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“The application of business analytics techniques to analyze unstructured text from various sources to complement state-of-the-art opinion leader identification and management in the European public procurement law.”

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To my wife!

I would also like to thank the following individuals for their support: Alexander Wallner, Johannes Wagmüller, Andreas Limpak and Lucy Pieper.

QUOTE

*“If we have data,
let’s look at data.
If all we have are opinions,
let’s go with mine.”*

*Jim Barksdale,
former Netscape CEO*

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ACRONYMS AND ABBREVIATIONS

ANN	Artificial Neural Network
B2B	Business-to-Business
B2C	Business-to-Consumer
BI	Business Intelligence
BGB	German Civil Code (Bundesgesetzbuch)
BITKOM	Federal Association of Information Technology, Telecommunications and New Media
BMBF	Federal Ministry for Education and Research
BMI	Federal Ministry of the Interior
BMWi	Federal Ministry of Economics and Technology
CART	Classification and Regression Trees
CHAID	Chi-squared Automatic Interaction Detection
CPV	Common Procurement Vocabulary
CRISP-DM	Cross Industry Standard Process for Data Mining
DAS	Direct Attached Storage
DSS	Decision Support System
DTAD	German Tender Information Service (Deutscher Auftragsdienst)
DVAL	German Award Committee for Services
EG	European Community
EGV	Treaty on the Functioning of the European Union
EP	European Parliament
ERP	Enterprise-Resource-Planning
ESCON	Enterprise Systems Connection
EU	European Union
EuGH	European Court of Justice

EVB-IT	Supplementary Terms of Contract for the Procurement of IT Supplies/Services
EWG	European Economic Community (EEC)
GWB	Act against restraints of competition
ID3	Iterative Dichotomiser 3
KDD	Knowledge Discovery in Databases
KMS	Knowledge Management System
MARS	Multivariate Adaptive Regression Splines
NAS	Network Attached Storage
NLP	Natural Language Processing
RFP	Request for Proposal
ROC	Receiver Operating Characteristics
SAN	Storage Area Network
SEMMA	Sample, Explore, Modify, Model, Assess
SIG	Special Interest Group
SIMAP	Information of the public procurement in Europe
SLA	Service Level Agreement
SME	Small and Medium-sized Enterprises
SNA	Social Network Analysis
SNIA	Storage Networking Industry Association
SVD	Singular Value Decomposition
TED	Tenders Electronic Daily
TC	Text Categorization
TFIDF	Term Frequency - Inverse Document Frequency
TID	Topic Identification
TM	Text Mining
TT	Text Topic
UfAB	Document for tenders and evaluating IT services
USP	Unique selling point

VgV	Regulation on the Award of Public Contracts
VOB	Contract Awards for Construction Services
VOF	Contract Awards for Freelance Services
VOL	Contract Awards for Public Supplies and Services
WoM	Word of Mouth

1 INTRODUCTION

*"Opinion is the kitchen in which all truths are slaughtered,
plucked, chopped, stewed, and seasoned."*

Ludwig Börne, German journalist

1.1 OPINION LEADER AND THEIR INFLUENCE ON CAPITAL GOODS

Over the past decades traditional consumer behavior has been revolutionized across all product segments and industries. Technological progress has found its way into all aspects of life, enabling an unprecedented market transparency. The Internet, in particular, has a long-lasting effect on buying behavior, as it provides immediate satisfaction regarding information needs on products and brands, and it enables direct price comparison. At the beginning of 2013 already four out of ten Internet users (43%) in Germany under the age of 35 acquired information online. According to a study by the market research and polling company IPSOS, with two thirds on a world-wide scale the number is even higher (Ipsos GmbH, 2013b). In the times of Web 2.0 and the success story of social media that goes along with it, the importance of referrals and reviews has been constantly increasing. More than 45% of Internet users collect specific information on products and brands using Facebook, Google+, Twitter, etc. Further, every fifth German national shares articles or videos via the Web. The basic search for information fades more and more into the background, as users actively share and defend their opinions and attitudes, give recommendations and sometimes even see it as their mission to convert other users (Ipsos GmbH, 2013a, 2013b). A study has shown that mainly products with a low investment character, such as electronics and books, are reviewed and advertised by consumers today (Bakshy et al., 2011).

For companies these "referrers" have become an important factor of success in corporate development. Due to the high level of market transparency, it is no

longer the corporate image, but rather the customers' opinion on offers, products and services that decides about success or failure (Marcotte, 2001; Saravanakumar and SuganthaLakshmi, 2012). Traditional advertising is becoming less and less effective and is increasingly ignored due to the target group's selective perception (Singh, Becker and Williams, 2010). Therefore, the importance of referrers has changed considerably over the past years. In this context they are commonly known as multipliers or opinion leaders who have a great outreach due to the Internet today. Opinion leaders actively impact consumer behavior, they create a feedback channel for product development, and they even act as multipliers regarding successful sales strategies. A great number of publications is available on this topic that analyze the business-to-consumer (B2C) market in particular and that have developed extensive strategies on identification and managing of opinion leaders within the framework of referral marketing, e.g. (Brown and Hayes, 2008; Li and Du, 2011; van der Merwe and van Heerden, 2009; Pang and Lee, 2008; Valente and Pumpuang, 2006; Abdel-Ghany, M. M. M., 2012) and (Aggarwal, 2011).

Although there have been distinct and extensive studies published regarding the consumer products industry, they can hardly be applied to the segment of capital goods, i.e. the business-to-business market (B2B). This segment is characterized as the exact opposite of the mass market: a high investment character, long lifecycles, high cognitive control, explicit decisions, etc. Information technology (IT) is a particular and complex representative of the capital goods industry (Hofmann et al., 2012). It also distinguishes itself by means of short product lifecycles, disruptive technology (Wessel and Christensen, 2013) and a high investment character that has a considerable influence on the effects of costs and utilization (Schumann and Linß, 1993). In this segment, the perceived impact on purchase decisions strongly differs from the insights derived from the mass market, as proven by Gartner in a survey among decision makers in August 2013 (Gartner Inc., 2013h). According to this survey, highly educated purchasers believed they were only barely influenced by social media, press releases or traditional advertising today, or that this practically did not apply to them at all. On the contrary, direct interaction with the manufacturer and referrals by customer references are still experienced as relevant.

Due to the industry's specific nature, such as short product lifecycles, this recognition has considerable consequences for IT manufacturers, as success is defined by unique selling points (USP) and the associated competitive advantage that must be communicated and turned into successful sales in the shortest possible time. However, a multiplier effect is only created by actively addressing the opinion leaders of all types of communication media. The particular challenge: Over time, IT products with a clear competitive advantage, which temporarily created USP for the manufacturer, degenerate to mass-produced goods comparable with competitors' products. The consequence: Products – either based on their main features or the main benefit – are only differentiated via the price. Rogers describes this cycle, which is generally known as diffusion theory, in his book *Diffusion of innovations* (Rogers, 1995). Gierl also referred to this paradigm in 1995 and explicitly pointed out possible substituting relationships of different providers (Gierl, 1995). The connection between USP and pricing is particularly important in this context. The more distinct and extensive a manufacturer's USP, the more influence he has on the price competition and price policy. By implication, the necessity of considering possible competitive offers is reduced (Lacity, 2002). The manufacturer's goal is to prevent a product from degenerating to a mass-produced article and the exclusive differentiation via the price that goes along with it. When it comes to a price war, the manufacturer should have a substantial strategy for avoiding this development. By combining different (product) features the manufacturer tries to generate one or several new (artificial) USP to purposefully influence partners, customers and tenders. This approach is also referred to as the "educate your customer" approach (Lacity, 2002; Ingram, 2007), which is not least accomplished by the opinion leaders acting as multipliers. (Ebener and Buchkremer, 2015: 348 et seq.)¹

With the transparent process of (public) tenders, the IT industry is offering a possible procedure to evidence the power of opinion leaders resp. the manufacturers' strategy to create artificial USP and to place them on the market. This approach does not limit the participants of the tendering procedure beforehand, and an unrestricted number of companies is requested to submit a tender (Schulz, 01.09.13). The economic importance of public procurement is a substantial eco-

¹ The author has published a paper about the influence of different vendors on public tenders as part of the book "Markt- und Absatzprognosen" (Gansser and Krol, 2015).

conomic factor for Germany and Europe. Public contracting entities spend around 19% of the gross domestic product on deliveries, services and construction works. This corresponds to a volume of more than 2.5 million tenders with a contract value of approx. 496 billion euro. The public sector including the local communities therefore represents the biggest individual consumer on the German market (Europäische Gemeinschaften, 05.12.12). In the information and communications technology industry (ICT) the federal government, federal states and the local communities are even responsible for a fifth of the turnover, and according to the industry association BITCOM they will invest about 20.9 billion² euro in IT in 2014 (Zimmermann, 03.12.13). (Ebener and Buchkremer, 2015: 349.)

The public tender should be phrased in a non-discriminating way and correspond to the requirement of social sustainability criteria and tendering procedures according to economic factors. Therefore, it is not permitted to display protected brand names or to mention manufacturers, products or procedures in specifications for tender, as these would narrow down the competition. In actual fact, the product-neutral tender is a statutory requirement (cf. II.7 of the comment on §8 EG /VOL/A “Product-neutral tender”). In this context, the aim is to circumvent this aspect in the interest of the manufacturers and their opinion leaders, and to take advantage of the existing lack of clarity regarding procurement law. According to Dietzel, there is a suspicion that a great number of tenders have already been influenced before they were published (Dietzel, 2011). This assumption is also supported by Prof. Dr. Belz, Executive Director of the University of St. Gallen, among others: *“At the time a tender is published, it is actually already too late”* (Belz, 2013).

The techniques of business analytics are applied in the focus of analyzing public tenders and the potential influence of opinion leaders referred to above in order to recognize patterns and coherences and to gain insights by means of mathematic-statistical procedures. Above all, the industry applies business analytics, referred to in the context of the keyword “big data” in the past, in real-time analysis and for the processing of strongly growing amounts of unstructured data (Zacher, 2012). Text mining, as a method of business analytics, furthermore enables the extraction of high-quality information from texts.

² This amount also takes salaries into account.

1.2 RESEARCH QUESTION

The social significance of opinion leaders as well as their relevance for the consumer goods industry is widely accepted and has already been evidenced by numerous publications. Research from the last seven decades primarily deals with the identification of opinion leaders as well as their characteristics. Furthermore, scholars tried to connect the success of opinion leaders with the climate change, the public swing of opinion and even Hollywood blockbusters, to name a few examples (cf. Table 1).

Table 1: Description of the Research Gap by Classification of Previous Publications in the Opinion Leader Environment [source: own representation]

Opinion Leader Research			
Business Relationship:	Characteristics	Identification	Performance Measurement
Society or other things of public interest	(Ertekin and Atik, 2012); (Iyengar, van den Bulte and Valente, 2011); (Crittenden, Hopkins and Simmons, 2011) etc.	(Abdel-Ghany, M. M., 2012); (Doumit et al., 2007) etc.	(van den Brink, R., Rusinowska and Steffen, 2013); (Nisbet and Kotcher, 2009)
Consumer Industry (B2C)	(Gnambs and Batinic, 2013); (Venkatraman, 1990); (Chan and Misra, 1990) etc.	(Momtaz, Aghaie and Alizadeh, 2013); (Chakrabarti, 2013) etc.	(Schwarz, Hunter and LaFleur, 2013); (Clement, Proppe and Rott, 2007); (Yu et al., 2012)
Capital Goods Industry (B2B)	(Valente and Davis, 1999); (Webster Jr., Frederick E., 1970); (Martilla, 1971)	(Fenton and Leggett, 1971)	Research Gap

However, moving away from the social context resp. the mass market, and dealing with the segment of capital goods, there is a considerably lower amount of studies and scientific publications available. Although it is beyond dispute that opinion leaders can also be found in this segment, asserting their influence and expertise, there has been a lack of empirical evidence regarding their success rate. This evidence is particularly difficult to obtain due to the lack of transparency in many companies' investment policy. Consequently, the opinion leader success rate is not based on measuring the opinion leadership (score) or their potential influence resp. their range, but rather on verifiable and measurable facts. These kinds of facts create a direct competitive advantage for companies. The public tender is particularly well-suited for evaluating the success or the effectivity of opinion leaders, as this tendering procedure represents a transparent document in the decision-making process. Even if it is difficult to prove the impact of opinion leaders on public tenders due to the economic importance and a relatively complex legal situation regarding possible accusations of distortion of competition or lobbying, these documents open up a source of information that has not been observed so far.

Techniques of modern business analytics, e.g. data mining and text analytics, are aimed at finding evidence regarding the influencing of public tenders, and at extracting novel structures of meaning from unstructured texts. Purposeful data refinement therefore not only makes it possible to answer retrospective questions – “How was the tender influenced?” – but also to develop forecasting models – “How likely is it that...”. In this context, special attention should be paid to the application of text analytics. Today at least 80% of all information is available in the form of texts, despite the fact that analyzing texts in large quantities was only made possible by the technological progress of the past decade, which helped to acquire its economic importance. Due to its relatively short history, the application of text analytics methods offers a considerable potential with regard to the fields of application as well as types of analysis. However, it is a particular challenge to ascertain these potentials which are always domain-specific and first require extraction by a data analyst, among others.

In conclusion, the following research question can be derived as a principal theme of this dissertation: Which insights can be gained from opinion leaders

regarding their importance and impact in the context of public tenders with the help of business analytics techniques?

Based on this problem, different objectives are developed in the course of this dissertation, illustrated by the following questions:

- Which are the factors influencing the drawing up of public tenders?
- Which are the existing strategies for influencing public tenders? Which are successful? Which can be empirically proven?
- How can business analytics techniques be used to develop a forecasting model to determine the probability of success for a public tender?
- How can opinion leaders be identified in the capital goods industry? What is the difference to market leaders?
- How can opinion leaders be purposefully deployed in the capital goods industry?

Bridging this research gap enables a completely new glance behind the scenes of the public tender, including the role of the opinion leaders. It is doubtless that this will make their ultimate success in influencing decisions visible on the transparent object of the public tender. The clear focusing on the capital goods industry and the application of new techniques in the shape of business analytics are breaking new ground. The research gap therefore also takes Flynn et al.'s hypothesis from 1996 into account according to which opinion leadership is product-specific and therefore one-dimensional. Consequently, it is also only possible to measure product-specific influence instead of general opinion leadership (Flynn, Goldsmith and Eastman, 1996).

1.3 THE INTELLECTUAL CHALLENGE

The outlined research question has already shown that the problem refers to an interdisciplinary field that has to combine a number of different aspects. So far this holistic approach has not been considered in literature, and the new technological possibilities of business analytics techniques have not yet been tested. With regard to the context of public tenders in particular, state-of-the-art methods, as discussed in several pieces of literature, are not satisfactory. Furthermore, the problem of influencing public tenders has not yet been referred to in relevant literature.

Merging an interdisciplinary research field, which mainly comprises the areas of business analytics, opinion leader identification and management, corporate communication, referral marketing as well as the importance of public tenders, including their laws and regulations, presents a challenge. With regard to the great number of various aspects, current studies, sources of information and research results, this dissertation implies an elaborate research task.

Applying the techniques of business analytics to the domain-specific context of public tenders is one of the focal points. Therefore, the challenge is to develop prototypical measures for extracting entities as well as facts, to identify topics and trends, and to classify and forecast results from a public tender. This requires the development and testing of an individual domain-specific ontology as well as understanding state-of-the-art data mining algorithms.³

Furthermore, the diversified results must be transformed, evaluated and interpreted to enable a validation with the results of the expert interviews by the different groups. Observing a development over time thereby poses a specific challenge. Finally, the findings must be applied to opinion leader management.⁴

³ The conceptual ideas and developed models of this dissertation were presented by the author at the SAS Institute User Conference on 22. September 2015 SAS Institute Inc., "Data Mining Anwendertag," 2015, http://www.sas.com/de_de/events/15/dmat-2015-gms8708/agenda.html, accessed August 2015.

⁴ The author is research fellow of the Institute of Statistics and empiricism (ifes) of the University of Applied Sciences for Economics and Management: <https://www.fom.de/forschung/institute/ifes/organisation.html#!acc=research-fellows>, accessed January 2015.

1.4 METHODOLOGY & RESEARCH OBJECTIVES

The underlying method applied in this dissertation is oriented on the procedure of empirical investigation according to (Bortz and Döring, 2009). First of all, an extensive literary analysis is carried out in the course of secondary research. The source of information thereby comprises publications, journals and conference proceedings, current studies by market research institutions and conferences among others, as well as generally available specialized literature on the topics of business analytics, opinion leaders and public tenders. In the course of the domain-specific analysis, whitepapers, manufacturers' websites and corporate communication media will also be considered in the process of secondary research.

Primary research is mainly based on two different pillars, aimed at verifying the findings of the respective other. For this purpose, texts from public tenders are systematically analyzed and evaluated in an experiment using modern techniques of business analytics. The data used for the analysis originates from public tenders that are regularly published via the various communication media of the European Union, the federal government and the federal states.⁵

In addition to the text mining analysis⁶, the expert interview represents a second important empirical method of examination. The specific weaknesses of the computer-assisted text mining analysis are balanced out by the strengths of the expert interview. Combining these independent methods ensures the safeguarding of the results. This is also referred to as triangulation.

⁵ Presented under the title "How to Actively Influence a RFP/Tender and Win" at the conference: "NetApp Insight 2014" in Las Vegas (27.-30.10.14) and Berlin (17.-20.11.14)

⁶ The author has been working for several years with text mining analysis and supports numerous research works and papers, e.g. the conference lecture for the European Conference on Data Analysis (Presented by K. Lübke) Ebener et al., *Performance of Text Mining of open question vs. Likert-Scale questions in predicting learning outcomes* (Colchester, 04.09.2015), <http://ecda2015.com/>, accessed August 2015; The conference lecture for the 5th International Conference on Dynamics in Logistics and 7th Conference on Management and Control of Production and Logistics (Submission by M. Klumpp) Ebener et al., *Logistics Dynamics and Demographic Change* (Thoben, 2015), <http://ldic-conferende.org/>, accessed September 2015

Furthermore, expert interviews of two groups with various orientations are also carried out for data compilation purposes, in addition to textual analysis. Two questionnaires were developed for this reason, the content of which was subsequently discussed and revised in a workshop with industry representatives. This step implies that, already at an early point, the survey was enriched with expert knowledge. Furthermore, the final versions of the questionnaires were objectively reviewed by an independent specialist advisory committee to assure the quality of the content.

First of all, target group 1 consists of persons who develop public tenders or conceptualize submissions to facilitate the decision-making process in relevant departments of tendering authorities. The selection of the public authorities took place randomly and is solely based on the collected tenders. The selection can therefore contain influenced as well as neutral documents.

Target group 2 consists of persons who can be described as cooperating partners with a point of intersection with the public sector. This includes companies offering consulting services for the development of public tenders. The term “partner” is used in this thesis as a synonym for reselling partner as well as a system house⁷.

All expert interviews are based on a semi-standardized survey carried out face to face and using open questions. This questioning technique was selected to keep the replies as spontaneous as possible without giving the questioned persons the opportunity to phrase their answers beforehand. The interviewees took part in the study by their own accord; no incentives were offered. They were informed about the requirements and the confidential handling of the collected data, however they were not notified of the aim of the survey to avoid distorted answers.

Due to the considerably explorative nature of the expert interviews the questionnaires were evaluated based on qualitative content analysis according to (Gläser and Laudel, 2010). Data analysis of the text documents is based on auto-

⁷ A term used rather loosely to describe a company that designs and produces complete bespoke systems, containing both hardware and software. While some of the components will be bought in, the use of the term implies that the company has a serious capability in both hardware and software. (Daintith, 2015)

mated software-assisted processing, assessment and content interpretation. Specific software by the SAS Institute⁸ will be applied in the framework of cooperation with the University of Applied Science for Economics and Management in Essen, Germany. SAS is one of the few companies which enable the use of new techniques and methods of investigation to overcome the challenges of Big Data with enterprise mining.

Based on the research question and the derived objective of the study, as well as the intellectual challenge and the methods applied, the following research objectives can be determined for this dissertation:

- Examining the domain of business analytics and the more specific techniques of data mining and text analytics; differentiation from basic data retrieval.
- Examining the domains of opinion leader identification and management, referral marketing and corporate communication in the context of public tenders.
- Analyzing the laws and regulations of public tenders in Europe; evaluating differentiations and differences from German laws.
- Reviewing the examination results and evaluating state-of-the-art methods of data mining resp. text analytics in order to analyze tender specifications.
- Developing a process model based on text mining for the analysis and identification of opinion leaders using public tenders.
- Developing a domain-specific ontology for systematically analyzing public tenders in order to identify concealed influential characteristics specific for the manufacturers.

⁸ SAS Institute Inc.: Vendor of statistic and business intelligence software

- Implementing a method of forecasting a public tender's prospect of success.
- Demonstrating the developed process model in the shape of an experiment on the research object of "storage".
- Drafting of questionnaires on conducting expert interviews by tendering authorities and cooperating partners with the objective of triangulating the findings.

1.5 SCOPE AND LIMITATIONS

The interdisciplinary research field of business analytics as well as public tenders can be described as complex and multi-faceted. In this context it is inevitable to focus on or differentiate certain aspects to give a purposeful answer to the research question. Therefore, the dissertation specifically deals with the segment of capital goods, a segment in which the examination of the influence of opinion leaders has so far been underrepresented. Public tenders are particularly suited to evaluate the success resp. the effectiveness of opinion leaders, as this tendering procedure represents a transparent document in the process of decision-making. In the field of capital goods, another differentiation is made regarding a specific market segment, in order to account for the requirements of the high domain specificity. This is important in particular with regard to developing and dealing with the ontology. "Storage" is the market segment that has been selected for this dissertation.

The dissertation does not focus on identifying individual opinion leaders as individuals, but rather on proving their influence in the context of public tenders. For this reason not all variations of opinion leader identification will be examined with regard to their applicability, but introduced in a wider context. The methods of business analytics will also be presented, however, they will be used exclusively for analyzing the public tender within the framework of this dissertation. Therefore, these approaches will not be explained based on their underlying mathematical procedures.

1.6 ORGANIZATION OF THE DISSERTATION

The dissertation is organized in line with the progress of the examination based on decision logics and is therefore subdivided into five main chapters: introduction, review of the relevant research, experimental application of the conceptually new approach, triangulation of the performed experiment using expert interviews as a tool, presentation of the results and conclusion. Before providing a compact summary of each chapter, Figure 1 displays the setup of the dissertation and the most important connections.

