is needed for identifying, developing, administrating, storing and providing the knowledge within a company, CRM and CKM are related to the aim of using the knowledge from, for and about the customer for entrepreneurial purposes.[3]

The successful integration of customer knowledge into the organizational knowledge basis can lead to optimized business processes, improved products and services and a higher number of innovations. The integration of customer knowledge not only involves a lot of advantages for companies, but also goes hand in hand with increased benefits for their customers.[4]

SMEs need to exploit their intellectual assets and create new knowledge. This leads to a higher awareness of knowledge, continuous learning and shared knowledge. If this knowledge is strategically adopted and effectively used, competitive edge can be gained.[5] The management of knowledge is a great challenge. However, the different knowledge management models, presented earlier in this book, are easy to comprehend and to adopt. Therefore, they form the foundation for a knowledge-enabled organization.

Knowledge carriers play a pivotal role in the knowledge management process. They are one of the key factors identified for successful knowledge transfer (see Chap. 4). It was stressed that individual learning and sharing one's own knowledge with groups finally leads to organizational learning.[6] When involving the company's customers in the knowledge exchange process, benefits can

[2] Cristofolini, M. (2005), p. 1.
[3] Cf. Nohr, H. (2003), p. 35.
[4] Cf. Roccasalvo, G. P. (2003), p. 44.
[5] Cf. Botha, A., Kourie, D., Snyman, R. (2008), p. 36.
[6] Cf. Burke, P. J., Jackson, S. B. (2007), p. 15; Shani, A. B., Docherty, P. (2003), p. 22.

be achieved for both parties. While the customers receive customized products and services,[7] the company can grow and add value by using the newly acquired knowledge for other customer relationships.[8] These benefits prove that *Knowledge Management is indeed crucial for an improved Customer Relationship.*

The exchange of information enables co-workers to do their jobs efficiently. This is why they are the key element of knowledge.[9] Since SMEs have limited resources, they need to make optimal use of them. And this is why there needs to be a good balance between the availability of knowledge and the dependence on it. This applies to both internal and external knowledge. The high fluctuation of employees nowadays leads to a higher dependence on external knowledge[10] – a problem faced also by the company examined in this book. But as mentioned in Sect. 3.2.1, it is often not possible to store all knowledge within a company. The use of external knowledge is therefore a must.[11]

A technical solution to managing existing and future information is the creation of a knowledge pool that is accessible[12] for all employees, partners and agents of a company, depending on their authorization. The factual knowledge of a company can be collected, structured, administrated, processed and used in this knowledge data base.[13] Knowledge management technology is evolving with amazing speed.[14] This book emphasized the fact that not the *quantity* but the *quality* of data is important. This finally leads to cost savings and knowledge growth.[15] With the help of the case study, it was possible to identify the need for a knowledge tool. Already years ago, NEWCO International became aware of the need for such a tool. The existing CRM

[7] Cf. Sandmeier, P. (2006), p. 43.
[8] Cf. Bizmanualz Inc. (2008), p. 73.
[9] Cf. Nonaka, I., Takeuchi, H. (1995), p. 239.
[10] Cf. Rudolf, K. (2009), interview.
[11] Cf. Voelker, R., Sauer, S., Simon, M. (2007), p. 52.
[12] Cf. Goldenberg, B. J. (2008), p. 126.
[13] Cf. Reinmann-Rothmeier, G. (2001), p. 18.
[14] Cf. Botha, A., Kourie, D., Snyman, R., op cit., p. 116.
[15] Cf. Olsen, J. E. (2003), p. 24.

tool is an advantage for the company, but now it is high time to improve the unsatisfactory quality of data.

All aspects mentioned in this conclusion can help other SMEs avoid mistakes made in the past. The identified deficits and the critical analysis of the case study may help other companies fill their own gaps and avoid or at least minimize the loss of knowledge. The recommendations resulting from the case study are also transferable to other SMEs.

To sum up: This book – in combination with the case study – is meant to show that the focus of a CRM tool must be on the quality of data (especially customer data). In addition, it strongly supports the idea that employees must be seen as a key success factor in gaining competitive edge.