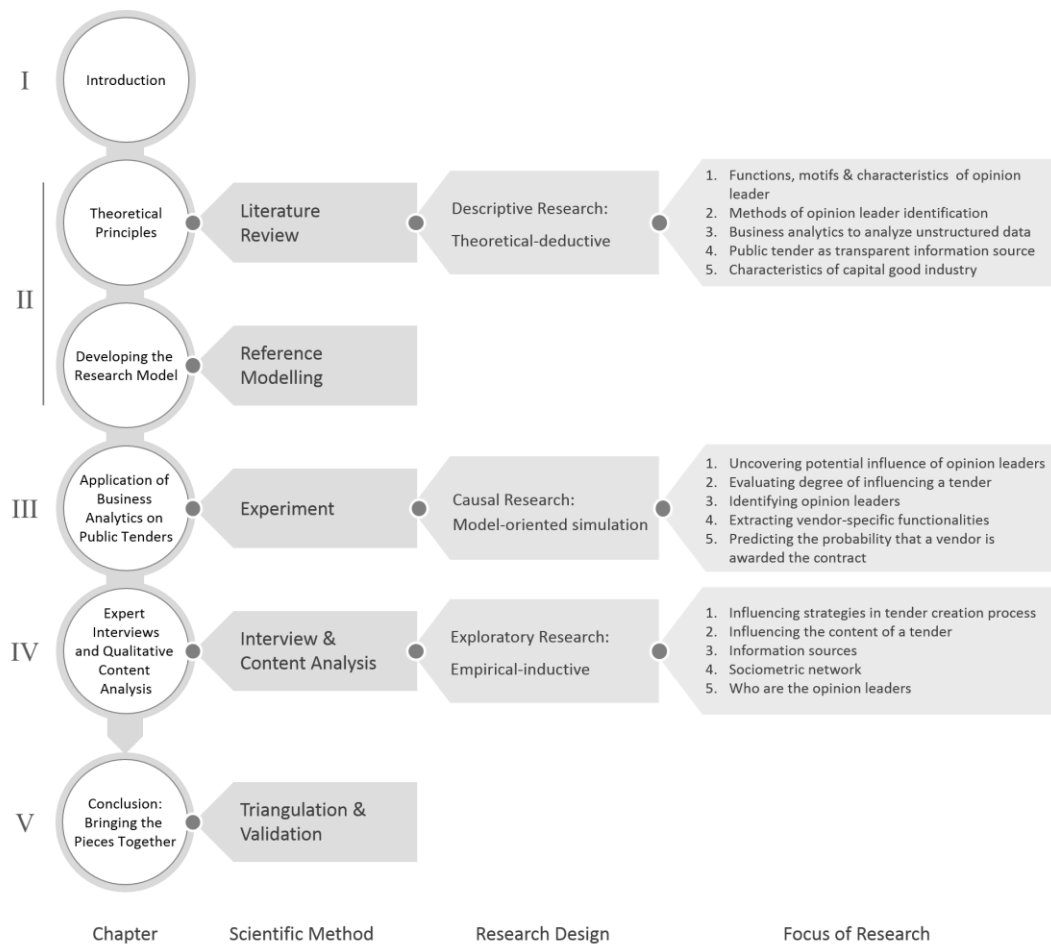


Figure 1: Organisation of Dissertation Chapters [source: own representation]

Chapter 2 provides an overview of the existing research literature as a basis of the dissertation. Since this is an interdisciplinary field, there is a subchapter for each of the topics. The first subchapter deals with the most important matter, the basics of opinion leader research. The new approaches and methods of business analytics are used to identify and manage opinion leaders, which is why the second subchapter deals with the topic of text and data mining. All analyses are carried out based on public tenders in information technology, which distinguish themselves by means of particular characteristic features and therefore have to be regarded in the context of the capital goods industry. This is referred to in subchapters three and four. The conclusion of the literary research part leads to the development of a model for answering the key research question.

Chapter 3 deals with the experimental application of business analytics methods to public tenders from the “storage” system. It combines the findings from opinion leader research with conceptually new approaches of text mining. Altogether four different models are used to verify whether, how and to which degree opinion leaders influence public tenders.

Chapter 4 deals with the expert interview as a tool for the subsequent triangulation of the findings from the text mining analysis and the results of the survey. The chapter refers to the key question of in how far the individuals involved in the procurement process are able to exert influence resp. to which extent they actually do. The development of a sociometric network is drawn on in this respect. Furthermore, the method of self-designation for identifying opinion leaders is also applied.

The final **chapter 5** rounds off the dissertation with the compilation and presentation of the results from chapters 3 and 4 as well as a review of the most important objectives. In addition, this chapter offers significant contributions for research and recommendations for dealing with opinion leaders. The dissertation concludes with a prediction on a potential further object of research and a final remark on the entire dissertation.

2 THEORETICAL PRINCIPLES: FACTS OR OPINIONS – WHO CARES?

*“Your assumptions are your windows on the world.
Scrub them off every once in a while, or the light won’t come in.”*

Isaac Asimov, American author and professor of biochemistry

Chapter one provided a compact introduction to the topic of the influencing of public tenders by opinion leaders and proposed the central research question. In addition to the particular intellectual challenge, the setup of the dissertation was also explained. The current chapter now provides the necessary basics on the four pillars of the examination. This includes extensive literary research, the definition of the most important terms as well as the analysis of the publications on opinion leader identification and management, on business analytics techniques for analyzing unstructured data, on national and European procurement law, as well as an explanation of the capital goods industry. Before concluding the chapter with a summary of the most important results, a process model for analyzing public tenders and identifying opinion leaders is developed. This model is the key element of the dissertation and a basis for the experimental approach carried out in chapter three. It combines the findings of opinion leader research with the new conceptual approaches of text mining, and applies this result to the object of research, i.e. the public tender in the “storage” system.

2.1 FUNDAMENTALS OF OPINION LEADER IDENTIFICATION AND MANAGEMENT

The opinion leader concept has been a research topic for more than seven decades, which has undergone comprehensive examination in numerous studies and publications. Opinion leadership has turned out to be a specific aspect in the diffusion process of innovations (Rogers, 1995; Valente, 1996; Menzel and Katz,

1955) as well as in research literature on marketing (Goldsmith and Clark, 2008; Coulter, Feick and Price, 2002). Therefore, writing off the topic of opinion leadership as yesterday's news immediately comes to mind. However, the opposite is the case. Thanks to the development new forms of communication the concept is more topical than ever.

With the rise of fast and digital communication technology traditional communication models have undergone fundamental change and further development in the past years. While vertical communication used to be the measure of all things and vendors and brands communicated directly with their target group, the triumph of the Internet has brought about a more and more horizontal type of communication (cf. 2.1.2.1 – *Opinion Leader in the Communication Model*). This is characterized by consumers indirectly advertising for consumers or providing product reviews (Marcotte, 2001). In the past years social networks such as Youtube or Facebook have once more catalyzed the influential effect (Belvaux and Marteaux, 2007). The concept distinguishes itself by the fact that a relatively small group of consumers has a great influence on the community (Heymann-Reder, 2011). This becomes especially obvious regarding the success of new movies. Social interaction via digital platforms, i.e. praise or criticism by movie buffs, has a decisive impact on the success or failure of a blockbuster, and is furthermore actively sought by potential viewers (Debenedetti, 2006).

Even if the consumer goods industry offers plenty of examples in which social media marketing significantly led to the success of a product (Saravanakumar and SuganthaLakshmi, 2012; Shoham and Ruvio, 2008), the classic types of communication should not be neglected. This applies especially to the capital goods industry (cf. 2.4 – *Definition and Characteristics of Capital Goods*) which has hardly found any consideration in the examinations to this day. Gartner gave proof of this in a current study. Decision-makers in a segment of the capital goods industry were asked which forms of communication were most likely to influence them in their decisions (cf. Figure 2). According to their statements, only 15% of the individuals felt that they were heavily influenced (rating of 6-7) by social media when it came to decision-making. Compared with sales presentations (26%), references (45%) or the classic concept of direct interaction with the vendor (56%), this is an extremely low value.

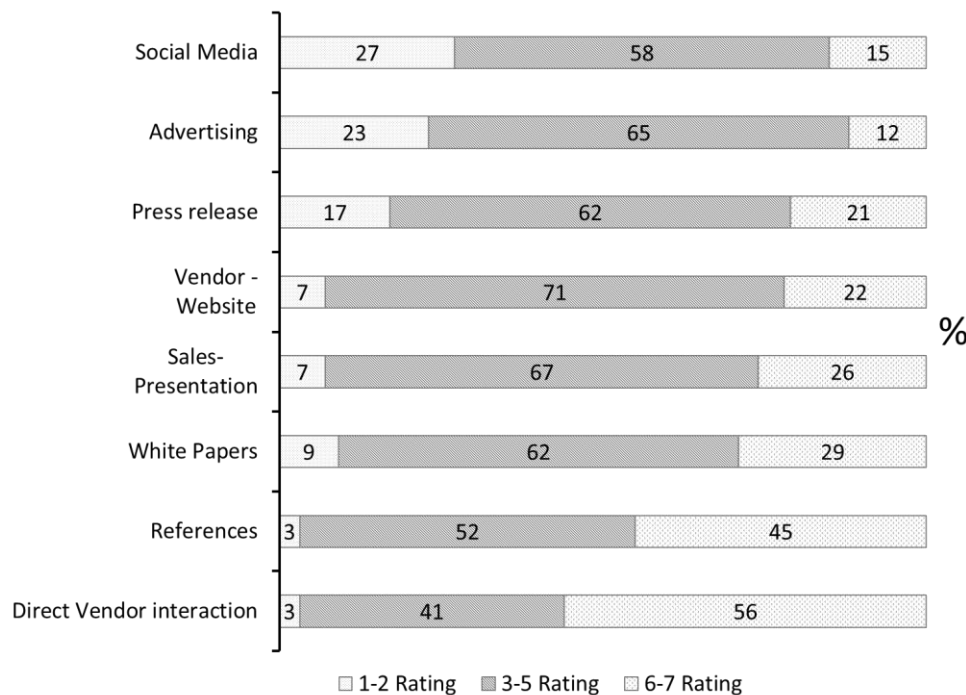


Figure 2: Perceived Factors Influencing a Purchasing Decision [source: own representation based on (Gartner Inc., 2013h)]

However, the presented study should not be regarded without criticism. Already in 1968 Ozanne and Churchill evaluated various sources of information in the decision-making process and discovered that informal sources (e.g. purchasers from other companies, i.e. references) had relatively little impact on the industrial decision-making process (Ozanne and Churchill, G. A. Jr., 1968). A few years later these findings were once again confirmed by Webster, who was also able to exclude friends and acquaintances as influencers (Webster Jr., Frederick E., 1970). Booth and Babchuk put this into perspective regarding the fact that for the predominant part isolated individuals tended to ask business partners, friends or acquaintances for their advice on important decisions (Booth and Babchuk, 1972). Ozanne’s, Churchill’s and Webster’s findings are surely due to the fact that back then and today mostly (complex) buying centers have been established for far-reaching decisions. On this understanding there is a concept that becomes considerably more important in the influencing of decisions – the opinion leader (Martilla, 1971).

The following subchapters will basically explain the concept of the opinion leader (cf. 2.1.2 – *Origin and Definition Opinion Leader*), his tasks (cf. 2.1.3 – *Functions of Opinion Leaders*), motives (cf. 2.1.4 – *Motifs for Opinion Leadership*) and characteristics (cf. 2.1.5 – *Characteristics of Opinion Leaders*) as well as the methods of identification (cf. 2.1.6 – *Methods of Opinion Leader Identification*). Lastly the author will also refer to the recommended interaction with opinion leaders (cf. 2.1.7 – *Methods of Opinion Leader Management*).

2.1.1 Opinion Leader – A Metadata Analysis

The theoretical overview of the topic of opinion leaders is based on intensive literary research. Altogether 213 publications were reviewed, catalogued and classified. Before examining the content of the topic in the following subchapters, a metadata analysis provides insight into the historical course of the research in this field. First of all, Table 2 provides an overview of the most important terms, their frequency on the Internet as well as the documents from various sources associated with the terms. It is quite remarkable that the term of opinion leader identification generates the highest number of hits, but entails the lowest number of publications at the same time.

Table 2: Hit Frequency in the Opinion Leader Environment [source: own representation; data collection: May 2015]

	Google	Google Scholar	Science Direct
Opinion Leader:	147,000,000	1,900.000	68,773
Opinion Leader Identification:	180,000,000	983,000	20,510
Opinion Leader Management:	129,000,000	1,380,000	42,365

The compiled and analyzed research literature can be classified on the basis of different aspects such as the field of research, the applied method and potential mathematical procedures. Figure 3 displays the distribution of publications with respect to the field of research and the distribution according to the year of publi-

cation. 45% of the documents deal with the identification, verification or occurrence of the characteristic features of opinion leaders. The method of self-designation, which is often combined with a survey, represents the primary research approach. Different tools are used for assessing the data, including the chi-square goodness-of-fit test, the factor analysis and the grounded theory through to simple regression or correlation analyses. Furthermore, scoring procedures and network analyses are also applied to the research field of opinion leader identification.

The distribution with respect to the year of publication shows that more than half of the documents originate from the last 15 years, but that continuous research has been conducted in the field since 1940.

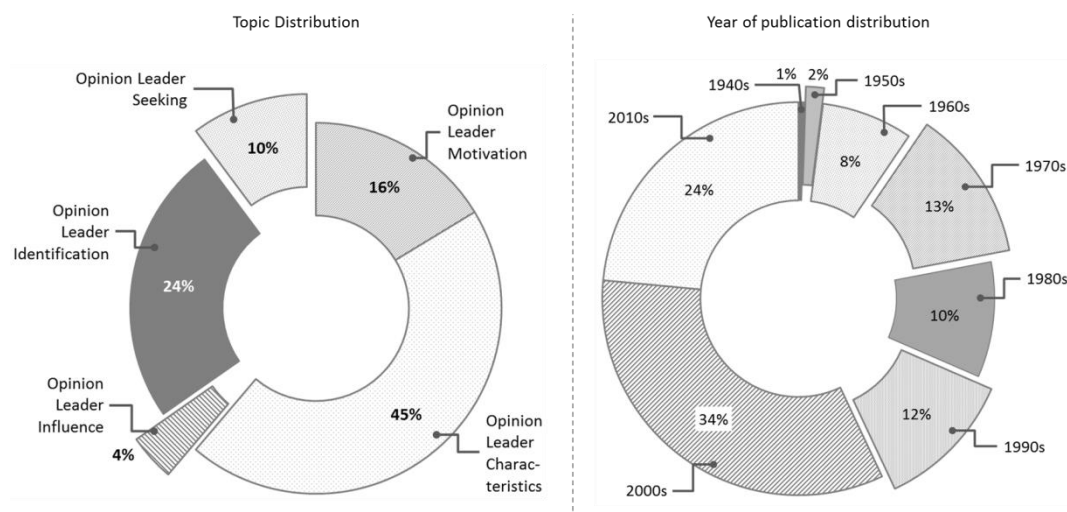


Figure 3: Meta Data Analysis of Considered Research Literature [source: own representation]

In addition to the content-specific examination and presentation of the 213 publications, it may also be of interest to carry out an in-depth analysis of the literary sources that were drawn upon respectively. The 213 primary sources use 2,314 publications altogether. Adjusting this number by eliminating duplicates leaves 1,691 individual literary sources. Based on an individually developed algorithm, it is possible to analyse the different citation relationships, which generates further interesting findings. According to this approach, Valente's "Social net-

work thresholds in the diffusion of innovations" (Valente, 1996) is among the publications most cited out of the 1,691 documents. "The People's Choice" by Lazarsfeld, Berelson and Gaudet (Lazarsfeld, Berelson and Gaudet, 1944) comes in second and "Diffusion of innovations by Rogers (Rogers, 1995) third. In a first step, only the direct relationships were considered for the analysis, in the full awareness that there were also cascading relationships.

2.1.2 Origin and Definition Opinion Leader

Opinion leaders are regarded as multipliers with respect to a vendor's reputation and they take a considerable share in the success of products, services and brands. Marketing managers are interested in assessing whether mass communication or the deployment of sales employees make a significant difference to opinion leaders in the distribution of product information (Schiffman and Gaccione, 1974; Singh, Becker and Williams, 2010). The question that comes up is which medium has the most influence on an individual. Brown fittingly elaborates that "influence" should be regarded as a complex matter that cannot be ascribed to an individual attribute (Brown and Hayes, 2008). Nevertheless or rather exactly for this reason there is a great number of studies intended to measure the performance of different types of communication. But what kind of relevance and position do opinion leaders hold in the theoretical communication models and how do they distinguish themselves from market leaders or market mavens? This matter will be examined in the following two chapters.

2.1.2.1 Opinion Leader in the Communication Model

Purchase decision-makers have three different sources at hand to obtain information on offered products. One source includes channels managed by advertisers, such as advertising, packaging, etc. In this case the provider has a direct impact on the type and content of the information that is provided. Neutral sources such as reports by the leading German consumer safety groups Stiftung Warentest or Ökotest are a different possibility. In this case the consumer obtains allegedly objective information, as the sources state that they do not benefit from the preference of any specific product. However, today this neutrality is often questioned. The third source refers to interpersonal communication which is nei-

ther managed by advertisers nor is it allegedly neutral. It is defined by consumers themselves and represents the exchange of information between two or several individuals in their personal sphere.

According to empirical studies, interpersonal communication plays an important part when it comes to decision-making and purchase decisions. Personal contacts neither claim to be neutral nor are they obviously controlled by advertisers. Interpersonal communication achieves the highest credibility of the three possible sources of information. Hence, it is not surprising that consumers tend to rely more on informal or social sources regarding their search for information than on official brand messages (Flynn, Goldsmith and Eastman, 1996; Berkman and Gilson, 1986; Homans, 1961). The term of interpersonal communication refers to conversations, experience reports or advice among two or several individuals exchanging this information. This is where personal influence that has an impact on opinions or behavior takes place (Dressler and Telle, 2009). Therefore, interpersonal communication has wide-ranging consequences. In a study on stainless steel blades Sheth was able to prove that about 25% of the subjects who had received a recommendation subsequently also tried to convince other individuals (Sheth, 1971). This means that there is a strong correlation between those searching for information and those providing it. People who are often asked for advice will just as often ask for advice themselves (Schiffman and Gaccione, 1974).

Table 3: Comparison of interpersonal communication and mass communication
[source: own representation based on (Schenk, 2007: 6.)]

Characteristics	Interpersonal communication	Mass communication
Communication flow	Tendency towards bi-directionality	Tendency towards two-sidedness
Context of communication	Direct	Mediated
Possibility to give feedback	High	Low
Ability to overcome selective processes	High	Low
Pace of distribution	Relatively slow	Relatively fast

Effect	Image creation and change	Change of knowledge
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Nevertheless, completely avoiding mass communication is unrewarding. Instead, interpersonal and mass communication should be complementary, because they fulfil different functions, as shown in Table 3. While mass communication creates specific knowledge structures, the communicated topics are taken up in interpersonal communication, simplifying the selection by adding aids to interpretation such as opinions and evaluations (Schenk, 1995).

Due to the involvement of opinions, values and emotions, interpersonal communication spreads at a slower pace, yet it is seen to have a greater impact regarding the effect on consumers (Rogers and Shoemaker, 1971; Vollbrecht, 2001).

According to Turnbull and Meenaghan, interpersonal communication is especially relevant if the perceived risk of purchase is particularly high, i.e. if investment is high, if there is little objective information available or if the product has a highly symbolical or social value (Turnball and Meenaghan, 1980). Müller et al. also confirm the more intensive search for purchase recommendations the higher the risk (Müller, Gelbrich and Wünschmann, 2008). Therefore, the use of key informants reduces insecurity (Clement, Proppe and Rott, 2007; Black, 1982; Childers, 1986; Dickerson and Gentry, 1983; Hirschman, 1980; Price and Ridgway, 1983; Riecken and Yavas, 1983) and the influencer's opinion becomes the decisive factor for one's own opinion and decision-making process (Bearden, Netemeyer and Teel, 1989; Robinson, 1976).

Many marketers try to participate in the established power of the opinion leader by word-of-mouth (WoM). This can be accomplished both offline as well as online (Kaiser, Kroeckel and Bodendorf, 2013). The process of influencing is particularly successful if the target audience represents a rather small group instead of a large amount of people (Rogers and Shoemaker, 1971). In the recent past the traditional approach of word-of-mouth marketing in interpersonal communication has been increasingly complemented by the exchange of information via the Internet (Veronette and Flores, 2004). This enables companies to approach completely new word-of-mouth strategies (Veronette, 2006), e.g. based on the different

opinion leaders on the Internet, their influence on consumers, decision-makers as well as their social environment (Keller and Berry, 2003) and the distribution of information via forums, discussion groups and social media (Goldsmith and Horowitz, 2006; Bailey, 2005; Stauss, 2000; Burton and Khammash, 2010). Hennig-Thurau et al. thereby define eWoM (electronic word-of-mouth) as the positive or negative expression of opinion by a former, current or potential consumer on a product/company, which is accessible to the public at large via the Internet (Hennig-Thurau et al., 2004). In this context, the increase of consumer-to-consumer interaction signifies a loss of control for advertisers who consequently suffer a loss of influence on the consumers' information behavior (Godes and Mayzlin, 2009). As an example, there are implicit communities that have the purpose of exchanging information and reviews on products (Resnick and Varian, 1997; Resnick et al., 2000; Schafer, Konstan and Riedl, 1999; Burton and Khammash, 2010).

Furthermore, there are individuals and groups of individuals who are assigned with a special role within interpersonal communication. They distinguish themselves by means of a high social and communicative competence as well as considerable specialist knowledge regarding specific topics, which enables them to exert a strong influence on other people's decision-making process (Engel, Blackwell and Minard, 1990; Chau, P. Y. K. and Hui, 1998).

The term of opinion leader originates from 1944 when the scholars Lazarsfeld, Berelson and Gaudet established that mass communication via the media had no direct impact on voting decisions based on their study "The People's Choice" on the elections of the American president. Instead, they proved that this information was conveyed to less-informed individuals via self-appointed opinion leaders (Lazarsfeld, Berelson and Gaudet, 1944; Berelson, Lazarsfeld and McPhee, 1954; Lazarsfeld, Berelson and Gaudet, 1944). This circle has a high social and professional reputation and thereby obtains a high relevance in the process of forming and changing other people's opinion (Roch, 2003). In 1969 Lazarsfeld concluded that there were specific individuals in every area and in the context of any publicly aware problem who dealt with these matters intensively and who commented on them the most. These individuals are referred to as opinion leaders (Lazarsfeld, Berelson and Gaudet, 1965), cited after Jäckel (Jäckel, 2011: 126.). Due to their decisive role in the influencing of the market, opinion leaders have gained considerable attention from marketing managers (Venkatraman, 1989;

Coulter, Feick and Price, 2002; Bertrandias and Goldsmith, 2006; Childers, 1986). Furthermore, this topic also gets more and more exposure in marketing research and studies (Christiansen and Tax, 2000).