8.2 Recommendation

The aim of companies is to grow and to add value.[16] To achieve this aim, they need loyal customers. It is therefore a logical step to involve the company's customers into the knowledge exchange process. This can be done through direct contact, e.g. by the traditional field staff. In addition, the general customer relationship and the closeness to customers can be improved.[17]

The case of NEWCO International has shown that knowledge may partly exist, but that it is the task of the company and its staff to take care of its quality. A certain sensitivity of employees towards this data, especially customer data is necessary.[18] The exchange of available knowledge within the company needs to be supported by the company's Management. Besides, the employees need to be given time to familiarize themselves with the new knowledge. To promote the transfer and sharing of knowledge, organizations can, for instance, implement periodical meetings to ensure the regular exchange of experience among staff.[19]

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[16] Cf. Bizmanualz Inc., op cit.

[17] Cf. Gallay, P. (2009), interview; Rudolf, K., op cit.

[18] Cf. Bogatschna, R. (2009), interview.

[19] Cf. Gallay, P., op cit.; Mertins, K., Heisig, P., Vorbeck, J. (2003), p. 227; Rudolf, K., op cit.

Another recommended method for the exchange of knowledge is the implementation of electronic tools. Within a Customer Relationship Management tool, knowledge can be stored, is accessible and transferable. The current CRM tool at NEWCO International has shown that it includes more useful information than just customer data. To manage today's flood of information, the implementation of such a knowledge management tool is therefore mandatory.[20]

The 5-Step Customer Data Life Spiral (5-Step CDLS) and the Customer Relationship Improvement Cycle (CRI-C) are management tools that give detailed instructions. Both models are based on a stepwise approach and describe a continuous process. The concepts behind are not only theoretical strategies, but help translate data enhancement and customer relationship improvement into the operative area of a company. The practical use of such tools is becoming more and more important in our today's business environment.[21]

8.3 Future Research Direction

The valuation of companies is increasingly based on their intellectual capital. In the future, the well-aimed use of available knowledge will be a key factor for a company's success.[22] This turns knowledge into a company asset of vital importance.[23] In order to derive 'added value', it is not only important to organize but also to share and multiply this knowledge. In the future, successful companies will distinguish themselves, above all, through the optimal organization and use of their knowledge.[24] An interesting future research direction may be to analyze how strongly knowledge can, in fact, influence a company's success and how future companies may handle its use.

[20] Cf. Bogatschna, R., op cit.; Ernst, H. (1998), p. 21; Gallay, P., op cit.
[21] Cf. Wilde, S. (2010), p. 6.
[22] Cf. Drucker, P. F. (2006), p. 4.
[23] Cf. Thierauf, R. J. (1999), p. 174.
[24] Cf. Ackermann, M. et al. (2008), p. 86.

Companies will only be able to survive in an increasingly tougher competitive environment if they initiate customer-oriented learning processes[25] and constantly re-think their business processes. For this reason, it is imperative that a company acts dynamically and undergoes constant change. In view of new and more complex environments and changing requirements, a company can only assert itself in the market through effective management of a comprehensive knowledge base.[26] This insight naturally leads to the concept of a 'learning organization' (Sect. 4.6).

The most important knowledge management trends are the promotion of knowledge sharing within a company and the collaboration between companies and their customers. These are the key factors that ensure long-term stability in a fiercely competitive and challenging economy.[27] Knowledge management needs to be linked with customer relationship. Companies need to offer personalized products and services.

Therefore SMEs should ask themselves: 'How strong is our focus on customers and how can we improve our customer relationships?' The question that NEWCO International should ask itself is: 'Could we make more profit if we used the existing knowledge for our customers?' This is also the direction that future research approaches should take.

[25] Cf. Riempp, G. (2003), p. 25.
[26] Cf. Back, A., Enkel, E., von Krogh, G. (2007), p. 4.
[27] Cf. Botha, A., Kourie, D., Snyman, R., op cit., p. 114.

Chapter 9
Appendix

Table 9.1 Questionnaire German (Part A)

	Bitte markieren Sie die Antwort mit einem ×, welche Ihrer Situation am ehesten entspricht. Es ist jeweils nur eine Antwort zulässig. Administrativer Bereich ☐ Operativer Bereich ☐				
	Teil A – Statement	Trifft nicht zu	Trifft eher nicht zu	Trifft eher zu	Trifft Zu
1.	Alle für meine Tätigkeit benötigten Unterlagen werden mir im Unternehmen zur Verfügung gestellt.	☐	☐	☐	☐
2.	Ich erhalte zusätzliche Tipps zur Ausübung meiner Tätigkeit von Mitarbeitern.	☐	☐	☐	☐
3.	Das für mein Tätigkeitsfeld benötigte Wissen wird mir ausreichend vom Unternehmen zur Verfügung gestellt.	☐	☐	☐	☐
4.	Erlangtes Wissen stelle ich dem Unternehmen unaufgefordert zur Verfügung.	☐	☐	☐	☐
5.	Zur Ausübung meiner Tätigkeit bin ich auf externes Wissen angewiesen.	☐	☐	☐	☐