The model of the two-step flow of communication, which represents the opinion leaders' relay and selection function, was developed in this context (cf. Figure 4). According to this model, opinion leaders functioned as multipliers by filtering information distributed by mass media, by enriching this information with their reviews and opinions, and by thereby delivering and making available aids to interpretation to less interested or informed individuals. The model is based on the core idea that a comparably small group of opinion leaders distributes information in a way that changes the opinion of a great number of people (Menzel and Katz, 1955). The first step of the model comprises the information flow from mass media to the opinion leaders who use it to inform themselves. The second step refers to the personal impact on other individuals. It may also be possible that these less interested persons used mass media themselves. However, according to Lazarsfeld, this only occurred if the conveyed messages corresponded with their own attitude. This communication model revised the omnipotence of mass media and reinforced the perception of the personal influence of some individuals on others (Zhang and Dong, 2009).

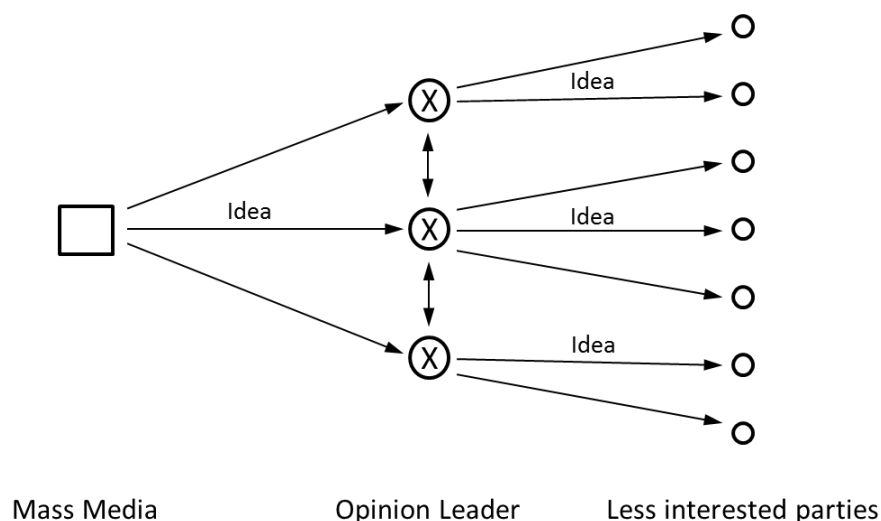


Figure 4: Two-Step-Flow of Communication [source: (Schenk, 2007: 352.)]

Katz's and Lazarsfeld's hypothesis was confirmed by further explorations, the so-called Columbia studies. They complement the two-step model by shedding light on the fact that opinion leaders also used other sources than mass media for generating information, e.g. congresses (Katz and Lazarsfeld, 2005). Furthermore, Katz and Lazarsfeld discovered that opinion leaders were more strongly influenced by other individuals than by mass media (Katz, 1957). There can also be an exchange of information between opinion leaders and followers, or recipients obtain their information directly from the media, without it being passed on by the opinion leader, as has been examined in diffusion studies (Strang and Tuma, 1993; Weimann, 1991, 1994; Menzel and Katz, 1955).

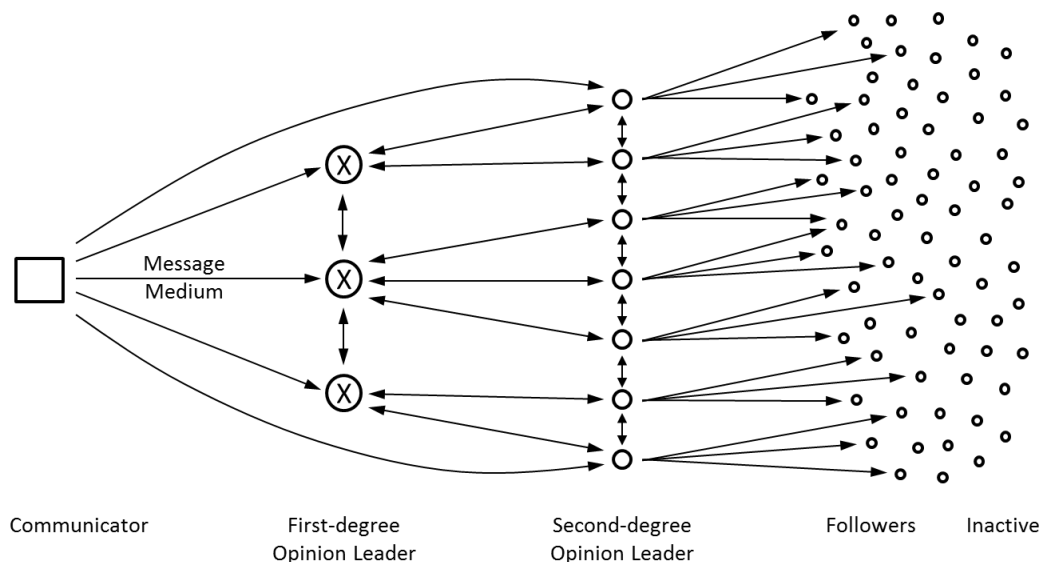


Figure 5: Multi-Step Flow of Communication Model after Wiswede (1978) [source: (Dressler and Telle, 2009: 38.)]

This is recorded by so-called multi-step models that do not determine that an opinion leader obtains his information directly from mass media and subsequently passes it on to his followers. In fact, the communication channels and the number of steps can vary and an exchange of information can take place (Beckman, 1967). Menzel and Katz already pointed this out in 1955 (Menzel and Katz, 1955). Furthermore, the opinion leader process can be initiated by the opinion leader himself as well as by his followers. These models consider the existence of

isolated individuals who are neither reached by the media, nor do they participate in interpersonal communication. The model by Wiswede shown in Figure 5 can be regarded as a principle multi-step model (Wiswede, 1978).

To continue, Troidahl's two-cycle-flow model distinguishes between the previously stated flow of information and influencing (Troidahl, 1966). According to this model, the opinion leaders' opinion leaders as well as the opinion leaders and their followers are equally exposed to the information flow of the media. In the case of cognitive inconsistencies the followers actively seek advice from the opinion leaders to establish their inner balance. The flow of information therefore has to be separated from the flow of influence, as shown in Figure 6. The opinion leaders' potential for influencing increases with the growing level of insecurity resp. the purchase risk.

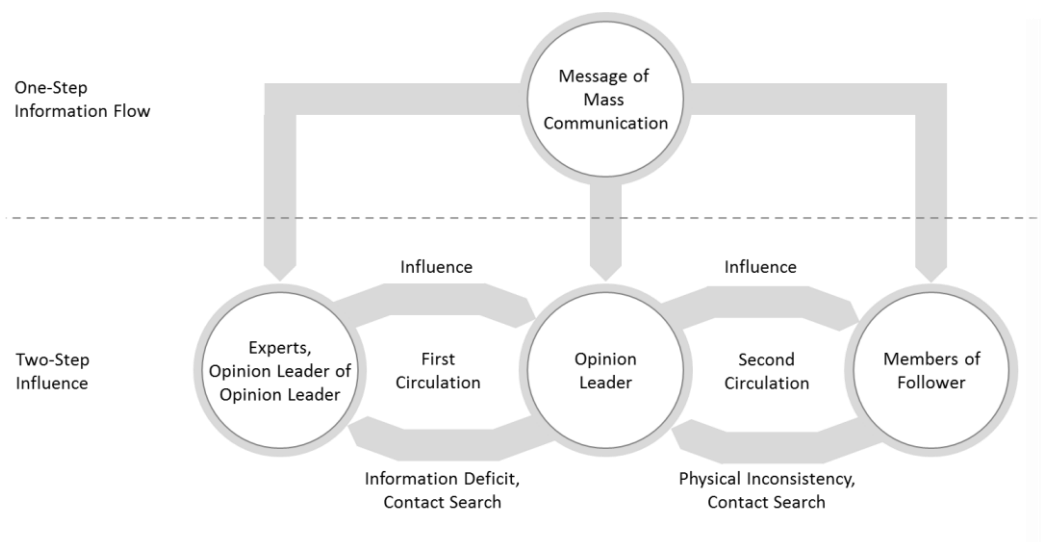


Figure 6: Two-Cycle-Flow-Modell after Troidahl (1966) [source: (Schenk, 2007: 369.)]

Looking back at the importance of the Internet for interpersonal communication or its relevance in the described communication models, it can be determined that the Internet influences the exchange of information in two different ways. First of all – and this is hardly surprising – the Internet enables direct communication between parties interested in a specific topic. Everybody is able to voice his or her opinion anonymously, using a pseudonym or in a personalized manner. In this way the technology creates an unprecedented possibility of dis-

tributing information that is no longer prevented by spatial or time-wise restrictions. Therefore, it is possible for anyone to directly or indirectly reach an almost unlimited number of recipients. This also includes the commercialization of this (relatively) new medium (Leiner et al., 2009). At the same time, people searching for opinions are provided with an additional source of information that is considerably more extensive compared with its social environment and yet offers the possibility of interaction (Kozinets, 2002). The desire for social exchange coupled with the increasing need for information can be seen as the reason for the success of social networks in the past years (Crittenden, Hopkins and Simmons, 2011). The platforms enable the establishment of large virtual communities where experiences and recommendations are shared (Li and Bernoff, 2011). There are numerous publications available on the importance of these networks for the successful sale of products, among other things (Garcia-Bardidia, 2002; Carricano and Bertrandias, 2004; Belvaux and Marteaux, 2007).

The expression of opinion represents an additional range of influence of the Internet with regard to the exchange of information. Mostly issue-specific forums are built around individuals with the same interests and convictions. There is a low number of content producers, who can also be referred to as opinion leaders, and a great number of consumers that are rather passive. Reviews represent another option of expressing one's opinion. In this case product-oriented evaluation takes place independent of social networks or issue-specific forums. Today plenty of shopping platforms offer the possibility of rating products as an individual's additional source of information for the interested purchaser. At times this individual opinion is more significant than the general product description provided by the vendor (Ghose and Ipeirotis, 2006). There are several studies that place the sales success of a product in a direct context with online reviews (Burton and Khammash, 2010; Chevalier and Mayzlin, 2006; Dellarocas, Awad and Zhang, 2004; Ghose and Ipeirotis, 2006).

Furthermore, two studies by Reynolds/Darden and Sheth confirmed that opinion leaders did not simply offer information and advice, they also actively sought advice by others (Sheth, 1971; Darden and Reynolds, 1972; Flynn, Goldsmith and Eastman, 1996; Goldsmith and Clark, 2008; Reynolds and Darden, 1971).

However, until today there has not been an extensive framework available on the motivation of opinion leadership and simultaneous opinion seeking (Ertekin and Atik, 2012). Unlike opinion leadership, opinion seeking is a newer approach. Feick defines opinion seekers as individuals who obtain information and opinions from interpersonal sources in order to gain information on products, companies or other topics of current interest (Feick, Price and Higie, 1986). Furthermore, Feick et al. assume that there is an overlapping of opinion leading and seeking, as individuals searching for opinions also passed on opinions and therefore also presented important crossroads in the diffusion process (Feick, Price and Higie, 1986). Considering the behavior in the search of information, opinion leaders and innovators are easy to distinguish from their followers. Opinion leaders more often search for objective sources conveying product attributes, while non-leaders prefer personal sources acting on the emotional level (Armstrong and Feldman, 1976: 25; Arie, Durand and Bearden, 1979).

The opinion leaders' advance in knowledge is based on the fact that they prefer objective sources and facts. This can also be explained by means of studies proving that opinion leaders are subject to relevant media in a stronger sense (e.g. (Katz and Lazarsfeld, 2005; Reynolds and Darden, 1971; Summers, 1970; Rogers and Shoemaker, 1971; Rogers and Cartano, 1962). This connection could however not be confirmed or supported by other researchers (Lambert, 1972; Robertson, 1971; Myers and Robertson, 1972). Yet there are studies showing that opinion leaders are more active than non-leaders, at least in the area of print media (relevant specialist media) (Robertson, 1971; Rogers and Shoemaker, 1971; Nicosia, 1964; Armstrong and Feldman, 1976).

Based on these realizations it can be said that, consistent with the communication models, the cumulative effect of the environment has a higher influence on the individual preference than individual interpersonal relationships (Steyer and Zimmermann, 2004). This is where the opinion leader comes into play. Opinion leaders have a high impact on the behavior and the forming and changing of opinions in their social environment thanks to interpersonal communication. The latter also includes digital social networks. Opinion leadership is not a personal characteristic, but a form of behavior in the communication process. Furthermore, opinion leaders distinguish themselves by means of their high standard of

knowledge generated by means of an active and intensive search for information, as well as high social competence. Furthermore, they cannot be identified by means of sociodemographic features (Dressler and Telle, 2009).

2.1.2.2 *Market- vs. Opinion Leader vs. Market Maven*

An individual's behavior resp. opinion is influenced by so-called reference groups that have a comparative as well as normative effect. According to Kroeber-Riel, reference groups are "*groups or individuals which the individual follows: The reference groups determine the way of how the individual perceives and assesses his environment and himself, and provide the norms for his behavior*" (Kroeber-Riel, Weinberg and Gröppel-Klein, 2009: 446.). In addition to the distinction of primary (family, friends) and secondary groups (neighbors, co-workers), research literature also distinguishes between into member groups and external groups. While the individual is a part of the member group, there are also external groups outside of the social environment (Kroeber-Riel, Weinberg and Gröppel-Klein, 2009). The comparative influence referred to above is presented by these groups, setting reference frameworks resp. standards of comparison according to which the individual measures his opinion, attitude and behavior. In this case the specification of norms meets the normative function.

Research literature offers three main types of reference providers resp. reference groups: early adopters, opinion leaders and market mavens (Feick and Price, 1987; Clark and Goldsmith, 2005; Keller and Berry, 2003). Since these three concepts do not exclude each other, an individual can be a market maven as well as an opinion leader and an early adaptor. The main differences lie in the type of product expertise. Market mavens have a high general market expertise. This is not product-specific, but includes the entire trade resp. market occurrences. They make purchases, exhibit a high media usage and they are open to advertising. However, market mavens can also be opinion leaders or early adaptors for individual products. Due to their high level of information they obtain information on new products at an earlier point in time, meaning they are able to accept them at an earlier point in time, which makes them early adaptors that distinguish themselves by consuming a product at an early stage along with the associated active communication and advance in knowledge. In addition to developing further knowledge in a specific product category, market mavens can also be opinion

leaders with detailed knowledge (Hoyer and Stokburger-Sauer, 2007). The concepts of market mavens and opinion leaders hardly distinguish themselves when it comes to short-dated goods. The difference does not come into play until a deeper knowledge of products is required for advice, which characterizes opinion leaders (Feick and Price, 1987; Flynn, Goldsmith and Eastman, 1996; Geissler and Edison, 2005).

Furthermore, there are also publications dealing with the similarities and differences of early adopters and opinion leaders. As an example, Chan assumes that early adopters can turn into opinion leaders by convincing later adopters to use a product (Chan and Misra, 1990). However, he does not distinguish between market mavens and opinion leaders, which is why the definition provided by Walsh is stressed in the following.

Table 4 compares the three concepts of reference groups using differentiated criteria.

Table 4: Market Mavens Compared to Early Adopter and Opinion Leaders [source: (Walsh, 1999: 424.)]

Market Mavens Compared with Early Adopters and Opinion Leaders			
	Early Adopter	Opinion Leader	Market Maven
Purchase/use of a product	Yes	Not necessarily, but usually yes	Not necessarily
Product expertise	No	No	Yes
General knowledge of the market (traders, prices, etc.)	Primarily active, but also passive	Active/passive	Active/passive, primarily active
Interesting for marketing in which phase of the product lifecycle?	Introductory phase	Primary introductory phase	In all phases

In this context, the term of “trusted advisor” also comes up with regard to the influencing of corporate decisions. Maister et al. characterize him as a person with a higher level of information who is trusted and asked for advice by the buying center resp. the specialist department (Maister, Green and Galford, 2001). As already pointed out, some authors prefer a context-specific definition of the opinion leader, which is why they vary with regard to the designation. Influencers, elites, authorities, lobbyists, mentors, analysts or even celebrities, trendsetters and well-known personalities are only some of these names (Schüller, 2012).

Despite the long history of this term and the different interpretations, the following definition applies for opinion leaders:

“Opinion leaders represent a minority group, who are member of a community, group, or society to whom others turn for advice, opinions, and views. They pass on information on new products to less adventuresome or not as well informed segments of the population.”

2.1.3 Functions of Opinion Leaders

In the beginnings of opinion leader research the function of the opinion leader was limited to the relay and multiplier function, i.e. he was regarded as a conveyor of mass-media information to less informed individuals, both cognitively and emotionally influencing the latter with his knowledge (King and Summers, 1970). If recipients have direct access to information, opinion leaders do not take on an important role until the subsequent discussion and evaluation process (Flynn, Goldsmith and Eastman, 1996). Still they hold a multiplier function (Menzel and Katz, 1955), which is what companies try to benefit from. Thanks to the opinion leaders’ extensive network, news they digest automatically has a certain bandwidth, it has the necessary relevance due to the issue-specific character, and, last but not least, in connection with the opinion leader’s advocacy, it leads to results (Glock and Nicosia, 1964; Schüller, 2012).

In addition to the multiplier function, opinion leaders have two other important tasks in the corporate context. First of all, the opinion leader has a particular value for companies, as he supports the creation and distribution of product

and brand messages, e.g. publishing these via his own websites, forums, blogs, etc. (reach) (Denjean, 2006). Secondly, he ensures that companies working with opinion leaders are generally more open towards new products and services, which increases the probability of adopting new products at an early point in time (Schiffman and Gaccione, 1974). In this context Rogers speaks of the interdependency of internal (influence by marketing campaigns) and external (influence by imitation and WoM) factors in the adaptation of products, keeping in mind the findings by Fourt (Fourt and Woodlock, 1960) and Mansfield (Mansfield, 1961). This duality is also reflected in the “mixed-influence model” (Bass, 2004). Early adopters are more easily incited to purchase by marketing campaigns, while later adopters wait for the opinion and assessment of the early adopters (Rogers and Shoemaker, 1971; Belvaux and Marteaux, 2007). Therefore, marketing efforts should concentrate on innovators and early adopters or on those who have a great impact on later purchasers (Armstrong and Feldman, 1976).

Furthermore, opinion leaders also have an influencing function, as they provide aids to interpretation based on their opinions and evaluations, which reduces their followers’ insecurities about how to act (Liu, 2006). To outsiders the opinion leader acts as an aid for orientation, but also as a partner for the like-minded regarding specific topics for which he raises interest and promotes similar behavior (Grumbach and Herpin, 1988; Schiffman and Gaccione, 1974). The concept of the opinion leader has proven to be very successful in medical research and the treatment of sick people (Gifford et al., 1999; Ryan, Marlow and Fisher, 2002; Holt and Ryan, 2012).

In 2011 van den Brink et al. brought up a completely new function of the opinion leader by measuring the satisfaction and performance of society via opinion leaders. Instead of using this group of people as multipliers, he used it as a large “funnel” for public opinion (van den Brink, R., Rusinowska and Steffen, 2011, 2013).

All in all, it can be concluded that opinion leaders assume the function of selecting, interpreting, adapting and distributing information.

2.1.4 Motifs for Opinion Leadership

Research publications offer different motives of why opinion leaders pass on their opinion to others. This dissertation examines the six motives for opinion leadership according to Arndt (Arndt, 1967), complemented by the involvement approach according to Feick (Feick and Price, 1987).

First of all, a crucial motive for passing on advice is the will to help others in making better (purchase) decisions (Locock et al., 2001). This is referred to as altruism.

Increase in prestige and popularity by demonstrating knowledge are further instrumental motives, as is achieving a socially, politically or economically advantageous position (Mengze and Wojnicki, 2014).

If the communicating of information or rumors is based on frustration or withheld opinions, this may point to the motive of ego-defensiveness or projection. This behavior strives for a justification of the self or a projection of responsibility to others.

Interest and ego-involvement may also be reasons for triggering conversations. The bigger the personal interest in a matter, the more likely the possibility of initiating a conversation about this matter.

If there are insecurities with respect to a specific subject matter, people try to dismiss these uncertainties and take part in conversations about it. In this case the motive is cognitive clarity (Ertekin and Atik, 2012; Wright and Cantor, 1967).

The sixth motive according to Arndt is the reduction of cognitive dissonance. Cognitive dissonance refers to the imbalance between an action and a mental attitude. As an example, if purchasing a product that is highly recognized on a social level is not approved of in the relevant reference group, a feeling of regret about the purchase emerges. With respect to the attempt of legitimizing the action by talking to others or convincing them that the purchase was appropriate, the motive for opinion leadership is the reduction of cognitive dissonance (Thompson, 2014).

(Dressler and Telle, 2009; Ertekin and Atik, 2012)

In his book Kroeber-Riel defines consumer behavior as a degree of internal participation that defines the probability of collecting, processing and distributing

information by means of situational, personal and stimulus-dependent influences (cf. Kroeber-Riel, Weinberg and Gröppel-Klein, 2009: 94.).

In his article “How Word of Mouth Advertising Works”, published in the Harvard Business Review in 1966, Ernest Dichter describes the following manifestations of involvement:

Product Involvement: Internal tension may be created with respect to products that cannot be relieved simply by purchasing a product. Talking about this product may help to relieve this tension. According to (Feick and Price, 1987), (Dichter, 1966), (Bristor, 1990) and (Venkatraman, 1990), the involvement in a product category can be regarded as the most important motive for opinion leadership in the consumer goods area.

Self-Involvement: Consuming a product may be an expression of one’s self-image. The demonstration of or the conversation about the product may satisfy emotional needs for self-representation.

Other Involvement: This form of involvement can be compared to the motive of altruism according to Arndt. In this case the opinion leader wants other people to share in his knowledge and his experiences in order for them to gain an advantage.

Message Involvement: The way of presenting an argument in the media may also initiate involvement and therefore conversations about a product.