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DOI 10.1007/978-3-642-16475-0_9, © Springer-Verlag Berlin Heidelberg 2011

	Zusatzinformationen von Mitarbeitern haben einen großen Anteil an meiner täglichen Arbeit.	☐	☐	☐	☐
7.	Entscheidungen in meinem Verantwortungsbereich treffe ich selbständig.	☐	☐	☐	☐
8.	Im Unternehmen bereitgestelltes Fachwissen (Datenblätter, Fachliteratur, unternehmensinterne Präsentationen, Produktlisten) haben einen wesentlichen Anteil an meiner täglichen Arbeit.	☐	☐	☐	☐
9.	Auf relevante kundenbezogene Daten kann ich innerhalb des Unternehmens zugreifen.	☐	☐	☐	☐
10.	Das vorliegende CRM Tool liefert mir die für meine tägliche Arbeit benötigten Informationen.	☐	☐	☐	☐
11.	Das vorliegende CRM Tool liefert mir über meine Tätigkeit hinausgehende Informationen.	☐	☐	☐	☐
12.	Alle von mir erlangten kundenbezogenen Informationen stelle ich den Mitarbeitern im Unternehmen zur Verfügung.	☐	☐	☐	☐
13.	Kundenbezogene Daten haben einen wesentlichen Anteil an meiner täglichen Arbeit.	☐	☐	☐	☐
14.	Kundenbeziehungen haben Einfluss auf die Priorisierung meiner Tätigkeit.	☐	☐	☐	☐
15.	Auf den Erfolg meiner täglichen Arbeit haben die im Unternehmen bereitgestellten Kundendaten einen wesentlichen Einfluss.	☐	☐	☐	☐
16.	Zur Ausübung meiner Tätigkeit bin ich auf das vorliegende CRM Tool angewiesen.	☐	☐	☐	☐

Table 9.2 Questionnaire English (Part A)

Please mark the one answer with a × that applies most closely to your situation. Only one answer per statement is allowed.

Administrative Area ☐

Operational Area ☐

	Part A – Statement	Does not apply	Applies less	Applies rather	Applies fully
1.	All relevant documents which I need to do my job properly are provided by the company.	☐	☐	☐	☐
2.	I receive additional tips from co-workers to carry out my tasks.	☐	☐	☐	☐
3.	The knowledge required for my field of work is sufficiently made available by the company.	☐	☐	☐	☐
4.	I make my own knowledge – acquired on the job – available to the company without being asked.	☐	☐	☐	☐
5.	I depend on external knowledge to do my job successfully.	☐	☐	☐	☐
6.	In my daily work I rely to a great extent on additional information from co-workers.	☐	☐	☐	☐
7.	I independently make decisions within my area of responsibility.	☐	☐	☐	☐
8.	Expert knowledge provided within the company (data sheets, technical literature, in-company presentations, product lists) is an essential part of my daily work.	☐	☐	☐	☐

	I have access to relevant customer data within the company.	☐	☐	☐	☐
10.	The existing CRM tool provides me with the required information for my daily work.	☐	☐	☐	☐
11.	The existing CRM tool provides me with additional information beyond my daily work.	☐	☐	☐	☐
12.	I make all customer information compiled by me available to other staff members.	☐	☐	☐	☐
13.	In my daily work, I rely to a great extent on customer data.	☐	☐	☐	☐
14.	Customer relationships influence the prioritization of my tasks.	☐	☐	☐	☐
15.	The success of my daily work depends to a great extent on the customer data provided within the company.	☐	☐	☐	☐
16.	I depend on the existing CRM tool for the proper execution of my tasks.	☐	☐	☐	☐

Table 9.3 Questionnaire expert interview (Part B)