Conclusively, it is not the temporary, situation-dependent involvement that determines opinion leadership, but the long-lasting, intrinsically motivated interest, the “enduring involvement”, as only this will lead to a permanent search for and distribution of information. Situation-related involvement may trigger WoM, however it should not be put in context with opinion leadership (Dichter, 1966).

2.1.5 Characteristics of Opinion Leaders

Ever since the first considerations of the opinion leader phenomenon in the 1960s by Lazarsfeld, there have been numerous approaches for differentiating between various types of opinion leadership. The most important typologies will be examined in the following.

Locals und Cosmopolitans According to Merton (1949)

The Rovere Study by Merton from 1949 resulted in differentiating opinion leaders in locals and cosmopolitans based on different factors. The methods of the study will be referred to at a later point. The two types are basically differentiated by the regional frame of reference they are dealing with. While the local focuses on location-related topics, the cosmopolitan is more interested in national and international matters of opinion. The influence of both types is regionally restricted, even if the term of cosmopolitan gives cause for other assumptions (Merton, 1968).

These various fields of interest also bring about a different communication behavior. The local tries to create a network consisting of close personal relations. Therefore, he is qualitatively oriented. The cosmopolitan on the other hand tries to set up a preferably large network and has a quantitative orientation regarding the choice of contacts. Their involvement in organizations takes on a similar shape. Locals join organizations in which they can maintain intense contacts, while cosmopolitans are involved in organizations where their expert opinion is sought after. The cosmopolitans' influence is subordinate to that of locals, as it is not based on personal contacts, but on expertise and prestige.

The media usage demonstrated by the two types is also differentiated. Due to their regional orientation, locals prefer local media such as daily newspapers. Cosmopolitans on the other hand deal with national and international media. According to Hamilton, it can be assumed that opinion leaders have a higher demand in quality regarding their media consumption (Hamilton, 1971).

With respect to the area of influence, it can be established that cosmopolitans are more monomorphic, i.e. they are regarded as opinion leaders for a specific topic. The polymorphic local on the other hand is influential in several areas of

his social network, which may also differ (Richins and Bloch, 1986; Bloch, Sherrell and Ridgway, 1986).

(Dressler and Telle, 2009)

Formal and Informal Opinion Leaders According to Booth (1969)

Booth and Babchuck distinguish between informal opinion leaders who are members of the primary group (social environment) and formal opinion leaders with no or only a low number of relations. According to the scholars, individuals with a low number of personal contacts relied on formal opinion leaders, while people with a lot of contacts were more often influenced by informal opinion leaders (Booth and Babchuk, 1972).

Differentiation According to the Type of the Interpersonal Influence According to Aufermann (1971)

In his book from 1971 Aufermann distinguishes the type of influence exerted by the opinion leader and the associated type of appreciation. The relevant performance of the opinion leader can either refer to specialist knowledge, knowledge of standards or knowledge of values. By demonstrating specialist competence the opinion leader gains his followers' respect (Coleman, Katz and Menzel, 1966). This describes opinion leader type I. Opinion leader type II is respected, as he provides socially normative services, thereby presenting knowledge of standards. Opinion leaders type III are appreciated, as they represent a similar value system as their followers by means of which they earn their trust (Assael, 1984).

Aufermann's perception and differentiation of opinion leaders was also confirmed by other studies. In connection with Merton's Rovere Study, opinion leader type I can be associated with the rational and factual cosmopolitan. The local who takes his influence from his social network, orienting himself on social values and normative behavior within this network, is a combination of opinion leader types II and III.

However, it is also imaginable that one person combines several opinion leader types. This means an expert in a certain field can also exert influence by demonstrating values and standards. This typology of opinion leaders by influ-

ence and appreciation according to Aufermann could make it easier to purposefully approach them (Aufermann, 1971).

Additional Approaches of Typologization

In addition to the approaches referred to above, research literature provides examples of additional possibilities for differentiating opinion leaders. To name one example, they can be divided into occasional and active opinion leaders depending on their level of activity (Booth and Babchuk, 1972).

Furthermore, opinion leaders can be real or virtual, i.e. they can be part of the social environment or only have points of contact with their followers via the media, for example TV presenters or online contacts (Eisenstein, 1994; Eliashberg and Shugan, 1997; Lyons and Henderson, 2005).

There may also be different types regarding the level of knowledge relating to the level of opinion leadership. Table 5 displays Trepte’s and Scherer’s findings regarding this problem in a matrix with the following classifications (Trepte and Scherer, 2005).

Table 5: Classification Based on the Degree of Knowledge and Opinion Leadership [source: own representation based on (Dressler and Telle, 2009: 85.) inspired by (Trepte and Scherer, 2005)]

Knowledge in a specific field		
Rating on the Opinion Leadership scale	High	Low
High	Informed Opinion Leader	Dazzlers
Low	Silent Experts	Inerts

According to this table, individuals who have a high rank on the opinion leadership scale may have a different level of knowledge. The informed opinion leader has a much higher degree of specialist knowledge than the dazzler. Reynolds and Darden were able to prove this in a study on men’s clothing. People with a distinct manifestation of opinion leadership searched more actively for product

information than people who scored lower on the opinion leadership scale (Darden and Reynolds, 1972). Furthermore, Trepte and Scherer assumed a connection between the level of opinion leaders' knowledgeability and media consumption (Trepte and Scherer, 2005).

Furthermore, in his study on fashionable women's clothing Summer was able to prove that opinion leadership and readiness for innovation were two characteristics that were strongly interwoven (Summers, 1970).

2.1.6 Methods of Opinion Leader Identification

From a historical perspective identifying opinion leaders can mainly be subdivided into three methods. These are known as the method of self-designation, the sociometric method and the method for questioning key informants. Due to the triumph of the Internet and the associated digitalization of the world, more recent literature provides a great number of additional approaches for identifying opinion leaders. Ultimately, these concepts can however be assigned to the originally developed methods. Prominent examples of more recent methods include the identification of opinion leaders based on ontology, the application of theories for network analysis especially for the area of social networks, or sentiment analysis, also known as opinion mining (Li and Du, 2011; van der Merwe and van Heerden, 2009; Pang and Lee, 2008; Valente and Pumpuang, 2006; Abdel-Ghany, M. M. M., 2012; Aggarwal, 2011).

The following table provides an excerpt of the approaches for opinion leadership discussed in literature in a compact overview. The main methods are explained in detail in the following.

Table 6: Overview of Techniques for Opinion Leader Identification [source: own representation based on (Valente and Pumpuang, 2006)]

Method:	Technique:
1) Celebrities	Inclusion of well-known regional, national or international celebrities.
2) Self-selection	Selection of volunteers per request.

3) Self-identification	Ranking individuals on an opinion leadership scale by survey. People above a defined threshold value are referred to as opinion leaders.
4) Personal Selection	Opinion leaders are selected based on observations of a community.
5) Approach of Position Defining	Assumption that leadership positions, such as politicians, etc. are automatically opinion leaders.
6) Adjudicator Rating	Knowledgeable members of a community identify opinion leaders.
7) Expert Identification	Trained ethnographers study communities and identify opinion leaders.
8) Snowball Method	Opinion leaders in a community are interviewed, until there are no new ones to interview.
9) Sociometric Sample	Interviewees selected at random nominate opinion leaders. The person that is referred to the most is identified as opinion leader.
10) Sociometric Method	All interviews nominate opinion leaders. The person that is referred to the most is identified as opinion leader.
11) Ontology-based Identification	Automatic analysis of texts based on ontology that admits categorization. Identification of current topics and active authors.
12) Opinion Mining	Automatic analysis of opinions to identify the stated opinion as positive or negative. High percentage of weighting between products or the like is identified as opinion leadership.
13) Social Network Analysis	Evaluation of communication relationships. The strongest correlation is identified as opinion leadership.

2.1.6.1 *Self-Designating Method*

The most common method for identifying opinion leaders is self-designation. With this method the subjects answer a number of questions on their communication behavior or their strength of character based on defined rating scales (Arie, Durand and Bearden, 1979). There are numerous publications discussing the different methods including their advantages and disadvantages. Well-known scales often used in studies comprise those by Rogers (Rogers and Cartano, 1962), Childers (Childers, 1986), Flynn (Flynn, Goldsmith and Eastman, 1996), Baumgarten (Baumgarten, 1975), Jacoby (Jacoby, 1974), or the strength of character scale by Noelle-Neumann (Noelle-Neumann, 1984).

As a further development of the two-question scale by Lazarsfeld and Katz, Rogers and Cartana added the following four questions. By allocating point values to answer possibilities the questioned individuals were classified as opinion leaders if they exceeded a specific threshold value. However, Haselhoff considered that the wording of the rate scale questions referred to a purely American communication behavior, which was not cross-culturally applicable and therefore not suitable for Germany (Haseloff, 1984).

In 1970 this scale was adopted for consumer goods marketing by King and Summers (King and Summers, 1970), however their approach was criticized by Childers and others. Childers changed the scale into a Likert format with five answer possibilities, as he believed that opinion leadership was no dichotomous, but rather a gradual feature (Childers, 1986).

Noelle-Neumann examined the factor of the strength of character in a study in 1985 to determine active, influential consumers. The group of researchers surrounding Noelle-Neumann was searching for a possibility to identify individuals with strength of character, i.e. who embodied the gradual traits of character of assertiveness, influence, charisma and leadership energy. Following a number of intermediate steps, Noelle-Neumann finally developed a self-describing strength of character scale with 10 items with points assigned to the answer possibilities. This means, the total number of points a subject achieves gives some indication of the distinctness of his strength of character. According to Noelle-Neumann, a distinct strength of character can define a person as an opinion leader if this is complemented by a strong interest in one or several fields. This makes it a precondition (Noelle-Neumann, 1984).

The aforementioned models were criticized by Flynn, Goldsmith and Eastmann (Flynn, Goldsmith and Eastman, 1996). On the one hand, they found fault with the multidimensional nature of the question items by Childers and others, which related to general opinion leadership and individual product categories as well as the fact that the scale according to Childers rather measured the communication behavior than the potential for exerting influence. In several steps they developed a rating scale with six questions on self-designation to be answered by using a 7-point Likert scale, which was checked and approved regarding consistency, criteria and construct validity as well as one-dimensionality. In order to achieve a balance, three of the questions have a positive and three have a negative wording, as shown in Table 7.

Table 7: Opinion Leader Identification Scale According to (Flynn, Goldsmith and Eastman, 1996) [source: own representation based on (Bearden, Netemeyer and Teel, 1989)]

Opinion Leaders and Opinion Seekers: OL and OS

Opinion Leadership (OL) Items:

1. My opinion on (*product category*) seems not to count with other people.
2. When they choose a (*product category*), other people do not turn to
3. me for advice.
4. Other people [rarely] come to me for advice about choosing (*product category*).
5. People that I know pick (*product category*) based on what I have told them.
6. I often persuade others to buy the (*product category*) that I like.
7. I often influence people's opinions about (*product category*).

The method of self-designation is known in the context of representative surveys, and distinguishes itself by means of its feasibility (Silk, 1971). As an additional advantage, a random sample can be defined arbitrarily before the questioning, which is not dependent upon the overall system. However, the method of self-designation also has a number of disadvantages, in particular regarding the

objectivity of possible opinion leaders (Tittle and Hill, 1967). Several studies were able to prove that the number of persons referring to themselves as opinion leaders was always higher than that of other people referring to them as opinion leaders, to name one example. Furthermore, a follow-up survey of allegedly influenced individuals showed that they were actually not aware of being influenced (Corey, 1971). The method of self-designation should therefore be validated with other methods such as the sociometric method or additional questioning techniques in order to confirm its validity (Kaas, 1973).

2.1.6.2 *Sociometric Method*

The sociometric approach is also referred to as the network analytical method. The goal of this approach is an extensive consideration of the social and communicative relationships between the individuals of a clearly defined network. The person with the largest network of relationships is eventually identified as opinion leader. The sociometric method is based on the assumption that opinion leadership is monomorphic (issue-specific). Society often refers to this kind of person as a specialist. He has a deep knowledge of a certain aspect or idea, which makes him an opinion leader. However, this does not necessarily mean that he is deemed as an opinion leader for any product, service or topic (van der Merwe and van Heerden, 2009; Kaas, 1973).

This approach is criticized by Iyengar, whose findings from his study lead to the assumption that the sociometric analysis also identified early adopters (Iyengar, van den Bulte and Valente, 2011). Watts also has considerable doubt in the flawlessness of this procedure (Watts and Dodds, 2007).

If the sociometric method is carried out in the classic way, the questioning of the entire circle of people involved implies a highly elaborate interview or evaluation process (Fenton and Leggett, 1971; Doumit, 2006). This is opposed by modern possibilities of network analysis that evaluate existing communication relationships such as those found in social networks. Valente understands the analysis of social networks as a technique for describing patterns of interpersonal communication that enables conclusions on the issue of mutual influencing (Valente, 1996). This is opposed by ontology-based identification in the course of which a scheme is developed that categorizes unstructured documents and determines “current topics” including their ringleaders. It does not rate the commu-

nication relationships directly, but analyzes an evaluation of the author and his topics (Li and Du, 2011) (see also section 2.1.6.4 – *New Concepts of Identification*).

2.1.6.3 *Informants Rating*

This method is based on the targeted identification of opinion leaders based on the information provided by well-informed group members. This approach has been known for years in marketing resp. management research which use the questioning of key informations as an important source of data (Homburg et al., 2012).

Compared with the sociometric method, which takes the whole system into consideration, informant rating can be accomplished in a time and cost-saving manner (Schenk, 2007). However, this is opposed by criticism that cast doubt on its accuracy and correctness.

In order to ensure accuracy, the entire system, including its communication strategies, must be known. As a consequence, this would make it possible to properly determine the key informants, which would make the final questioning unnecessary, as it would already be possible to identify the opinion leaders (Rogers and Cartano, 1962). In terms of correctness, on the other hand, it is assumed that the key informants have an objective image of the overall system, which prevents misjudgment, and which is also why it is less possible to project the statements to the entirety of the system (Margoluis and Salafsky, 1998).

Some scholars try to bypass this deficiency by collecting different primary as well as secondary sources of data, which to this day has only been achieved in exemplary form (Sharara, Getoor and Norton, 2011).

2.1.6.4 *New Concepts of Identification*

The power of opinion leaders combined with the latest technological possibilities and the associated wide reach increasingly shifts the identification of opinion leaders towards the focus of the companies. Up to today there is no known flawless procedure to track down these specific individuals.

The following section deals with three innovative approaches that are based on the technological developments of the recent past in particular. The complete

list of all identification techniques has already been summarized in Table 6 (see also section 2.1.7 – *Methods of Opinion Leader Management*).

Social network analysis

Originating from the field of empirical social research, social network analysis (SNA) has the purpose of recording social relationships resp. social networks. This method of analysis does not focus on an individual himself, but on his interaction and his connections with others (Jansen, 2006). The approach has a long-standing history and initial experiments already took place in the 1930s. However, especially since the triumph of social networks such as Facebook and Twitter and the associated simplified software-aided analysis it has been experiencing a renaissance (Borgatti et al., 2009). Figure 7 shows an exemplary display of SNA, presenting the entire network as a graph consisting of nodes and edges. Each node represents an individual, while an edge displays the relationship between two individuals. As displayed in this chart in simplified terms, there are different clusters of people who are supplied with information by one individual resp. who are only in touch with this individual. At the same time this also represents the basis of opinion leader identification (Ortiz-Arroyo, 2010; Kadushin, 2012).

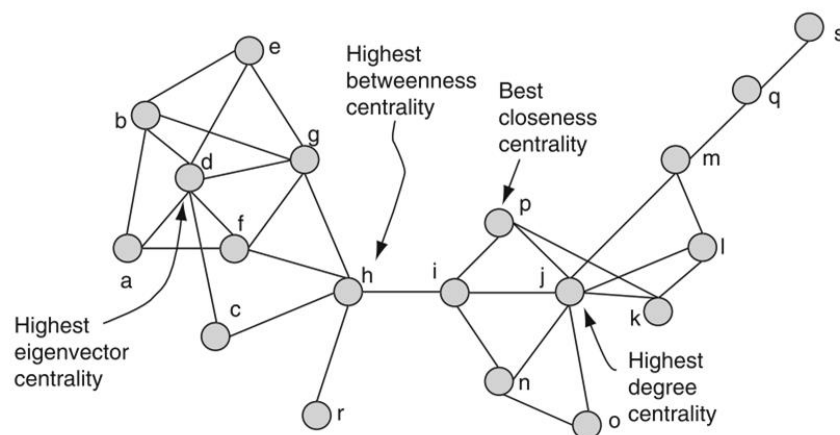


Figure 7: Social Network Analysis Map of Individuals, Groups or Organisations [source: (Ortiz-Arroyo, 2010: 30.)]

By evaluating the communication relationships, the key players within a network are identified. In simplified terms, the individual with the most connections resp. who holds a central position in the network is referred to as an opinion leader (Valente and Davis, 1999; Kim et al., 2007; Goldenberg, Lehmann and Shidlovski, 2006). The analysis procedure uses the methods of centrality, more specifically of degree centrality, betweenness centrality and closeness centrality. The former represents the number of connections of one to another individual, and clearly illustrates the sender-recipient phenomenon. In addition to direct connections, betweenness centrality calculates the indirect connections, meaning second or third degree connections. A node with a high betweenness centrality represents an individual via which a great amount of information is conveyed within a network, and which to some extent also serves as links between individual clusters in the network. The last indicator, closeness centrality, represents the closeness of one individual to all other individuals in a network as a key figure that can also be referred to as the average path distance (Hansen, Schneiderman and Smith, 2010; Opsahl, Agneessens and Skvoretz, 2010).

Until today research has not provided any consistent opinion on which of these measurement criteria clearly define opinion leaders, and to which degree. As an example, there are a few current works by (Fisher, Smith and Welser, 2006), (Ortiz-Arroyo, 2010), (Abdel-Ghany, M. M. M., 2012), (Bozdogan and Akbilgic, 2013) and (Ropicki and Larkin, 2014) examining the different approaches.

Most recently, Bodendorf and Kaiser, Stavrianou et al. as well as Xu et al. published a concept which can be regarded as a further development of the traditional SNA approach, complementing the network analysis with the technique of text mining in order to also integrate content-related information of the communication into the evaluation (Bodendorf and Kaiser, 2009; Stavrianou, Velcin and Chauchat, 2009; Xu, Zhang and Li, 2011).

Ontology-based Opinion Leader Identification

The approach of identifying opinion leaders by ontology was initially introduced by Li and Du in 2011 and is based on the idea of identifying and monitoring “hot topics” by topic detection and tracking (TDT) (see also section 2.2.3.2 – *Analytical Methods for Knowledge Generation from Texts*). For the analysis, blog con-

tent is cross-referenced with data by authors, possible reader feedback and the reader-author relationship. In the presented example the ontology that was developed contained a specific product in relation to which all blog entries were examined. An author who created a great number of blog entries resp. a lot of communication on a popular topic, among others, was identified as an opinion leader in the developed framework (Li and Du, 2011).

Influencer Ranking

The so-called influencer ranking is a relatively new approach of identifying opinion leaders. It is aimed at helping companies to uncover resp. decode the influence of media and individuals on products, services or an entire brand. In particular, the procedure is intended to help channel marketing expenditure, making it more efficient. Influencer ranking is firstly based on the idea of WoM marketing combined with social media platforms, which are regarded as major multiplier surfaces. In the last few years this has been referred to as influencer marketing. Recently, this discipline has gained a lot of attention, in particular as a gateway to new potential consumers (Schaefer, 2012; Brown and Hayes, 2008).

Influencer marketing is oriented on the influencing by opinion leaders who were often selected based on their number of followers in the past. According to Gladwell, many companies however did not go far enough with this approach, as in addition to the number of followers, domain-specific knowledge, credibility and the relationship with one's followers also turned out to be important factors (Gladwell, 2001). Furthermore, today influencer ranking should not be used in an isolated way. This means that the entire communication mix, in the online area this mainly refers to Facebook, Twitter and Youtube, has to be evaluated (Brown and Hayes, 2008).

Today different variables are used for calculating an influencer ranking, and the different providers' exact algorithms are subject to secrecy. As an example, for Twitter mentions (the number of times this tweeter has mentioned the subject), followers (the number of tweeters following this tweeter), tweets (this tweeter's total number of tweets to date) and Twitter lists (the number of Twitter lists which contain this tweeter's profile) are used. An influencer on Facebook is identified by his ranking (indicates level of influence, based on "likes" and friends),

mentions (the number of times this person talks about the subject in question) and “likes”/friends (the number of “likes” and friends this Facebook user has; this is a good indication of this influencer’s reach), among others. For blogs, forums and videos the reach (the number of people who visit the website over a given period), language (the language in which the information was written) and mentions (the number of times this person talks about the subject in question) are of interest (Krause, 2015).

In today’s times of information overflow it is becoming more and more difficult for companies to identify and recruit opinion leaders, especially in the online area and the respective segment. This is why there is a number of innovative companies that have made opinion leader identification and management, which also includes filtering, monitoring and reporting of these individuals, their business. The following section deals with the most popular providers (Hayman, 2014).

Klout: One of the most well-known fee-based services for detecting and recruiting opinion leaders. Klout analyzes the individually created content in social networks. The Klout score ranges from 0 to 100, whereas 20 to 40 is regarded as an average value and more than 50 is deemed to be the elite.

Traackr: Sees itself as an influencer marketing and analytics platform. Traackr helps to identify opinion leaders, analyzes the respective behavior and makes suggestions on involvement. Furthermore, the platform provides a sentiment analysis and trending reports.

Linkdex: Is a digital marketing tool that offers functions for analyzing content and planning options, among others, based on automatically collected pages, including backlinks and social share counts. Furthermore, Linkdex is capable of processing and analyzing multi-channel data.

For reasons of completeness, in addition to the ones stated above, the following providers are also available on the market: Little Bird, followerwonk, PeerIndex, Buzzsumo, Keyhole, Kred, Twtrland, mattr, Appinions.

(Odden, 2015)

2.1.6.5 Current Position of the Opinion Leader Identification

All in all, it can be determined that even after decades of research, there is no hands-down procedure to identify opinion leaders. The most important methods include self-designation, the questioning of key informants and the sociometric network analysis. Despite the fact that all three of the popular methods examine who is asked for advice, it cannot be determined whether the individuals actually follow the advice they are given.

Since it is not very reliable, the method of self-designation may lead to misjudgment. The sociometric analysis is more exact due to the snowball principle, but it is also much more complex and elaborate to carry out.

If applied on its own, each of these methods has limitations that can only be evened out by combining it with another method. In his paper on the diffusion of innovations (Rogers, 2003), Rogers provides an overview of the methods, as shown in Table 8.

Table 8: Advantages and Disadvantages of Selected Methods of Opinion Leader Identification according to (Rogers, 2003) [source: (Rogers, 2003)]

Measurement		Questions		
Method	Description	Asked	Advantages	Limitations
Sociometric Method	Ask system members to whom they go for advice and information about an idea	Who is your leader?	Sociometric questions are easy to administer and are adaptable to different types of settings and issues; highest validity	Analysis of sociometric data is often complex; requires a large number of respondents to locate a small number of opinion leaders; not applicable to sample designs where only a portion of the

				social system is interviewed
Informants' Ratings	Subjectively selected key informants in a social system asked to designate opinion leaders	Who are the leaders in this social system?	A cost-saving and time-saving method as compared to the sociometric method	Each informant must be thoroughly familiar with the system
Self-Designated Method	Ask each respondent a series of questions to determine the degree to which he perceives himself to be an opinion leader	Are you a leader in this system?	Measures the individual's perception of his opinion leadership, which influences his behavior	Dependent upon the accuracy with which respondents can identify and report their self-image
Social Network Analysis	Software-based analysis of different key metrics of centrality in a social network	Who has the greatest centrality?	SNA is easy to perform and gives a good overview of the position of different individuals in the network	No consistent calculation formula exists; ignores offline social interaction; content of message is usually not taken into account

2.1.7 Methods of Opinion Leader Management

The previous subchapters dealt with the derivation of the opinion leader concept in the communication and opinion-forming process. However, opinion leaders do not have the same significance in every industry and every brand. De-

pending on the purchasing risk or the demonstrative consumption of the product, among others, the impact may differ with regard to intensity. Every brand has to assess for itself in how far opinion leaders are involved in the purchase decision-making process. If these influencers are classified as relevant, the marketing concepts must be checked and realigned from this perspective, if necessary (Kapferer, 2012).

According to Duncan Brown and Nick Hayes, opinion leader marketing refers to the identification of opinion leaders and the orientation of marketing measures on their needs (Brown and Hayes, 2008).

Compared with the traditional marketing concept, opinion leader marketing only considers the aspect of communication policy and does not contain any reflections on contracting, product or distribution policy. For this reason, this subchapter will only deal with the communication policy approaches of the marketing concept, even if the term of opinion leader marketing concept is misleading. Furthermore, the interaction with opinion leaders can also affect the other elements of the marketing mix.

In their book on influencer marketing Brown and Hayes provide an argument in favor of opinion leader marketing. They describe that no matter how relevant or innovative an advertising message, whether the advertiser is heard through all of the advertising pressure on the market, the consumer does not believe the message. Those who want to sell cannot be an objective source of information. The same message has a much stronger effect if it is conveyed by a person the consumer trusts (Brown and Hayes, 2008).

Dressler sees the significance of orienting oneself on opinion leaders in the consumers' information overload and the associated avoidance mechanism of advertising messages conveyed via the media in particular. Based on their selective function, opinion leaders assume a key role in the diffusion process (Dressler and Telle, 2009).

According to Valenta, Davis and Kelly, successfully engaging with opinion leaders depends on three factors: (1) opinion leader recruitment, (2) location of training, and (3) timing of training. The first aspect basically deals with winning the opinion leaders over for one's cause and making them part of the innovation and therefore also of the diffusion process. Ultimately, also recognizing their posi-

tion as opinion leaders and underlining the social status. In a second step these individuals need to receive special training: one-on-one training for more complex topics, one-to-many training for more general topics. Also, a decision is made about whether to undergo dynamic or static training. The latter would take place once, the former in regular intervals, which should be used to exchange experiences with other opinion leaders (Valente and Davis, 1999; Kelly, 2004).

Development of an Opinion Leader Marketing Concept

Although the existence of opinion leaders has been known since the beginning of the 20th century, they are only seldomly considered within the context of a marketing concept, or the effect on this target group is not particularly great. There are attempts to address opinion leaders with the same communication tools as the masses, and concepts that satisfy the specific needs of opinion leaders are only rarely developed. Due to the opinion leaders' high involvement effective opinion leader marketing expects a particularly thorough development of such concepts. The segmentation of the target group is just as important as the type of communication, and where and how it takes place. Furthermore, the marketing budget must be reallocated, as opinion leaders, even if they are not aware of it, are not particularly interested in messages conveyed via the media, where the major part of the budget is applied (Brown and Hayes, 2008). Frey and Oberholzer as well as Kamenica warn about considering (monetary) premiums as an incentive for a WoM campaign led by the opinion leader, as this may quickly have a contrary effect (Kamenica, 2012; Frey and Oberholzer-Gee, 1997). Instead, product samples with extensive information should be offered, to name but one example (Geissler and Edison, 2005; Kozinets et al., 2010). If this is not desired or deemed possible, the opinion leader's higher level of information should be promoted using specialized background or product information (Gnambs and Batinic, 2013).

Therefore, in addition to the right mix, approaching opinion leaders correctly must also take a number of critical aspects into consideration, e.g. discretion, exclusivity and timing, but above all patience (Schüller, 2012).

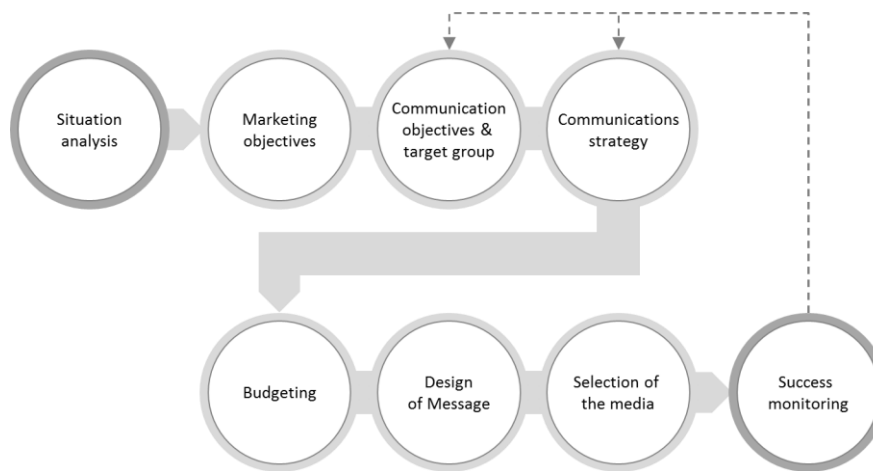


Figure 8: Loop of Communication [source: own representation based on (Geyer et al., 2015)]

The following section will shed light on the process of developing an opinion leader marketing concept and a distinction from the traditional consumer-oriented approach. Figure 8 shows the ideal process of the development of a communication concept according to (Geyer et al., 2015). Furthermore, the aspects that distinguish themselves from a consumer-oriented approach are highlighted.

Determination of Opinion Leader Marketing Objectives

Since opinion leaders are regarded as a separate target group in the communication concept, the objectives may differ from the classic concept. As an example, possible objectives may be to increase the supported and unsupported name recognition, a change in the defined image factors or the procuring of informants (Geyer et al., 2015).

Definition and Identification of Opinion Leaders

The biggest challenge lies in the identification of the influencers, who are regarded as the target group of the communication concept. Opinion leaders do not have to be existing customers and may never buy a product by the company. If possible, the communicating company must identify individuals who are nei-

ther referred to as opinion leaders by themselves nor by others (Geyer et al., 2015).

Development of a Communication Strategy

Budgeting: Budgeting should be performed according to the same principle as it would for a classic concept. This may be the expense-oriented method, the sales percentage method, the competition-oriented method or the objective and tasks method. In this case the competition-oriented method proves to be particularly difficult, as there is hardly any data available on competitive activities or the applied capital.

Message design: The process of designing the message can be referred to as another particularity of opinion leader marketing. Due to their high involvement and specialist knowledge, opinion leaders are more responsive to rational than emotional benefits. It is not sufficient to use other communication channels for opinion leaders, it is also necessary to develop an adapted copy strategy⁹. This should not contradict the consumer-oriented copy, however it should complement it by aspects relevant for opinion leaders (Kaiser, Kroeckel and Bodendorf, 2013). Furthermore, the message design should be appealing enough to keep up the opinion leader's motivation over a longer period of time. Self-evidently, this also requires appreciation, thanks and an open feedback channel (Schüller, 2012; Fitzmaurice and Comegys, 2006). According to Baron, permanent and continuous penetration of the opinion leaders is another key to success (Baron and Kenny, 1986).

Tool selection: It may make sense to select other communication tools than those used for addressing consumers. However, tool selection follows the same principles.

Execution and control: Tool selection and the planning of the concrete realization are followed by the execution and control of the results using the same methods as with a classic concept. However, the control cannot provide the same key figures.

⁹ Copy strategy refers to the actual advertising idea, including benefit, reason why and tonality.

(Flynn, Goldsmith and Eastman, 1996; Armstrong and Feldman, 1976; Geyer et al., 2015)

Integrated Communication

In order to react to the recipients' information overload referred to in the previous subchapters and to increase the effect of a company's selected communication measures, it is recommended to apply a concept of integrated communication. This aims at a consistent implementation of the tools on the operative level to be achieved in the following three dimensions.

Content-related: The systematic, topic-related consistency of a message is a prerequisite for a clear and comprehensible perception of the conveyed use for the target group.

Formal: Consistency in design is also essential for sender recognition. Recurring distinctive features such as logos, jingles, specific colors, etc. can be used in communication to ensure the consistency. This orientation helps the recipient to easier allocate and process the message.

Timewise: The time-wise integration comprises the chronological coordination of the communication measures in two dimensions. Firstly, the campaign should be realized at a reasonable and effective point in time, and secondly, the individual tools used in a campaign must be attuned to one another in the best possible way.

(Geyer et al., 2015)

Cross-media Communication

Cross-media communication, which provides the application and networking of simultaneous media genres within a campaign on an operative level, is a concept complementing integrated communication. This requires a subordinate copy strategy that is implemented on all selected media channels. Cross-media communication distinguishes itself by means of the fact that the simultaneously applied media are intertwined and cross-reference each other. In this way the target group is guided from a lead medium such as print or out-of-home to an online platform as a target medium, e.g. by using QR codes. With regard to the advertising goals, this may lead to an increased number of contacts or the reduc-

tion of divergence loss, among others (Geyer et al., 2015; Brennan and Croft, 2012).

2.2 THE APPLICATION OF BUSINESS ANALYTICS TECHNIQUES TO ANALYZE UNSTRUCTURED DATA

Data analysis does not only have a long-standing history in IT, the industry lives of the extraction and processing of information of an ever growing data stock. In the mid-1950s UPS was the first company to establish its own data analysis department. The term of corporate analytics was born. About 20 years later company-wide available data was used to support and prepare decisions – decision support systems (DSS). Starting in the mid-1980s this field developed rapidly. From that time on the executive support systems were no longer only used to substantiate decisions with data, but to arrive at better decisions. Finally the term of business intelligence as a completely data-based process was established for the systematic analysis. The operationalization of data is supposed to support companies in gaining insights for strategic decisions with respect to the business objectives. Since 2010 the term of big data has been spreading. The focus is no longer on corporate data, but rather on the combination of internal and external as well as very large unstructured and less large structured data (Davenport, 2014).

Even if the procedures for data analysis have been part of IT for decades, the traditional approaches have been getting more and more complicated in the recent past. This is due to the enormous data growth of our time. 90% of all worldwide data was created in the past two years, or as Eric Schmidt stated in 2012: “Every two days we create as much data as from the dawn of humankind to 2003” (Zikopoulos et al., 2014; Schopf, 2014). According to recent predictions by the IDC, the “digital universe”¹⁰ will be increasing from 8.5 zettabyte¹¹ to around 44 zettabyte by 2020 (International Data Corporation (IDC), 2014). The main driver of this exponential growth is user-generated data such as documents, photos

¹⁰ This refers to the amount of digital data stored worldwide. IDC publishes a study to quantify and predict the amount of data produced annually.

¹¹ Calculated size of the digital universe in 2015.

and videos, including the data from social networks¹², GPS and sensor data, but also machine-to-machine communication, also known as Internet of Things, to name a few examples (Martin, 2012). Although today 70% of all data is created by individuals, it's the companies that have to store and manage 80% of all data. However, the fact that the data stock stored by the companies doubles every 1.2 years is far more challenging (International Data Corporation (IDC), 2014). As a consequence, an increase of approx. 330% is projected for worldwide enterprise storage system capacity by 2019 (Yezhkova, 2015).

The compact introduction to the history of data analysis combined with the challenge of exponential data growth signifies the crossroads where information technology and the companies in particular are positioned today. The question arises of whether the storing and managing of data is becoming a burden or whether it is possible to gain a business advantage by means of clever analysis and acquired data. The following subchapter therefore raises the question of *"Unstructured Data – Pain or Gain?"* while the subsequent sections deal with the basics of business analytics techniques by defining and distinguishing the most important terms, by referring to the methods of systematic text and data mining analysis and introducing a standard process model of data mining.

2.2.1 Unstructured Data – Pain or Gain?

In addition to rapid data growth, companies are faced with two fundamental challenges today, the solution of which can represent a significant competitive advantage.

On the one hand, this refers to the processing of unstructured data. Unstructured data is information that has no predefined data model or is not organized in any specific way. Compared with databases, information such as dates, names or certain entities are more difficult to comprehend resp. extract. Unlike in the past, when preprocessed, relevant and structured data from corporate data

¹² From a statistics perspective e.g. 1.8 million "likes" and 350 GB data were created on Facebook, 72 hours of videomaterial uploaded on Youtube and 216,000 images uploaded on Instagram per minute in 2013 N. Sutton and J. Knight, "Online in 60 seconds," 2013, <http://blog.qmee.com/wp-content/uploads/2013/07/Qmee-Online-In-60-Seconds2.png>, accessed May 2015..

warehouses formed the basis for analyses and decisions, today around 80% of the data created originates from the most different sources with the most different formats (Steinecke and Straub, 2010). By 2020 the percentage of this kind of data will increase to the fourfold amount of the total data amount for companies (cf. Figure 9) and will then represent about 90% of the digital universe. The growth of structured data on the other hand will remain rather constant as from 2015 (Neef, 2014). According to a survey by the Experton-Group from 2013, 42% of 100 interviewees referred to cloud computing, collaboration (34%), mobile use of the Internet (31%) and the increasing digitalization of business models (32%) as the most important drivers of data growth¹³ (Velten and Janata, 2012). According to Felden, the specific problem for companies was the ever increasing data stock that is not directly machine-processable, as it is available in documents, but still contains important knowledge (Felden, 2006: 54.).

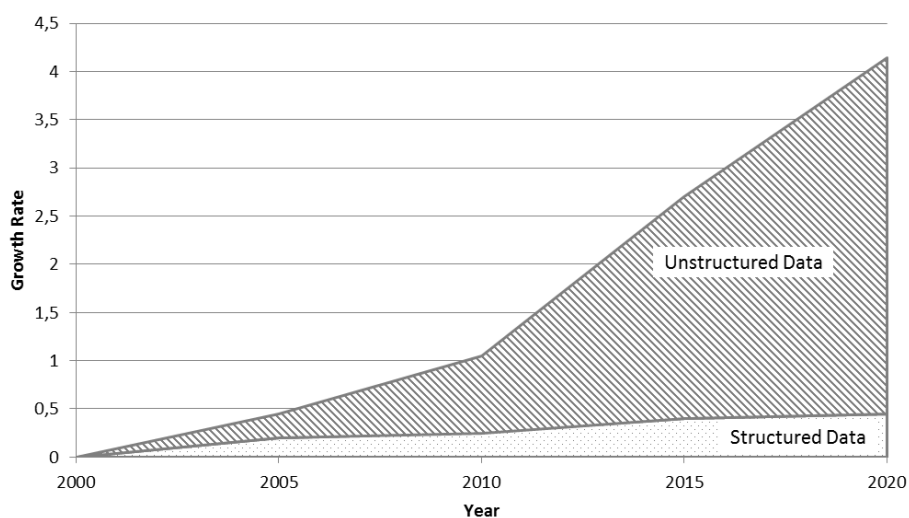


Figure 9: Growth Rate of Unstructured vs. Structured Data [source: (Neef, 2014)]

The value of the information that lies hidden in this data is more interesting than the data growth itself. Textual data, especially data created by individuals in documents, e-mails, forums or blogs, comprises a great amount of evaluable data

¹³ Multiple references possible.

containing far more information than what would be stored in traditional databases (Aggarwal and Zhai, 2012). The sentence “Axel has been working for Lufthansa AG with a salary of €40,000 since 01.01.2014” includes six evaluable entities:

- Person: Axel
- Date: 01/01/2014
- Organization: Lufthansa AG
- Quantity: 40,000
- Currency: €
- Employed: Yes

Using the example of online reviews, there are further interesting details available for companies on how their brand or a product is regarded by the consumer (Burton and Khammash, 2010). The so-called sentiment analysis evaluates additional positive, neutral as well as negative comments (Delmonte and Pallotta, 2011). According to IBM, companies already analyzed around 12 terabytes of tweets in 2012 using a sentiment analysis to better understand their products (IBM Corporation, 2012). The value of data for a company is ultimately determined by the purpose of use. This does not necessarily have to be recognizable today, which prompts many companies to create large pools of unstructured data. The storage of sensor data from production lines is one particular example. Abnormalities in the quality of a product can become apparent years later and the goal is to limit these defective batches by means of intelligent analyses (Lohr, 2012).

This example leads to a second important challenge. The detection and extraction of relevant information from unstructured data. Based on its chaotic basic structure and the mass of this data, the associated techniques are becoming more and more significant. Therefore, companies introduce new approaches that develop from descriptive to predictive analyses in real-time. Yet the process remains the often described needle in the hay stack and requires knowledge of the domain in addition to the technological skills (International Data Corporation (IDC), 2014).

The possibilities of analyzing new information and sources of information can be explained by three simple examples. First of all, the US healthcare system could reduce its expenditure by 8% resp. \$300 billion by intelligently analyzing patient data and best practices in treatment, among others (Manyika et al., 2011). If an average Fortune 1000 company increased the usability of its data by 10%, this could lead to an increase in sales of \$2 billion (Weisinger, 2012). For more than a decade the department store chain Target has been analyzing its customers' purchasing behavior, optimizing paths and marketing expenses, and is therefore known as a pioneer in the area of business analytics today (Duhigg, 2012). Thirdly, one of the most current and surely most controversially discussed examples of detecting and extracting relevant information from great amounts of data is the National Security Agency (NSA). In 2013 it analyzed about 30 petabyte per day (Musil, 2013). The mass analysis of e-mails, social networks or e.g. connection data is a prime example for data mining (Preibusch, 2015; Cauley, 2006; Greenwald and MacAskill, 2013).

Literary research deals with the basic problem of knowledge extraction using different terms. In the beginnings it was often knowledge discovery in databases (KDD) that was referred to, while the term of data mining was more common in practical use. However, the approach of knowledge management (KM), which deals with the process of systematic extraction, structuring, presentation and distribution of knowledge in the company in particular, is all-inclusive (Abts and Mülder, 2013). Both approaches are based on a multi-level process and require interdisciplinary teams with experts from the most different departments. This includes individuals with a great understanding of business models, experts for the systematic analysis and information technology, and last but not least classic data miners. Furthermore, knowledge management can also be understood as a basic discipline of any company to analyze, distribute and finally purposefully apply the available implicit as well as explicit knowledge of individuals, but also of a collective in the organization (Nonaka, 1991). This approach is geared towards creating new products and services and making experiences in the various areas more transparent (Heyer, Quasthoff and Wittig, 2006). According to Abts and Mülder, knowledge management consists of the following six partial areas: knowledge acquisition, knowledge structuring, knowledge presentation, knowledge distribution, knowledge use and knowledge storage (Abts and Mül-

der, 2013). In order to actually successfully apply this interdisciplinary field in a company, all available data sources and resources must be incorporated. Chen visualized this approach in his book “Knowledge management systems” (cf. Figure 10) (Chen, 2001).

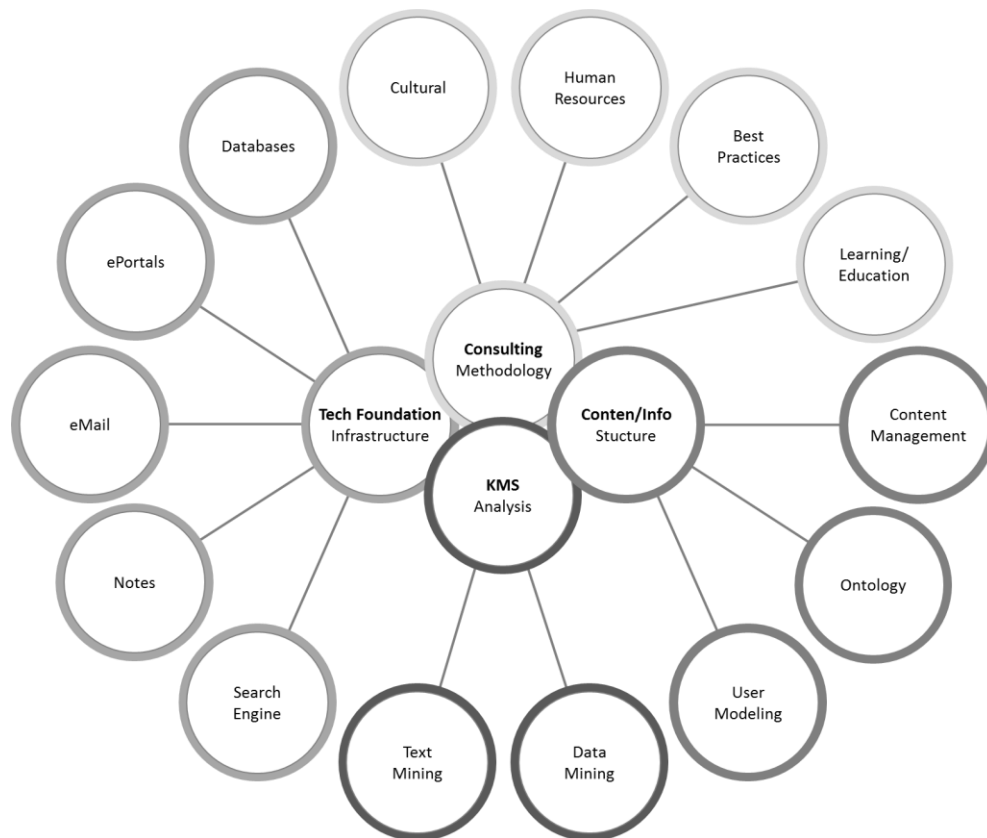


Figure 10: KM consists of four main perspectives: Consulting, Content/Information, Technology Foundation, and Knowledge Management System (KMS). KMS includes data mining and text mining. [source: own representation based on (Chen, 2001: 4.)]