No.	Question		Result
	German	English	
1.	Wie interpretieren Sie die Ergebnisse der Umfrage 'Wissen & Kundenbeziehung für den administrativen Bereich'?	How do you interpret the results of the survey 'Knowledge & Customer Relationship of the administrative area'?	Figure 6.1
2.	Wie interpretieren Sie die Ergebnisse der Umfrage 'Wissen & Kundenbeziehung für den operativen Bereich'?	How do you interpret the results of the survey 'Knowledge & Customer Relationship of the operational area'?	Figure 6.2
3.	Wie interpretieren Sie die Ergebnisse des Vergleichs 'Wissen – Administrativer Bereich versus Operativer Bereich'?	How do you interpret the results of the comparison 'Knowledge of the administrative area vs. operational area'?	Figure 6.3
4.	Wie interpretieren Sie die Ergebnisse des Vergleichs 'Kundenbeziehung – Administrativer Bereich versus Operativer Bereich'?	How do you interpret the results of the comparison 'Customer Relationship of the administrative area vs. operational area'?	Figure 6.4
5.	Wie interpretieren Sie die zusammengefassten Ergebnisse des Vergleichs 'Wissen & Kundenbeziehung – Administrativer Bereich versus Operativer Bereich', dargestellt im Netzdiagramm?	How do you interpret the summarized results of the comparison 'Knowledge & Customer Relationship of the administrative area vs. operational area'?	Figure 6.5
6.	Wie interpretieren Sie die Ergebnisse der einzelnen Fragen im Vergleich administrativen zu operativen Bereich. Welche Empfehlung können Sie daraus ableiten?	How do you interpret the results of each question when comparing the administrative area with the operational area? What would you recommend?	Table 9.11

Table 9.4 Questionnaire categorization overview (Part A)

No.	Statement		Category	Sub-category	Explanation
	German	English			
1.	Alle für meine Tätigkeit benötigten Unterlagen werden mir im Unternehmen zur Verfügung gestellt.	All relevant documents which I need to do my job properly are provided by the company.	Knowledge	Availability	Receipt of basic information; transfer of collective, explicit and theoretical knowledge.
2.	Ich erhalte zusätzliche Tipps zur Ausübung meiner Tätigkeit von Mitarbeitern.	I receive additional tips from co-workers to carry out my tasks.	Knowledge	Availability	Receipt of additional information; provision of tacit knowledge; transfer of theoretical knowledge into practical/application knowledge.
3.	Das für mein Tätigkeitsfeld benötigte Wissen wird mir ausreichend vom Unternehmen zur Verfügung gestellt.	The knowledge required for my field of work is sufficiently made available by the company.	Knowledge	Availability	Access to requested knowledge on demand; availability of internal, collective and explicit knowledge.
4.	Erlangtes Wissen stelle ich dem Unternehmen unaufgefordert zur Verfügung.	I make my own knowledge – acquired on the job – available to the company without being asked.	Knowledge	Availability	Making one's own knowledge available for others; externalization (from tacit to explicit knowledge).

Table 9.4 (continued)

No.	Statement		Category	Sub-category	Explanation
	German	English			
5.	Zur Ausübung meiner Tätigkeit bin ich auf externes Wissen angewiesen.	I depend on external knowledge to do my job successfully.	Knowledge	Dependence	Dependence on external knowledge (gained from another party).
6.	Zusatzinformationen von Mitarbeitern haben einen großen Anteil an meiner täglichen Arbeit.	In my daily work I rely to a great extent on additional information from co-workers.	Knowledge	Dependence	Socialization (from tacit to tacit knowledge); understanding of additional information.
7.	Entscheidungen in meinem Verantwortungsbereich treffe ich selbständig.	I independently make decisions within my area of responsibility.	Knowledge	Dependence	Independence in one's daily work; internalization (from explicit to tacit knowledge) and extension of knowledge.
8.	Im Unternehmen bereitgestelltes Fachwissen (Datenblätter, Fachliteratur, unternehmensinterne Präsentationen, Produktlisten) haben einen wesentlichen Anteil an meiner täglichen Arbeit.	Expert knowledge provided within the company (data sheets, technical literature, in-company presentations, product lists) is an essential part of my daily work.	Knowledge	Dependence	Combination (from existing explicit to new explicit knowledge).

Table 9.4 (continued)

No.	Statement		Category	Sub-category	Explanation
	German	English			
9.	Auf relevante kundenbezogene Daten kann ich innerhalb des Unternehmens zugreifen.	I have access to relevant customer data within the company.	Customer Relationship	Availability	General availability of customer data within the company.
10.	Das vorliegende CRM Tool liefert mir die für meine tägliche Arbeit benötigten Informationen.	The existing CRM tool provides me with the required information for my daily work.	Customer Relationship	Availability	Special availability of customer data within the CRM tool.
11.	Das vorliegende CRM Tool liefert mir über meine Tätigkeit hinausgehende Informationen.	The existing CRM tool provides me with additional information beyond my daily work.	Customer Relationship	Availability	Availability of additional data within the CRM tool.
12.	Alle von mir erlangten kundenbezogenen Informationen stelle ich den Mitarbeitern im Unternehmen zur Verfügung.	I make all customer information compiled by me available to other staff members.	Customer Relationship	Availability	Making one's own customer data available for others.

Table 9.4 (continued)

No.	Statement		Category	Sub-category	Explanation
	German	English			
13.	Kundenbezogene Daten haben einen wesentlichen Anteil an meiner täglichen Arbeit.	In my daily work, I rely to a great extent on customer data.	Customer Relationship	Dependence	General dependence on customer data.
14.	Kundenbeziehungen haben Einfluss auf die Priorisierung meiner Tätigkeit.	Customer relationships influence the prioritization of my tasks.	Customer Relationship	Dependence	Personal relationship between employee and customer.
15.	Auf den Erfolg meiner täglichen Arbeit haben die im Unternehmen bereitgestellten Kundendaten einen wesentlichen Einfluss.	The success of my daily work depends to a great extent on the customer data provided within the company.	Customer Relationship	Dependence	General necessity of customer data.
16.	Zur Ausübung meiner Tätigkeit bin ich auf das vorliegende CRM Tool angewiesen.	I depend on the existing CRM tool for the proper execution of my tasks.	Customer Relationship	Dependence	Special dependence on the CRM tool.

Table 9.5 Research results – administrative area

Category	Knowledge								Customer Relationship							
Sub-category	Availability				Dependence				Availability				Dependence			
Question / Questionnaire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A1	4	3	2	2	2	3	4	3	4	4	2	3	3	4	3	2
A2	4	4	4	4	3	1	2	2	4	2	2	4	3	1	1	1
A3	4	4	4	4	2	3	4	3	4	1	1	4	2	1	4	1
A4	1	3	3	4	3	4	3	2	2	2	1	4	2	2	2	2
A5	3	4	3	4	4	3	3	2	1	1	1	4	1	1	1	1
A6	1	4	1	4	4	3	4	4	3	1	1	1	1	1	1	1
A7	2	2	3	3	4	4	4	3	4	1	1	4	2	3	2	1
A8	2	3	3	4	3	2	3	2	4	1	1	4	3	3	4	1
A9	3	4	3	4	4	3	3	2	3	2	1	3	1	1	2	2
A10	2	3	2	3	2	2	3	4	3	2	1	4	2	3	1	1
A11	3	3	4	4	3	4	4	2	4	1	2	4	3	2	3	1

A1 means response 1 from the administrative area.

Table 9.6 Research results – operational area

Category	Knowledge								Customer Relationship							
Sub-category	Availability				Dependence				Availability				Dependence			
Question / Questionnaire	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O1	4	3	3	3	2	4	3	3	4	4	3	3	4	4	4	3
O2	4	3	3	4	2	3	3	3	3	4	2	4	3	2	3	4
O3	4	4	3	4	3	3	3	4	4	4	4	4	4	3	4	4
O4	4	3	3	3	4	2	3	4	3	2	3	3	4	3	3	2
O5	4	4	4	4	3	3	4	3	4	4	3	4	4	3	3	4
O6	3	3	3	4	4	3	3	2	4	4	2	4	4	2	3	3
O7	3	2	1	4	4	3	3	4	4	2	1	3	2	1	4	1
O8	3	3	3	4	2	2	3	2	3	2	2	3	3	3	2	2
O9	4	4	4	4	3	3	4	4	4	4	4	4	4	3	3	4
O10	3	3	3	3	3	3	3	3	3	2	2	3	3	1	3	1
O11	3	3	3	3	3	3	4	3	3	2	2	3	2	1	2	2
O12	3	3	3	3	2	2	3	2	3	3	3	3	3	3	2	2
O13	3	3	3	4	4	2	3	3	4	3	3	4	4	4	4	3
O14	3	3	4	3	1	3	4	2	4	4	2	3	3	2	4	4
O15	4	3	3	4	2	3	4	3	4	2	3	3	3	3	3	4
O16	4	3	3	3	3	2	3	3	4	3	3	4	3	3	3	4
O17	3	4	3	4	3	3	3	4	4	3	2	3	4	2	4	2
O18	3	3	3	4	3	3	4	3	3	4	2	4	3	2	3	2
O19	4	3	3	3	3	2	3	2	3	3	2	3	4	3	3	3
O20	3	2	4	3	2	3	3	4	4	4	3	4	3	3	4	2
O21	3	3	3	4	3	3	4	2	3	4	3	4	4	2	3	4
O22	4	4	3	3	3	4	3	3	3	2	2	3	3	2	2	2
O23	3	2	3	4	3	2	3	2	3	2	2	4	3	3	4	2
O24	4	3	3	3	2	3	3	4	4	3	3	3	4	3	3	3
O25	4	4	3	3	3	3	3	3	4	3	2	3	4	3	4	3
O26	3	4	3	4	3	3	4	3	4	4	3	3	3	2	3	4
O27	3	3	3	4	4	3	3	3	3	3	3	4	2	2	2	3