In this way Chen already took the different information systems into account in 2001, at least one of which can be found in almost all companies today. This either refers to a business intelligence system for structured data, represented by databases in Chen’s approach, and/or the approach of text mining in the shape of a knowledge management system (KMS) for unstructured data (Findeisen, 2011). Recently both systems have however been increasingly growing

together, as KMS are applied to lead as an exploration and extraction tool for BI systems (Rozenfeld, 2007).

Based on the fundamental discipline of knowledge management, KDD can be referred to as an evolutionary step due to the requirement of systematics, the multi-level approach and the popularity within data mining.

In research, KDD is deemed as one of the most important methods for discovering knowledge and features a great number of various approaches. As a general goal, KDD is intended to detect relevant knowledge in large amounts of raw data and uses several iterative steps in the course (cf. Figure 11). Process step I comprises the description of the actual problem and the associated business objectives. The interdisciplinary team furthermore defines the requirements, the scope and the required data including its sources. Subsequently, the raw data is prepared and transformed with the aim of achieving methods to improve data quality as well as data reduction, among others. Not all of the data available has to be relevant for the defined problem. In the end the indication of data has an impact on the performance of the data mining process that should not be ignored. Finally, step IV deals with the exploration and the actual extraction of the data by means of the data mining algorithms. If the findings from the exploration phase do not correspond to the expectations of the management, earlier phases can be repeated. Ultimately, the results are verified and rolled out resp. used as a basis for business models and decisions (Fayyad, Piatetsky-Shapiro and Smyth, 1996; Collier et al., 1998).

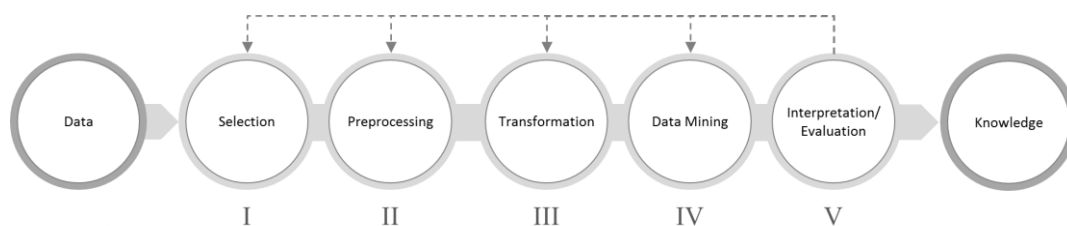


Figure 11: Stages of the KDD Process [source: own representation based on (Fayyad, Piatetsky-Shapiro and Smyth, 1996)]

In pace with the development of the KDD, the industry has developed a de facto standard called the Cross Industry Standard Process for Data Mining

(CRISP-DM) (Chapman et al., 2000). Today the CRISP-DM is deemed as the leading method within the context of data mining as well as knowledge discovery (Marbán, O.: Mariscal, G. and Segovia, 2009) and is referred to in detail in subchapter 2.2.4 due to its significance for this dissertation.

2.2.2 Classification and Conceptual Distinction of Terminologies in Conjunction with Business Analytics

The research area of business analytics can be referred to as an extensive field which distinguishes itself by the fact that there is a lot of terminology that is not subject to any distinct scientific definition. As a consequence, experts use different terms to describe the same methods and objectives. This subchapter attempts to put the most important terms of business analytics into context and to define them. Among others, this includes business analytics, predictive analytics, big data, business intelligence, information retrieval, data retrieval, data mining as well as text mining and text analytics.

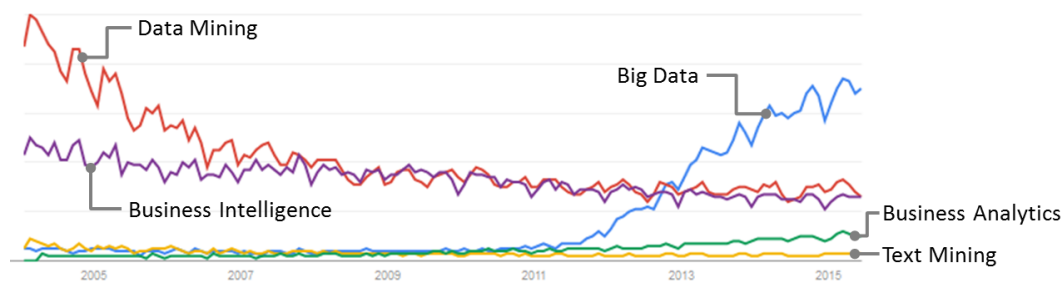


Figure 12: Interest for the Respective Topic over Time [source: (Google Inc., 2015)]

Google trends display the development resp. the demand for these terms in a descriptive trend indicator from 2004 until today (cf. Figure 12¹⁴). This clearly shows that the topic of big data outranks the previously popular terms of data

¹⁴ The lines display the search interest in relation to the highest value in the chart, and provide information on how often this particular term was searched for compared with all queries made on Google over time.

mining and business intelligence. Text mining as an independent topic is continuously on a low level, despite the fact that it assumes a key role in the context of big data.

Business Intelligence

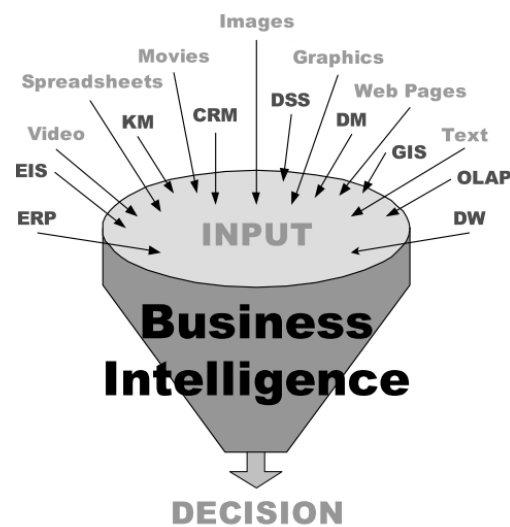


Figure 13: Input for Business Intelligence Systems [source: (Negash and Gray, 2008)]

The Economic Dictionary by Gabler defines the term of business intelligence as a collective term for the IT-supported access to information as well as the analysis and preparation of this information. The aim of this process is to generate new knowledge from the knowledge that is already existent in the company. This newly generated knowledge is supposed to be relevant and action-oriented to support management decisions for the company (Lackes and Siepermann, 2015a). Gartner's definition is focused more on the aspect of IT instead of the area of generating knowledge as referred to by the Economic Dictionary: "*Business intelligence (BI) is an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance*" (Gartner Inc., 2013c). However, it is the Institute for Business Intelligence that provides the most comprehensive definition. According to this definition, business intelligence is a holistic approach to integrate strate-

gies, processes and technologies in order to generate crucial knowledge about status, potentials and perspectives from distributed and nonhomogeneous company, market and competition data (Seufert and Lehmann, 2004). Based on this very extensive definition it can already be assumed that additional methods are required within BI. Therefore, Negash and Gray published a chart (cf. Figure 13) in line with the following definition: “*BI systems combine data gathering, data storage, and knowledge management with analytical tools to present complex and competitive information to planners and decision makers*” (Negash and Gray, 2008: 3190.). This chart has the purpose of illustrating the different sources of information. In addition to the various structured data sources such as CRM and ERP systems, unstructured areas such as text and websites are also pointed out.

Business Analytics

Eckerson defines business analytics as a subset of business intelligence. As already mentioned, business intelligence focuses on collecting and preparing data. Business analytics, on the other hand, explicitly sets in after the process of business intelligence. This makes it possible to gain insights based on classic reporting (Eckerson, 2007). Companies rely on these kinds of systems in order to be able to act more flexibly on the market by means of quantitative and statistical analysis and prediction models (Davenport and Harris, 2007) and to enable comprehensive analyses of different data silos (McNeill, 2012). This fits the description of the Encyclopedia of Business Informatics which refers to a process of data refinement with respect to business analytics, taking into consideration the specific aspect of prediction (Felden, 2012). In many publications the same five areas are named with regard to the term of business analytics. These are statistics, data mining, prediction, text analytics and optimization. The Gartner IT Glossary clearly stresses the analytical aspect of the term in its definition: “*Business analytics is comprised of solutions used to build analysis models and simulations to create scenarios, understand realities and predict future states. Business analytics includes data mining, predictive analytics, applied analytics and statistics, and is delivered as an application suitable for a business user*” (Gartner Inc., 2013b). In his book *The value of business analytics: Identifying the path to profitability*, Stubbs highlights the particular value of data and refers to business analytics as a process that should support value-based decisions. According to Stubbs, business analytics should specifically

aim at increasing a company’s profitability by enhancing the value of the existing data (Stubbs, 2011).

Figure 14 illustrates Stubb’s idea by classifying the most common business analytics approaches by the competitive advantage and the degree of maturity. It becomes obvious that only the last three procedures of advanced analytics, predictive analytics and business optimization are suited for proactive data evaluation, offering the highest competitive advantage to information-driven enterprises.

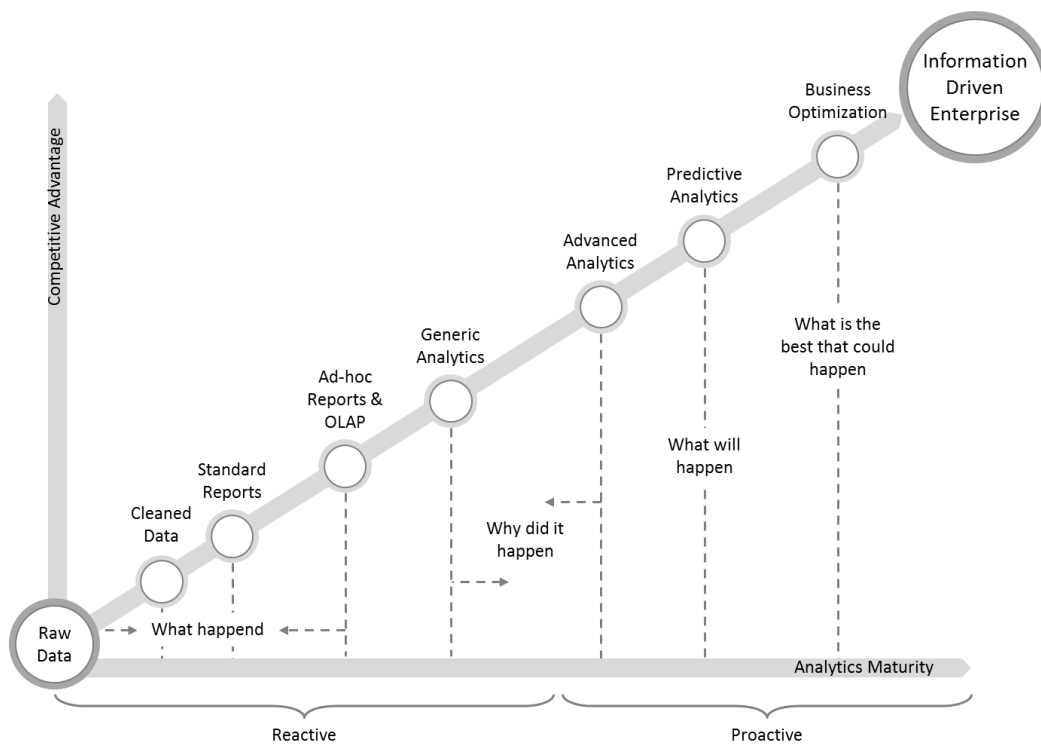


Figure 14: The Business Analytics Maturity [source: own representation based on (Sierra Infosys Inc., 2014)]

Predictive Analytics

Predictive analytics can be seen as a subset of business analytics and is specifically focused on empirical prediction (Shmueli and Koppius, 2011). This is also highlighted in Figure 14, which introduces predictive analytics as an individual aspect. The term implies various statistical techniques, including machine learn-

ing and data mining, among others (Eckerson, 2007). This approach of analysis aims at defining the probability regarding a prediction factor for a specific object, e.g. a credit score for the arrival of a certain event (Nyce, 2007). In its definition the Gartner IT Glossary describes the direct proximity to data mining:

Predictive analytics describes any approach to data mining with four attributes:

1. An emphasis on prediction (rather than description, classification or clustering)
2. Rapid analysis measured in hours or days (rather than the stereotypical months of traditional data mining)
3. An emphasis on the business relevance of the resulting insights (no ivory tower analyses)
4. (Increasingly) An emphasis on ease of use, thus making the tools accessible to business users
(Gartner Inc., 2013e)

Big Data

Big data is one of the past four years' biggest IT hypes and can be regarded as a generic term today. Ever since this term was established in 2008 numerous product vendors have been trying to claim the prerogative of interpretation for themselves, which complicates deriving a definition that is independent of the industry (Dutcher, 2014). In 2012 the industry association BITKOM developed an initial guideline on the application of big data in companies in a work group and also attempted to derive a preferably independent definition. First of all, BITKOM refers to big data as the analysis of large data quantities from diversified sources at a high pace with the goal of creating an economic benefit. In the extended version the association describes big data as an approach that supports the economically reasonable acquisition and use of insights that are relevant for decision-making from qualitatively diverse and differently structured information. This information is subject to fast change and is available in an unprecedented quantity. Big data reflects the technical progress of the past years and comprises strategic approaches such as applied technologies, IT architectures, methods and procedures that have been developed specifically (Bartel et al., 2012).

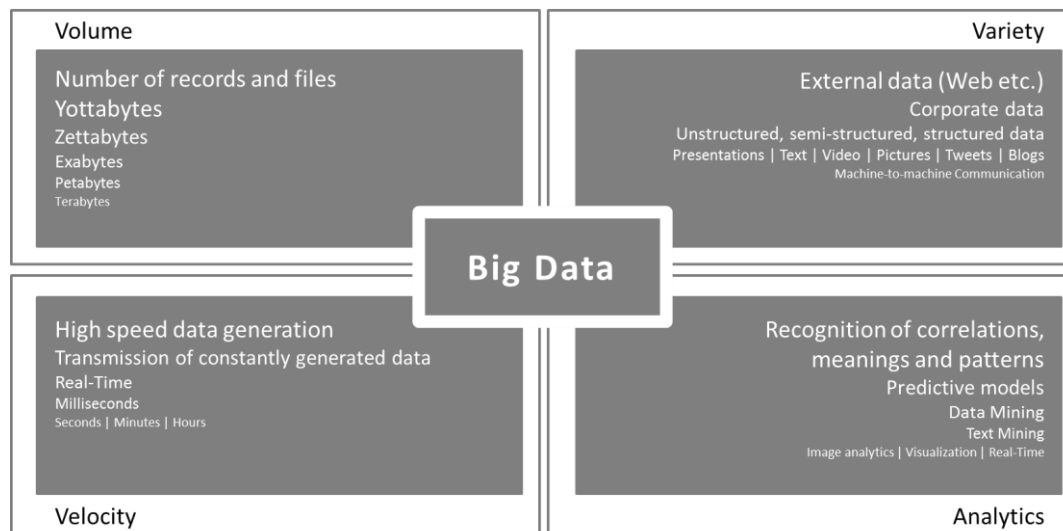


Figure 15: Definition of Big Data [source: (Bartel et al., 2012: 19.)]

The second guideline on the topic of big data published by BITKOM two years later refers to the technological phenomenon of the term in particular. According to the guideline, classic technologies were not fit to face the new challenges resp. real-time processing in particular (Dinter et al., 2014). Recently, however, most of the companies have agreed on the concept and the definition of big data. Three main terms thereby emerge, namely velocity, volume and variety, which BITKOM complemented by the term of analytics (cf. Figure 15). The Gartner IT Glossary defines big data as follows: “*Big Data is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making*” (Gartner Inc., 2013a). For this reason the term of analytics fits the definition very well, as it highlights the main objective of this relatively new approach – uncovering new insights. According to Gillick, “big” should therefore be regarded less in the context of the volume of data as such, but with the omnipresence and the significance of the data: “*Big data represents a cultural shift in which more and more decisions are made by algorithms with transparent logic, operating on documented immutable evidence. I think “big” refers more to the pervasive nature of this change than to any particular amount of data*” (Dutcher, 2014). Distinguishing big data from business intelligence systems, Plattner sees it as a procedure that goes without elaborate preparation and pre-

processing of the data and therefore uses new methods such as text mining (Plattner, 2013).

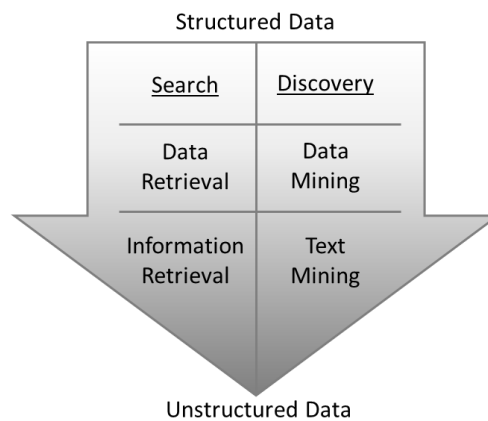


Figure 16: Data analysis with different degree of structuring
 [source: own representation based on (Manhart, 2008)]

The previously defined terms can all be regarded as descriptive generic terms of specific types of procedure, which use the same methods over and over again once examined in detail: data mining, text mining, etc. These terms on the other hand describe basically one goal: data evaluation. However, the use of the specific term is oriented on the function and the area of application. As an example, the terms of retrieval and mining are often used synonymously despite the fact that they clearly distinguish themselves regarding their purpose (cf. Figure 16). While retrieval focuses on the search for information within a volume of data, mining is aimed at preparing and analyzing the data. The primary goal of mining is to discover new correlations and patterns. The use of the respective term thereby depends on the level of structuring of the data. Data mining is based on numerical, structured data, while text mining is based on an unstructured, textual data stock.

Data Mining

According to the Economic Dictionary by Gabler, data mining refers to the application of methods and algorithms for the preferably automated extraction of

empirical correlations between planning objectives, the data of which is provided in a database set up specifically (Lackes and Siepermann, 2015b). Gartner solves this rather cumbersome definition of the term in his IT Glossary: *“Data Mining is the process of discovering meaningful correlations, patterns and trends by sifting through large amounts of data stored in repositories. Data mining employs pattern recognition technologies, as well as statistical and mathematical techniques”* (Gartner Inc., 2013d). For Fayyad the process of data mining is only a subprocess of KDD, using algorithms to identify patterns within the volume of data (Fayyad, Piatetsky-Shapiro and Smyth, 1996). On the other hand, Runkler clearly defines the entire process of identifying knowledge from data collection, to preprocessing the raw data through to identifying patterns as a data mining process (Runkler, 2010: 3.). Furthermore, in his definition Cabena focuses more strongly on business relevance: *“Data Mining is the process of extraction of previously unknown, valid, and actionable information from large databases and then using the information to make crucial business decisions”* (Cabena, 1998). The different definitions chiefly distinguish themselves by means of their processuality. The differences in the definitions can be explained with the historic development of the term. Over the years data mining has developed from a subprocess (cf. Figure 11) of KDD – data mining – to the eponymic term of the entire process (Sumathi and Sivanandam, 2006).

The most well-known methods of data mining include association analysis, cluster analysis, decision-making procedure as well as artificial neural networks. All of these methods have an explorative character and they are data-driven. The main tasks lie in the classification (resp. solvency rating), prediction (buying probability), clustering (e.g. grouping advertising recipients), association (e.g. shopping cart analysis) and text mining (e.g. sentiment analysis) (Cleve and Lämmel, 2014; Witten, Frank and Hall, 2011).

Data & Information Retrieval

According to Gabler, information retrieval is referred to as the evaluation of a stock of unstructured, stored data (mostly texts) according to search terms, and specifically the search and provision of the data found (Lackes and Siepermann, 2015c). Cambridge University defines these terms as follows: *“Information retrieval (IR) is finding material (usually documents) of an unstructured nature (usually text) that satisfies an information need from within large collections (usually stored on computers)”*

(Manning, Raghavan and Schütze, 2008). Furthermore, Belkin sees the problem solving approach as the cardinal point of the procedure: *“The goal of an information retrieval system is for the user to obtain information from the knowledge resource which helps her/him in problem management”* (Belkin, Oddy and Brooks, 1982).

The field of information retrieval has been of particular interest since the end of the 1940s and has gained more attention due to the exponential growth of data volumes in the past years (Sanderson and Croft, 2012). Information retrieval (IR) is an area of expertise that profits from the insights of data mining. Simplified, it is the computer-assisted search for complex contents as well as their presentation for the user. Data mining procedures such as the cluster analysis are used to improve the search results and their presentation for the user, for example by grouping similar search results. Text mining and web mining are two specializations of data mining that are closely associated with information retrieval (Singhal, 2001; Frakes and Baeza-Yates, 1992).

The only difference between data and information retrieval basically is the level of structuring of the data. However, a stronger distinction is chosen from a user’s point of view and also in many publications. According to this differentiation, data retrieval describes the selection and extraction of data available in a database in a structured form. The decisive factor for data retrieval is the selected query language that has to reproduce all documents, if possible, based on defined conditions by means of regular expressions or relational algebra expressions (Aho and Ullman, 1979). The error rate should thereby be approaching zero. In the case of information retrieval, queries may include a certain inaccuracy resp. low error rates, as it is usually based on unstructured data. A different aspect of distinguishing the terms is to differentiate between data and information. Data retrieval only queries a database, but does not meet the challenge of finding information on a certain topic in this context. One of the main tasks of information retrieval is also to interpret data and to add relevance as a consequence. Therefore, the context of information retrieval also features various quality criteria such as recall and precision for the classification of the false negative and the false positive rate (Baeza-Yates and Ribeiro-Neto, 1999).

Text Analytics

Defining the term of business intelligence has already stressed the strong focus on structured data. As already stated, documents could however provide other important information on the decision-making process within companies, which are not part of the standard report resp. of BI analyses. Extracting evaluable facts and entities from documents and feeding them to business intelligence systems reflects a transformation of unstructured to structured data, which is known as the ETL process (data extraction, transformation and load). In line with this process text analytics is defined as a procedure that extracts facts (addresses, parts, complaints) and entities (customers, products, accounts), among others (Russom, 2007; Das, 2013). In its definition, Gartner's IT Glossary stresses the primary purpose of use: *"Text analytics is the process of deriving information from text sources. It is used for several purposes, such as: summarization (trying to find the key content across a larger body of information or a single document), sentiment analysis (what is the nature of commentary on an issue), explicative (what is driving that commentary), investigative (what are the particular cases of a specific issue) and classification (what subject or what key content pieces does the text talk about)"* (Gartner Inc., 2013f). At the same time, this definition can be used as a differentiation from text mining. Text analytics does not describe the extraction method, but rather the subsequent use of the information to carry out extended analyses. The underlying idea is to uncover patterns and relationships across a large stock of documents, instead of using individual search terms on the texts (Panian, 2010; Anderson, T. H. C., 2011).