O1 means response 1 one from the operational area.

Table 9.7 Test mechanism – knowledge

Knowledge	Administrative area	Operational area
Observations	11	27
Test questions	Q1 vs. Q3	Q1 vs. Q3
Deviation ≥ 2	2	1
Deviation in %	18.18	3.70
Questionnaires	A1, A4	O7

Table 9.8 Test mechanism – customer relationship

Customer relationship	Administrative area	Operational area
Observations	11	27
Test questions	Q9 vs. Q15	Q9 vs. Q15
Deviation ≥ 2	4	0
Deviation in %	36.36	0.00
Questionnaires	A2, A6, A7, A15	–

Table 9.9 Average results per observation of administrative area

Category	Knowledge								Customer relationship							
Sub-category	Availability				Dependence				Availability				Dependence			
Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A1	2.75				3				3.25				3			
A2	4				2				3				1.5			
A3	4				3				2.5				2			
A4	2.75				3				2.25				2			
A5	3.5				3				1.75				1			
A6	2.5				3.75				1.5				1			
A7	2.5				3.75				2.5				2			
A8	3				2.5				2.5				2.75			
A9	3.5				3				2.25				1.5			
A10	2.5				2.75				2.5				1.75			
A11	3.5				3.25				2.75				2.25			
Average per sub-category	3.14				3.00				2.43				1.89			

Table 9.10 Average results per observation of operational area

Category	Knowledge								Customer relationship							
Sub-category	Availability				Dependence				Availability				Dependence			
Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O1	3.25				3				3.5				3.75			
O2	3.5				2.75				3.25				3			
O3	3.75				3.25				4				3.75			
O4	3.25				3.25				2.75				3			
O5	4				3.25				3.75				3.5			
O6	3.25				3				3.5				3			
O7	2.5				3.5				2.5				2			
O8	3.25				2.25				2.5				2.5			
O9	4				3.5				4				3.5			
O10	3				3				2.5				2			
O11	3				3.25				2.5				1.75			
O12	3				2.25				3				2.5			
O13	3.25				3				3.5				3.75			
O14	3.25				2.5				3.25				3.25			
O15	3.5				3				3				3.25			

Table 9.10 (continued)

Category	Knowledge								Customer relationship							
Sub-category	Availability				Dependence				Availability				Dependence			
Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O16			3.25				2.75				3.5				3.25	
O17			3.5				3.25				3				3	
O18			3.25				3.25				3.25				2.5	
O19			3.25				2.5				2.75				3.25	
O20			3				3				3.75				3	
O21			3.25				3				3.5				3.25	
O22			3.5				3.25				2.5				2.25	
O23			3				2.5				2.75				3	
O24			3.25				3				3.25				3.25	
O25			3.5				3				3				3.5	
O26			3.5				3.25				3.5				3	
O27			3.25				3.25				3.25				2.25	
Average per sub-category			3.31				2.99				3.17				2.96	