Text Mining

Many of the previously described procedures refer to the application of text mining for developing unstructured data resp. for extracting information from texts. Accordingly, the definition in Gartner's IT Glossary is also quite simple: *"The process of extracting information from collections of textual data and utilizing it for business objectives"* (Gartner Inc., 2013g). Text mining is based on a group of methods for structuring texts and extracting new and relevant information. Unlike other approaches such as information retrieval, which has the main purpose of searching for and providing information, text mining focuses on the analysis of texts (Heyer, Quasthoff and Wittig, 2006; Aggarwal and Zhai, 2012).

The various references to text mining within the different disciplines lead to the assumption that the detailed definition is dependent upon the purpose of use. This supposition is confirmed by Mehler and Wolff, who point out four perspectives of text mining:

- 1) Data mining perspective: Text mining is data mining on textual data used for exploring relevant knowledge from texts (Rajman and Besançon, 1998; Fayyad, Piatetsky-Shapiro and Smyth, 1996; Kodratoff, 1999).
- 2) Information retrieval perspective: Text mining is the improvement of information retrieval by means of text summaries and information extraction (Jacobs, 1992; Göser, 1997). Today this perspective can be regarded as outdated, as scholars have agreed on the fact that the terms describe different areas (Mehler and Wolff, 2005).
- 3) Knowledge-oriented perspective: Text mining is an analysis procedure that generates information from several texts, developing correlations and acquiring knowledge that is not immediately identifiable (Hearst, 1999).
- 4) Methodical perspective: Text mining is a method for categorizing texts, extracting information and summarizing texts (Joachims and Leopold, 2002).

To continue, Tan provided a very extensive and accurate description of the term in 1999: *“Text Mining, also known as text data mining or knowledge discovery from textual databases, refers generally to the process of extracting interesting and non-trivial patterns or knowledge from unstructured text documents. It can be viewed as an extension of data mining or knowledge discovery from (structured) databases. [...] Text Mining, however, is also a much more complex task (than data mining) as it involves dealing with text data that are inherently unstructured and fuzzy. Text mining is a multidisciplinary field, involving information retrieval, text analysis, information extraction, clustering, categorization, visualization, database technology, machine learning, and data mining”* (Tan, 1999: 65.). Here, Tan already covers the bordering areas of application of text mining, which Miner presented in his Venn diagram (cf. Figure 17) 13 years later. The chart also shows that many of the related techniques are not primarily from the research field of text mining, but part of other disciplines, some of which were already used long before text mining was defined.

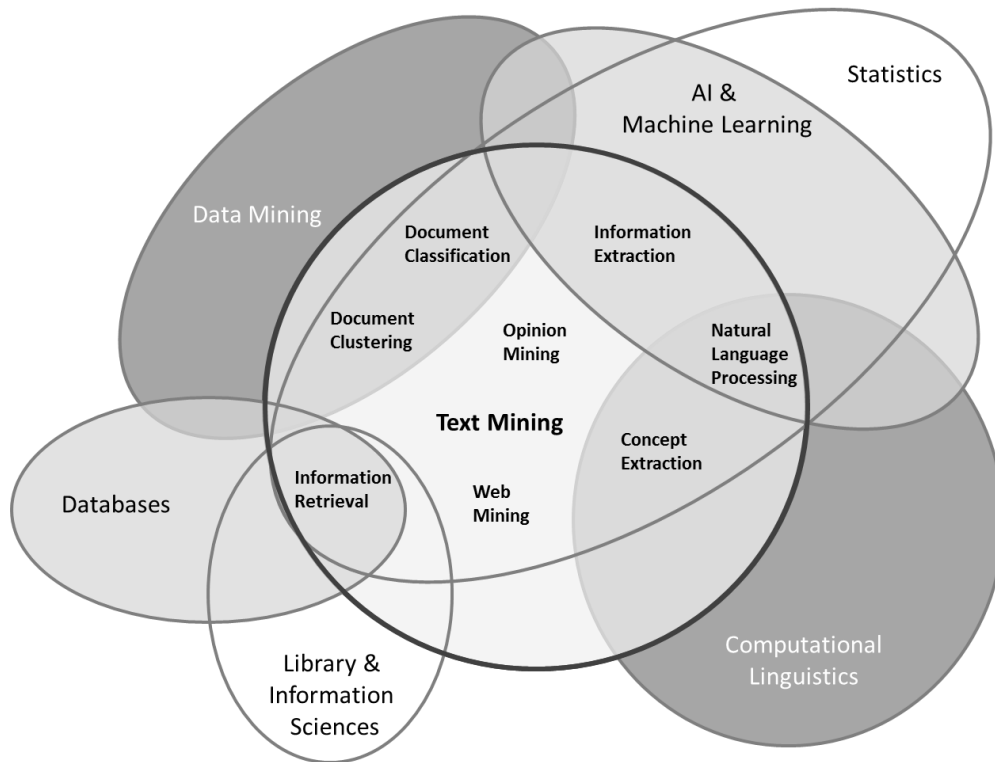


Figure 17: Venn Diagramm of the Intersection of Text Mining and Six Related Fields
[source: own representation based on (Miner, 2012)]

2.2.3 Text Mining as Key Method in the Application of Business Analytics

A key role can be assigned to text mining in business analytics in transforming texts into items of information which are relevant for decision-making. As already described on a number of occasions, the vast majority of information is available in the form of texts and these are of great value for companies when they are developed and utilized for optimizing business processes. However, examples of the significance of text mining cannot only be found in economics, numerous applications also exist in the healthcare (Holzinger, Geierhofer and Erath, 2007; Korkontzelos, Mu and Ananiadou, 2012), natural sciences (Kim et al., 2003; Cohen and Hersh, 2005) or knowledge management (Carpineto and Romano, 2004) sectors.

Some popular examples from economics will be briefly presented hereinafter in order to convey an impression of the potential of text analytics. Relevant literature should be referred to for further examples from finance (Zhang and Zhou, 2004; Schumaker and Chen, 2009) and the insurance industry (Popowich, 2005), IT (McKeown et al., 2002; Steinecke and Straub, 2010) etc.

PayPal, an online payment service with over 143 million customers and over eight million transactions per day, uses text mining inter alia to improve and optimize its service offering, automatic sentiment analysis, customer churn prediction and prevention and also to derive recommended actions according to the principle of the Next Best Action. For PayPal the particular challenge lies in capturing texts from a multitude of different sources (e-mail, Twitter, Facebook, feedback forms, etc.) coupled with the high volume in over 30 languages. Manual evaluation is inconceivable or economically unviable. However, at the same time the company requires the automatic recognition, prioritization and rectification of new issues and problems. This should take place in real time where possible. Customer feedback is automatically recorded, classified and problems and issues categorized according to their frequency and criticality using text mining. As an example, PayPal has thus been able to reduce credit card problems by over 50 per cent (Dinter et al., 2014).

DATEV, a software provider for tax advisors and auditors, uses text mining for the identification and assignment of frequently used synonyms or the correlation of relevant fiscal law terms (for example, company car and private use). It therefore involves semantic development of the texts on the basis of a domain-specific knowledge model (Dinter et al., 2014).

These two impressive examples from economics require some basic procedural steps in advance of actual text mining which will be explained in the following two subchapters.

2.2.3.1 *The Text Mining Process*

In a practical environment the application of text mining on one or several documents is not possible without several upstream steps. These operations of data preparation use different techniques that were in part already defined in chapter 2.2.2 – *Classification and Conceptual Distinction of Terminologies in Conjunction with Business Analytics*. This includes information retrieval, information ex-

traction, natural language processing (NLP) as well as syntactical analyses. Figure 18 displays the usual process flow of a typical text mining approach consisting of five steps.

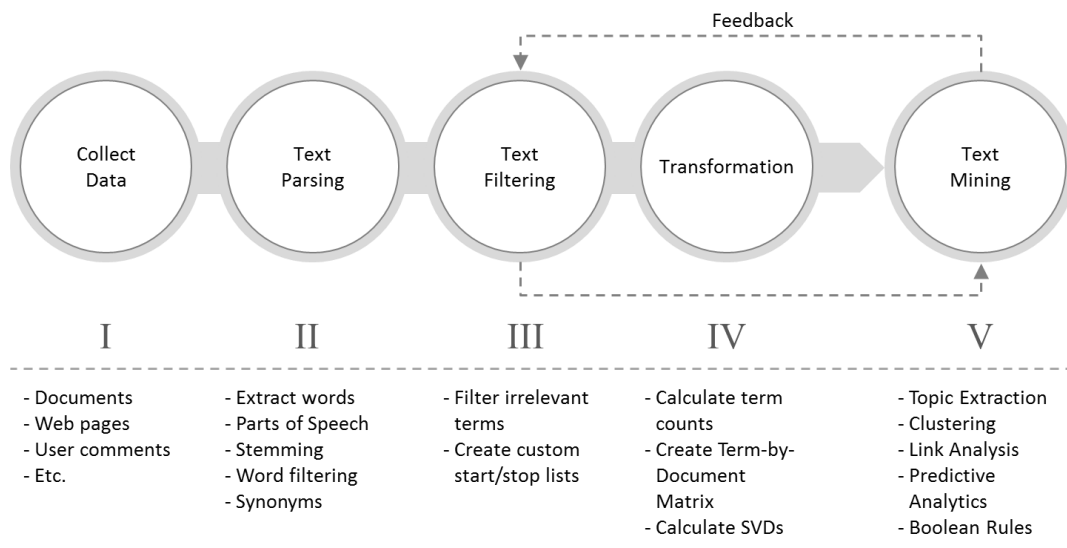


Figure 18: The Text Mining Process Flow [source: own representation based on (Chakraborty, Pagolu and Garla, 2013)]

The text mining process is based on the documents that have to be compiled in the first step. These may have the most different shapes, formats and levels of structuring – including press releases, patent documents, manuscripts, legal texts, e-mails, business reports and web documents to name just a few examples. Although all documents can be regarded as unstructured data, most contain a great amount of evaluable meta data as well as syntactic and semantic structures. Therefore, websites or e.g. XML files, which are heavily based on meta data, are classified as semi-structured data. Nevertheless, all documents must undergo the process of parsing (Feldman and Sanger, 2007).

Feature extraction, which can be understood as linguistic data preparation and ultimately transforms unstructured information to a structured form, is one of the main tasks of text parsing. Feature extraction is based on the principle of dimension reduction and aims at reducing the amount of characteristics without losing the description of a large data set. The specific challenge lies in the great

amount of characteristics already available in a very small number of documents. This is however opposed by a low level of overlapping characteristics in a great number of documents. Therefore, the selection and type of the characteristics has a far-reaching impact on the quality of the text mining process. This is why, according to Feldman, the volume of characteristics is always a compromise between the exact description of a document and the correctness of the analysis of all documents (Feldman and Sanger, 2007; Liu and Motoda, 1998).

In this step text mining therefore uses the techniques of natural language processing, three areas of which are mainly applied (Kao and Poteet, 2007; Rajman and Besançon, 1998):

- Morphologic analysis
 - o Morphology: Composition of words made from morphemes.
 - o Stemming: Tracing a word back to its root word.
 - o Lemmatization: Tracing a word back to the lemma – a basic form of the word; often by using dictionary-based approaches, e.g. tracing back from “thought” to “think”.
 - o Synonym lists: Collection of different linguistic or lexical expressions or characters with the same or a very similar meaning.
 - o Stop lists: Collection of hardly informative or irrelevant words to be removed from the data set (prepositions, articles, conjunctions, etc.)
- Syntactic analysis
 - o Part-of-speech (POS) tagging: Tagging of individual words with their specification (e.g. verb, adjective, noun) based on dictionaries and frequent sequences of word types.
 - o Parsing: Analysis of the syntax and labelling of each word according to its position in the sentence (e.g. subject, predicate, object).
- Semantic analysis:
 - o Contextual knowledge to divide the text into units depending on their meaning, e.g. the word “bank” can be used for a financial institution or a seating possibility.

In a first step, irrelevant words that are not important for the context are eliminated. In the German language these are up to 50% of the words in a document. These mainly include articles, pronouns and adjectives that are not relevant for text mining and simply assume a grammatical function. Subsequently, stemming is used for additionally simplifying the text. This method reduces word forms to their original grammatical form in order to avoid a separate analysis of the individual forms. By tracing the words back to their root word, the complexity of the documents is reduced and the possible results in a query are increased over the entire data volume. Furthermore, thesauruses may also be used to reduce the volume of words. This is also possible by summarizing words that have the same meaning. Depending on the quality of the underlying data other processes may also be possible in the phase of preprocessing, e.g. spell checking documents with a low priority on orthographic correctness (Chakraborty, Pagolu and Garla, 2013).

Phase number three, the text filtering phase, mainly deals with filtering relevant from irrelevant documents. Furthermore, it is also necessary to take extreme values into consideration that might distort the subsequent processing. It is possible to make a selection within the documents based on previously defined terms in the shape of a start list (desirable terms) or a stop list (terms to be filtered) (Hotho, Nürnberger and Paaß, 2005).

In a subsequent step, the texts are transformed into figures which can then be evaluated with the actual analysis software. Two essential procedures can be used in this case, which are referred to synonymously in some publications. First of all, the principle component analysis (PCA) which is also known as singular value decomposition (SVD). In line with the principle of the PCA a small number of factors has an above-average variance, while a large number of factors has a below-average variance (Berry and Castellanos, 2004). In concrete terms this means that the PCA tries to structure, simplify and illustrate extensive data sets by finding a great number of statistical variables with a low number of preferably meaningful linear combinations (Hastie et al., 2005). The SVD is based on displaying a product in three specific matrixes which results in a singular value that is characteristic for the respective matrix. Within the framework of text mining, SVDs enable the reduction of dimensions (Turney, 2001). As an example, with respect to information retrieval, SVDs are used to uncover specific concepts which can then be used e.g. to find differently named information on the same topic

(Albright, 2004). Furthermore, a term-document matrix is mostly created in the transformation step to describe the frequency of a term in a quantity of documents in a mathematical matrix. This is used as the starting point for multi-variant analyses (Manning, Raghavan and Schütze, 2008).

The last step features the actual text mining, actually applying the classic methods of data mining. The following chapter 2.2.3.2 – *Analytical Methods for Knowledge Generation from Texts* takes up the most important techniques.

2.2.3.2 *Analytical Methods for Knowledge Generation from Texts*

Text mining is always a part of a superordinate data mining process that uses different mathematical, statistical and linguistic procedures. Within the framework of evaluating documents from the area of public tenders, in the following, this dissertation focuses on a small number of procedures that are particularly relevant in the further course. These are written in bold letters in Table 9 and will be explained in the following text. For the sake of completeness, the table also shows a number of algorithms with the same goal using the various methods, e.g. document classification.

Table 9: Algorithms used in Text Mining and their Application Areas [source: own representation based on (Miner, 2012)]

Algorithm	Area of application
Naïve Bayes	Document Classification
Conditional random fields	Information Extraction
Hidden Markov models	Information Extraction
Decision trees	Document Classification
k-means	Clustering
Singular value decomposition (SVD)¹⁵	Document Classification, Clustering

¹⁵ Has already been explained in Chapter 2.2.3.1 – *The Text Mining Process*

Support vector machines	Document Classification
Logistic regression	Document Classification
MARSplines	Document Classification
Neural network	Document Classification
Link analysis	Concept Extraction
Term frequency - inverse document frequency	Topic Identification
Word clustering	Concept Extraction
Regression	Classification
k-nearest neighbors	Document Classification

Document Classification

The term of text categorization (TC), which is often used synonymously to text classification, topic spotting or document classification today, describes the process of assigning an electronic document to one or several categories based on its content. In a broader sense, it can also refer to the labelling of documents. The main applications using these procedures include spam filters, e-mail routing and e.g. automatic speech recognition in documents (Sebastiani, 2002; Zelkowitz, 2005). Some authors also see topic identification (TID) as a synonym for text categorization, as both approaches use the same procedures to some extent. According to Nomoto and Matsumoto, document classification should however be regarded as a procedure for TID, which isolates individual topics of a text and uses them as categories (Nomoto and Matsumoto, 1996).

Thus, the procedures of document classification aim at assigning the whole document, individual paragraphs or passages to a category using a specific algorithm. This can be compared to the work of librarians. It is their task to categorize a document/book both formally – which includes data such as the title, the author, the publisher, etc. – as well as regarding its content. The latter includes assigning it to a catalog that is organized according to a set system (e.g. subject catalog, key word catalog, etc.). The catalog can also consist of already processed and labelled documents, so-called model texts. In a next step the document/book is

labelled based on the catalog. The document/book may also contain different topics that are identified and weighted using an algorithm, and ultimately the main topic is assigned to the respective category within the framework of topic identification (Jingbo and Tianshun, 2002). In a last step of the process the labelled documents can be processed with additional procedures of data mining, e.g. clustering (Miner, 2012).

There is a whole array of classification techniques available for this procedure, including the most well-known approaches of linear and probabilistic classifiers or a classifier combination. The latter can be regarded as a democratic approach of classifiers that creates individual results in favor of a category within the framework of a majority decision. The two approaches of linear and probabilistic classifiers are explained in the following in order to highlight the basic difference of the approaches (Joachims, 1998; Manning, Raghavan and Schütze, 2008).

Linear classifiers: Approach during which all of a text's characteristics are weighted according to their frequency or the term frequency – inverse document frequency – and assigned to a specific category if a certain threshold value is exceeded. This procedure is applied using a vector that makes a simple differentiation between positive and negative training documents, and it is increasingly used for machine learning (Burges, C. J. C., 1998; Leopold and Kindermann, 2002).

Probabilistic classifiers: Probabilistic classifiers are used to calculate contingent probabilities of a given document being associated with a specific category. If a threshold value is exceeded, the document is assigned to the respective category. This approach takes up the Bayes theorem that describes the reversal of a conclusion. In this context it is described as a “naïve Bayes classifier” (Manning, Raghavan and Schütze, 2008; Li and Ezeife, 2006).

Topic Identification

Topic identification (TID) is a procedure for automatic categorization of texts and the assignment of one or several meaningful labels. The assignment of these labels can be accomplished from the documents/texts to be categorized themselves, by extracting them in a first step. This is referred to as so-called internal topic identification. With external topic identification the labels are provided from a previously defined list of topics. TID can generally use a number of statis-

tical methods depending on the area of application and based on the assignment of metrics. Cache models, term frequency – inverse document frequency (TFIDF) and weighted unigrams are only three examples of these methods (Aery, Ramamurthy and Aslandogan, 2003; Bigi et al., 2001).

Today procedures for topic identification can be found in many fields. Providers, e.g. of service hotlines, use this approach to automatically forward customers to the right case handler by voice command (Wintrode and Kulp, 2009). The same procedure is used for e-mail routing or for the machine-based categorization of documents (e.g. newspaper articles) (Aery, Ramamurthy and Aslandogan, 2003). Search engines use algorithms for topic identification to rank websites and to create generic groups of topics for the faster exploration of results (Ozmutlu, 2006). Furthermore, TID is also applied in numerous research projects, e.g. for finding topics in the analysis of oral presentations by means of linguistic models (Chen, 1995).

In the course of internal topic identification a label is created from the words of the associated document. This means the label cannot contain any words that are not found in the document (Ozmutlu and Cavdur, 2005). The significance of this classifier depends on the algorithm for the creation and may be contradictory, without reference to the content or misleading. There are different approaches to circumvent these disadvantages with elaborate algorithms by ensuring that the labels of different clusters are always definite, that all documents of a cluster are recorded on the label and that the word occurring the most is part of the label, among other things. As an example, this problem is addressed with algorithms for detecting key phrases such as the naïve Bayes classifier or weighted centroid covering. However, they do not achieve the same level of accuracy as external topic identification (Stein and Meyer zu Eissen, S., 2004; Frank et al., 1999).

External topic identification distinguishes itself by means of the label specification regarding a number of classification characteristics. This is also referred to as the descriptor quantity. This approach benefits from the fact that the significance of the labels can be influenced and they can also be described by abstract terms that are not included in the documents. The quality of this procedure highly depends on the descriptor quantity and condition, e.g. the ability to cluster specific terms. In addition to the possibility of recording the classification characteris-

tics by machine learning using training documents, there is also the approach of ontology-based topic identification. There are various procedures in this context for using publicly available descriptors. The Wikipedia encyclopedia graph¹⁶, the category/index services by Yahoo!¹⁷ and the Open Directory Project (DMoz)¹⁸ are prominent examples of this approach. They strive to capture all existing fields of knowledge by a preferably well-described and extensive descriptor quantity. As an alternative, it is also possible to create a domain-specific category tree with the help of experts. This approach is reasonable if certain industries or specific contents are to be categorized. The basic setup is identical for both methods.

(Document) Clustering

In a narrower sense, clustering is the automated process of identifying and grouping similar or equal elements. Consequently, the clustered elements are referred to as clusters (Feldman and Sanger, 2007: 45 et seq.). The procedure intends to uncover new groups among the data, which at the same time is a differentiation from the classification approach that assigns the documents to existing categories (Aggarwal and Zhai, 2012). The clustering procedure can be applied as part of an additional processing routine as well as the final step of text mining (Miner, 2012). As an example, it is used for grouping recipients in marketing based on different variables such as the purchasing behavior, for classic market segmentation, for categorizing genes with similar functions in biology or for fraud detection of credit cards based on outlier detection in the banking sector (Ngai, E. W. T., Xiu and Chau, D. C. K., 2009; Phua et al., 2010; Brito et al., 1997).