Table 9.11 Average results per question

Criteria	Question	Administrative area		Operational area	
		Achieved points[a] absolute	Achieved points[a] in %	Achieved points[a] absolute	Achieved points[a] in %
1. **Knowledge**					
Availability	1	2.64	66	3.44	86
	2	3.36	84	3.15	79
	3	2.91	73	3.07	77
	4	3.64	91	3.56	89
Dependence	5	3.09	77	2.85	71
	6	2.91	73	2.81	70
	7	3.36	84	3.30	82
	8	2.64	66	3.00	75
2. **Customer Relationship**					
Availability	9	3.27	82	3.56	89
	10	1.64	41	3.11	78
	11	1.27	32	2.56	64
	12	3.55	89	3.44	86
Dependence	13	2.09	52	3.33	83
	14	2.00	50	2.52	63
	15	2.18	55	3.15	79
	16	1.27	32	2.85	71

[a]Average results

Table 9.12 Weighting of categories per area

	Administrative area		Operational area	
Interviewee	Knowledge	Customer relationship	Knowledge	Customer relationship
Bogatschna, R.	90%	10%	30%	70%
Follam, L.	80%	20%	20%	80%
Gallay, P.	80%	20%	10%	90%
Lammert, A.	65%	35%	30%	70%
Rudolf, K.	80%	20%	20%	80%
Weighting	79%	21%	22%	78%

Table 9.13 Rating scale

Performance	Score
100%	1.0
93%	1.3
89%	1.7
84%	2.0
79%	2.3
74%	2.7
69%	3.0
64%	3.3
57%	3.7
50%	4.0

Table 9.14 Weighted average results of administrative area

			Sub-category		Category			
	Criteria	Question	Weight	Result	Weight	Result	Achieved points in %	Achieved points absolute
1.	**Knowledge**							
	Availability	1	12.5%	8%			66	2.64
		2	12.5%	11%			84	3.36
		3	12.5%	9%			73	2.91
		4	12.5%	11%			91	3.64
		Weight	**50%**	**39%**		**78%**		
	Dependence	5	12.5%	10%			77	3.09
		6	12.5%	9%			73	2.91
		7	12.5%	11%			84	3.36
		8	12.5%	8%			66	2.64
		Weight	**50%**	**38%**		**75%**		
	Sum		**100%**	**77%**	**79%**	**60.6%**		

Table 9.14 (continued)

	Criteria	Question	Sub-category		Category		Achieved points in %	Achieved points absolute
			Weight	Result	Weight	Result		
2.	**Customer Relationship**							
	Availability	9	12.5%	10%			82	3.27
		10	12.5%	5%			41	1.64
		11	12.5%	4%			32	1.27
		12	12.5%	11%			89	3.55
		Weight	**50%**	**30%**		**61%**		
	Dependence	13	12.5%	7%			52	2.09
		14	12.5%	6%			50	2.00
		15	12.5%	7%			55	2.18
		16	12.5%	4%			32	1.27
		Weight	**50%**	**24%**		**47%**		
	Sum		**100%**	**54%**	**21%**	**11.3%**		
	Total				**100%**	**71.9%**		

Table 9.15 Weighted average results of operational area

	Criteria	Question	Sub-category		Category		Achieved points in %	Achieved points absolute
			Weight	Result	Weight	Result		
1.	**Knowledge**							
	Availability	1	12.5%	11%			86	3.44
		2	12.5%	10%			79	3.15
		3	12.5%	9%			77	3.07
		4	12.5%	11%			89	3.56
		Weight	**50%**	**41%**		**83%**		
	Dependence	5	12.5%	9%			71	2.85
		6	12.5%	9%			70	2.81
		7	12.5%	10%			82	3.30
		8	12.5%	9%			75	3.00
		Weight	**50%**	**37%**		**75%**		
	Sum		**100%**	**79%**	**22%**	**17.3%**		

Table 9.15 (continued)

	Criteria	Question	Sub-category		Category		Achieved points in %	Achieved points absolute
			Weight	Result	Weight	Result		
2.	**Customer Relationship**							
	Availability	9	12.5%	11%			89	3.56
		10	12.5%	10%			78	3.11
		11	12.5%	8%			64	2.56
		12	12.5%	11%			86	3.44
		Weight	**50%**	**40%**		**79%**		
	Dependence	13	12.5%	10%			83	3.33
		14	12.5%	8%			63	2.52
		15	12.5%	10%			79	3.15
		16	12.5%	9%			71	2.85
		Weight	**50%**	**37%**		**74%**		
	Sum		**100%**	**77%**	**78%**	**59%**		
	Total				**100%**	**77.1%**		

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