The principle of clustering is based on the fact that there is a great degree of homogeneity within a cluster and a great degree of heterogeneity outside of the cluster (cf. Figure 19). Based on the heterogeneous total volume of the documents the aim is to establish partial amounts by means of a suitable selection of variables. These partial amounts are calculated from the proximity measure. The proximity measure describes the function for defining the distance resp. the similarity of the objects. This calculation ultimately leads to a matrix that ascribes a proximi-

¹⁶ cf. <http://en.wikipedia.org/wiki/Wikipedia: Categorization>

¹⁷ cf. <http://dir.yahoo.com/>

¹⁸ cf. <http://www.dmoz.org/>

ty to two objects at a time. This is followed by the actual clustering during which groups are formed based on the proximity matrix, which can be accomplished using the following three methods:

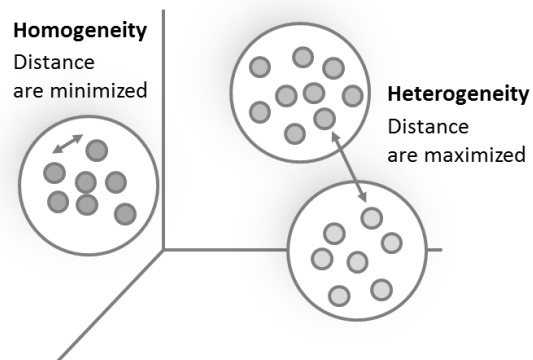


Figure 19: The Data Mining Clustering Approach [source: own representation]

Hierarchic clustering: Iterative assignment of objects in a tree structure following an agglomerative or divisive approach. The former can also be referred to as a bottom-up procedure that reflects each object in a cluster, and then uses an iterative approach to group these clusters. As an example, this procedure includes single linkage for outlier detection or the Ward procedure for the determination of the cluster quantity (Ward Jr, J. H., 1963; Sneath, P. H. A., 1957). The divisive approach is a top-down procedure that creates increasingly smaller clusters from one large cluster.

Partitioning clustering: The cluster amount is predefined and the composition of the clusters is determined by the exchange procedure in order to achieve a stable result with a possible low error value. The most well-known example of partitioning clustering is the k-means procedure (Hartigan and Wong, 1979).

Density-based clustering: This procedure regards clusters that lie closely together as objects in a d-dimensional space or searches for areas in a space without objects. This results in cluster boundaries and consequently also in clusters. Support vector machines are prominent representatives of this technique (Xu et al., 2004; Ester et al., 1996).

Combined procedures: Two-step clustering or spectral clustering is based on different matrix operations leading to a reduction of the dimension and creating clusters on this basis. Singular value decomposition is an example of this procedure (Bickel and Scheffer, 2004).

(Kaufman and Rousseeuw, 2009; Aggarwal and Zhai, 2012; Miner, 2012)

Outlier detection, also referred to as anomaly detection, can be regarded as a special procedure within the framework of document clustering and will be of significance in the further course of this dissertation. In data mining outlier detection is referred to as a procedure for the identification of objects that does not correspond to a certain expectancy value, pattern or other objects (Hodge and Austin, 2004). Therefore, this procedure is often used to exclude anomalous resp. undesired data. However, it can also be applied for the exact opposite, e.g. for fraud detection, for uncovering errors in texts or for network intrusion detection (Dokas et al., 2002; He, Xu and Deng, 2003).

Decision Tree

Decision trees are among the most important procedures in data mining, as they can inductively derive rules from data. The method is based on the principle of “divide and conquer”, which recursively breaks down partial problems until they are manageable. Unlike other approaches based on deductive machine learning, which are subject to great complexity and effort regarding the development of rules, decision trees enable to derive rules from the data itself, which practically corresponds to the automatic generation of knowledge. This is based on a technique for determining classifiers to ensure that an object is automatically classified. The setup of the tree is focused on a possibly homogenous structure of leaves on the predicted value and still has to consider all of the data. Decision trees generally consist of one root node, any number of inner nodes that each represents a logical rule, as well as at least two leaves, which each represent a reply to the decision problem. Therefore, the entire tree represents a set of formalized and standardized rules (Verbeke et al., 2011; Wu et al., 2008).

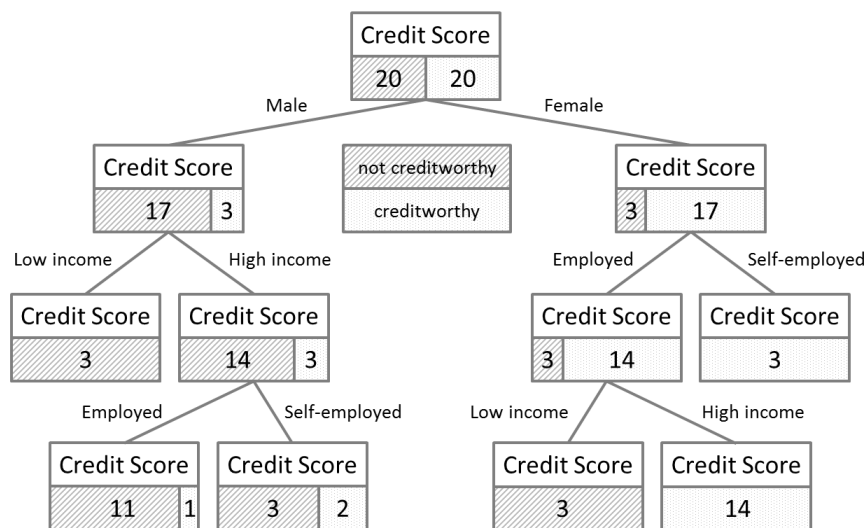


Figure 20: Example of a Credit Score Decision Tree [source: own representation]

There are basically two different types of decision trees – classification and regression trees. The former define the classification probability of a certain object being an element of a particular category. The regression tree only estimates the value of a target variable, which is why most procedures prefer the classification tree. Customer classification and shopping cart analysis, which demonstrated new interesting correlations thanks to the disjoint decomposition of data beginning in the 1990, are well-known areas of application. Catchphrase: Those who buy diapers on Friday night will also buy beer (Berry and Linoff, 1997; Zhao and Bhowmick, 2003; Witten and Frank, 2005).

The heuristics on the induction of rules of a decision tree are essentially based on four different algorithms:

- CHAID (Sonquist and Morgan, 1964): Developed in 1964. The algorithm uses the chi-square test of independence to estimate the classification rate of the independent variables. The abbreviation stands for “CHi-squared Automatic Interaction Detection”. It works exclusively based on categorical resp. categorized characteristics (Kass, 1980).

- CART (Breiman et al., 1984): Based on the creation of binary trees with the aim of an optimal binary division of the characteristics in order to reduce the complexity. The threshold values are created by means of column entropy. CART stands for “Classification and Regression Trees”.
- ID3 (Quinlan, 1986): The “Iterative Dichotomizer 3” uses a recursive algorithm that forms a new node from the respectively smallest entropy of the objects. The tree is completed as soon as all objects are classified. Due to the low complexity and the calculation effort, the tree is particularly suited for large data volumes with many different attributes.
- C4.5 (Quinlan, 1992): Developed in 1988 and regarded as the successor of ID3. The algorithm is based on the procedure of pruning, i.e. cutting back the tree resp. the information entropy. It generally achieves better results as ID3 due to the more extensive calculation procedure.
- MARS (Friedman, 1991): Stands for “Multivariate Adaptive Regression Splines” and belongs to the category of regression analysis. The algorithm is particularly suited for large data volumes. It is based on an automated selection of variables and regarded as considerably more flexible than e.g. the models of linear regression.

The most common applications in the data mining environment, e.g. IBM SPSS and SAS Enterprise Miner, use the CHAID algorithm.

Logistic Regression

Today logistic regression for modelling binary target dimensions is part of the standard repertoire within the data mining process (Krafft, 1997; Hosmer Jr, D. W. and Lemeshow, 2004). This procedure is mostly used for (multi-variant) modelling of the distribution of discrete dependable variables to a binary target variable, and is often also referred to as a probability model (Bender, Ziegler and Lange, 2007). Due to its flexibility, logistic regression covers an extremely extensive area of application and ranges from calculating risk factors for the develop-

ment of diabetic nephropathy (Mühlhauser et al., 1996), to cancellation prediction (Neslin et al., 2006) through to predicting the error margin in production (Palei and D., 2009), to name but a few examples.

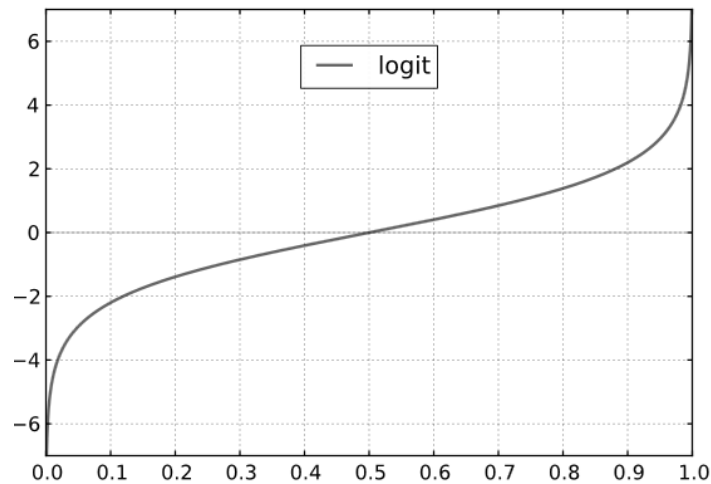


Figure 21: Logarithm of the Odd $p/(1-p)$ [source: (Collins et al., 1992)]

Logistic regression can always be used to examine the influence of explanatory variables X_1, \dots, X_m on a target variable Y . Y has a binary measuring level and can therefore only assume values 0 resp. 1. In order to determine the correlation between Y and an explanatory variable X the probability for the occurrence of the target event $p_1 = P(Y = 1)$ is used instead of Y . This case is also referred to as the logarithm of the odd. As an example, in this context p describes the risk of an illness. While Y only has the two characteristics of 1 and 0, the risk p can assume any figure between 0 and 1. The odds are therefore defined as

$$\frac{p_1}{1 - p_1} \quad (1)$$

The logarithm of the odd, referred to as logit, is

$$\ln\left(\frac{p_1}{1 - p_1}\right) \quad (2)$$

and its range of values includes all real numbers (cf. Figure 21). According to Bender it makes sense to assume a linear relationship between the logit of p and X , which can be mathematically displayed as followed:

$$\text{logit}(p_1) = \log \left[\frac{p_1}{1-p_1} \right] = \alpha + \beta X \quad (3)$$

The following equivalent mathematical expression explains logistic regression by displaying the logistic function on the right side of the term.

$$p = \frac{\exp(\alpha + \beta X)}{1 + \exp(\alpha + \beta X)} \quad (4)$$

The regression can be extended to a multiple model that includes several explanatory variables by replacing βX with the linear combination $\beta_1 X_1 + \dots + \beta_m X_m$ (Bender, Ziegler and Lange, 2007; Rese and Bierend, 1999).

Neural networks

Neural networks, or rather artificial neural networks (ANN), replicate the information processing units and storage mechanisms in the biological brain. In computer science they belong to the field of artificial intelligence (Rey and Wender, 2011; Zimmermann, 1994). The topology of an artificial neural network (cf. Figure 22), which refers to the quantity and connections between the neurons, depends on its area of tasks and has to be trained accordingly at first. The training phase comprises adding resp. deleting neurons or respective connections and changing the weighting or the adaptation of thresholds for individual neurons. Consequently, a network is able to restructure and “learn” by processing data. The “learning” is essentially based on the “targeted” edges between the neurons that receive different weightings and are adapted within the framework of the training phase (Hoskins and Himmelblau, 1992). An artificial neuronal network is capable of also solving non-linear functions with its self-learning approach, which corresponds to the recursive approach of determining all parameters of the function from the existing input values and the desired output values. This means, an exact functional correlation between the independent and dependent variables does not have to be modelled (Garson, 1998), which makes the ANNs very flexible. Furthermore, the networks are particularly suited for identifying patterns and for machine learning, which has been demonstrated in handprint character recognition, text recognition or face recognition, among others (Graves and Schmidhuber, 2009). Classification, regression analysis, filtering and clustering by ANNs are of particular interest within the framework of the data mining process.

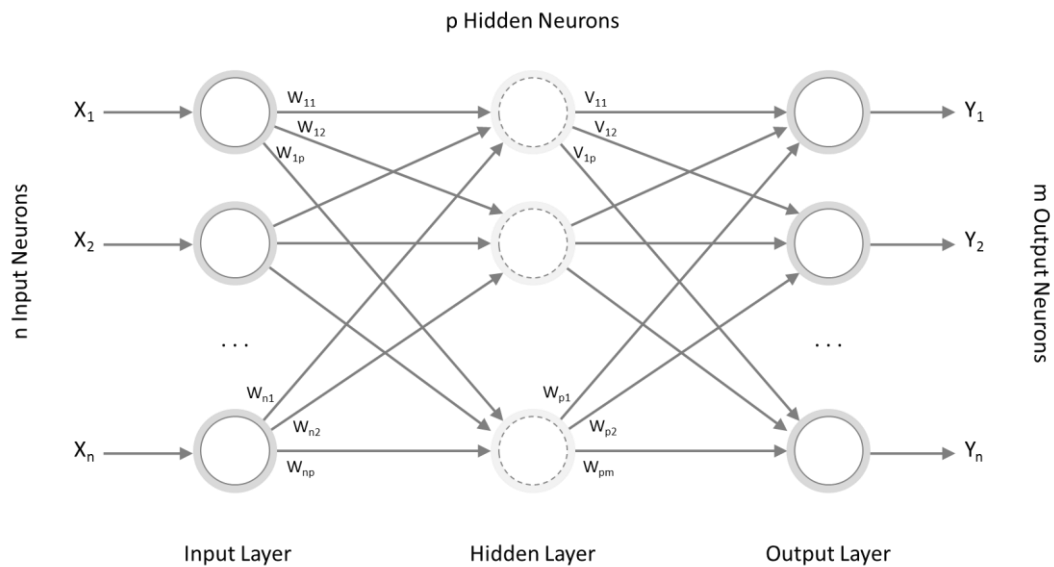
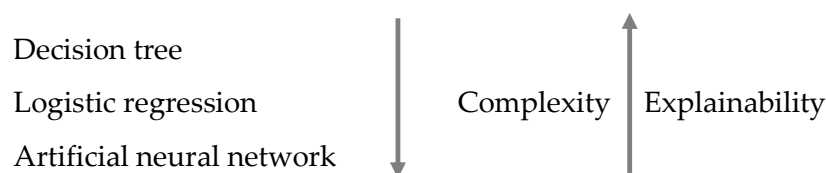


Figure 22: Multi-Layer Neural Network [source: own representation based on (Rey and Wender, 2011; Runkler, 2010)]

There are three typical structures regarding the setup of artificial neural networks that are known as layer feedforward, multi-layer feedforward and the recurrent neural network. The first is characterized by one output layer and simply directs the output neurons in one direction. This means there are no feedback loops such as with the recurrent neural network. The ability of feedback enables the network to display dynamic behavior resp. memory and is based on gradual processing. In addition to the output layer, the multi-layer feedforward network shown in Figure 22 also has concealed layers lying outside of the actual network. This enables a higher abstraction even though there are no feedback loops in this case, either. Artificial neural networks are set up for the existence of at least input and output neurons. The former represent one neuron per independent variable, the latter display one neuron per dependent variable (Hagan, Demuth and Beale, 1996). The multi-layer network also contains hidden neurons, the quantity of which is not predefined in the network and can be freely configured within the framework of the training phase (Zimmermann, 1994). The SAS Enterprise Miner uses this ANN typology with exactly the described possibilities of configurations of the variable number of concealed layers.

All topologies have a main challenge resp. a disadvantage that is established in the training phase. The network must be prepared for the actual application with a data set. This data must be created and collected and may not contain any prominent patterns that correlate with the result, but will lead to no or a false result in the actual application at a later point in time (Towell and Shavlik, 1994). For this purpose the created or collected data set is divided into training and test data. The training data set has the purpose of adapting to the ANNs based on the back propagation procedure. The edges of the network are thereby iteratively resp. recursively adapted starting from randomly selected edge weightings, until the network is ideally aligned with the data set. This optimal alignment bears the risk of overadaptation, in which case the network has practically learned the decisions “off by heart” and can no longer be generalized for new data at a later point. Therefore, the test data set defines when an optimal neuronal network has been found by applying the test data to the network and calculating the output. The same applies with the dependent variable. The adaptation error that is minimized and defines the termination condition is calculated from both values. Therefore, if possible, the test and training data should originate from the same data pool, however they may not be identical (Garson, 1998; Schnurr, 1997; Hagan, Demuth and Beale, 1996).

The three models, the decision tree, logistic regression and neural networks, can be assigned to the so-called prediction models, which can be classified as follows with respect to their complexity and explainability:



The complexity of the models constantly increases from the decision tree to the artificial neural network, while the explainability decreases. This should be considered within the framework of data mining processes and the subsequent application of the models resp. the presentation of the decision-making process.

2.2.4 CRISP-DM: A Standard Process Model for Data- & Text-Mining

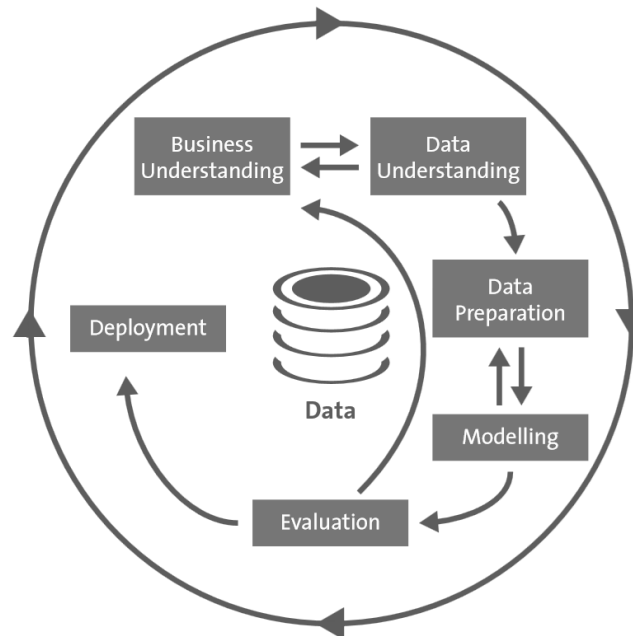


Figure 23: Cross-Industry Standard Process for Data Mining [source: (Chapman et al., 2000)]

CRISP-DM is a standardized process for the processing of a data mining analysis and describes the different phases of data analysis in a conceptual model. The idea of an application-independent and freely available process model was developed by a consortium of five companies and supported by the European Union. In order to achieve the objective of a non-proprietary process model a great number of additional experts was consulted during the development. Therefore, today CRISP-DM is not only a reference model, but also a user guide and a best practice reference book for past projects. The result of this project was published in 2000 and has been the worldwide leading data mining process model ever since (cf. Figure 23) (Chapman et al., 2000). Although there are also other process models available such as the SEMMA model, which stands for *Sample, Explore, Modify, Model and Assess*, developed by the SAS Institute, these models are mostly oriented very closely on the respective product, e.g. the SAS Enterprise Miner, often lacking general applicability (Azevedo, A. I. R. L., 2008). Today

CRISP-DM can de facto be regarded as a standard for the development of data mining projects (Marbán, O.: Mariscal, G. and Segovia, 2009).

The CRISP-DM model consists of four hierarchic abstraction levels, which allows for an increasing degree of detailing in a top-level-down approach. The upper level of this model subdivides the individual tasks into six main phases (cf. Figure 23). They describe a general data mining project, they may describe a guideline for implementation and they can quite easily be applied to various industries. Although the individual phases roughly reflect the working direction of the process model, a strict adherence to the order is not provided and it is often necessary to switch between the phases. The entire process model is regarded as a cycle, whereas the results of a completed cycle are the basis for a subsequent cycle by enabling the acquisition of new and more detailed findings. It is possible to call up one of the three deeper levels – generic tasks, detailed tasks and process instances – from every phase and to go into more detail e.g. regarding the data input and output (cf. Figure 24) (Chapman et al., 2000).

The first step of the CRISP-DM reference model (business understanding) is to gain an understanding of the business cases and the processes involved, as well as the required data. This should lead to a clear definition of the problem. One of the essential tasks is to create a consensus between the data miners and the business analysis, as practical experience always provides the possibility of misalignment due to different conceptions. Therefore, it is essential to carry out a structuring in the sense of the demand analysis, as especially the first two phases, business understanding and data understanding, impact each other (Pyle, 2004; Shearer, 2000).

Data understanding deals with the phase of initial data collection and the initial exploration as well as obtaining of approximate insights. The approach focuses on acquiring an understanding of the data as well as of possible problems regarding its quality and evaluability. Furthermore, a rough sighting of the data takes place in order to determine the next steps of data preparation resp. to pass through a feedback loop with phase one, if the data stock does not appear to be sufficient for solving the problem (Wang and Wang, 2008; Chapman et al., 2000).

The phase of data preparation comprises the selection, editing and cleaning of the data to ensure that it can be processed without any issues in the next steps of the data mining process. This step is very complex and time-consuming and

can take up to 70% of the time used for the actual knowledge generation (Shearer, 2000). The problem of the missing values is only one of many to be solved in this phase. Although there are strategies to simplify the data that have a positive effect on time and cost saving, this is usually proven to have a bad influence on the project result (Kolyshkina and Simoff, 2007). Low data quality is still regarded as the biggest challenge in the data mining environment (McCafferty, 2015). In the context of text mining the step of data preparation can be seen as the most elaborate of all phases, as all unstructured text documents must be translated into structured data sets (Chapman et al., 2000).

During the modelling phase the data sets are examined by means of suitable mining procedures, whereas the parameters of the applied procedures are successively adapted, optimized and ultimately condensed in test runs. The data mining technique applied is basically defined by the underlying data. Furthermore, the modelling phase comprises the development of suitable methods for quality control and validation as well as an evaluation of the generated models (Chapman et al., 2000; Wang and Wang, 2008).

The fifth phase – the evaluation – features the assessment of the models from the modelling phase. The degree as to which the business objectives defined in phase one have been achieved is used as an evaluation criterion. Therefore, the evaluation also serves as a point of control with regard to whether the models are suited for the direction and relevance of the project. Furthermore, the entire process is checked for potential weak spots and possibilities of optimization. The resulting steps for the improvement of the processes are subsequently reviewed and integrated into a package of measures for process improvement (Chapman et al., 2000).

The final phase comprises the roll-out of the data mining project based on the defined data and the developed models. Thanks to permanent success monitoring and periodical reviews, a constant further development is ensured. In a next step, a strategy is defined on how to realize these insights and to integrate them into day-to-day business as a standard process based on the findings. This provisioning phase also includes a project close-out report as well as a final project review. The final report is based on the individual reports of the previous phases and provides a summary of the decisions made and the basis for decision-

making. The project review points out the identified weak spots and the potential for improvement for possible follow-up projects (Chapman et al., 2000).

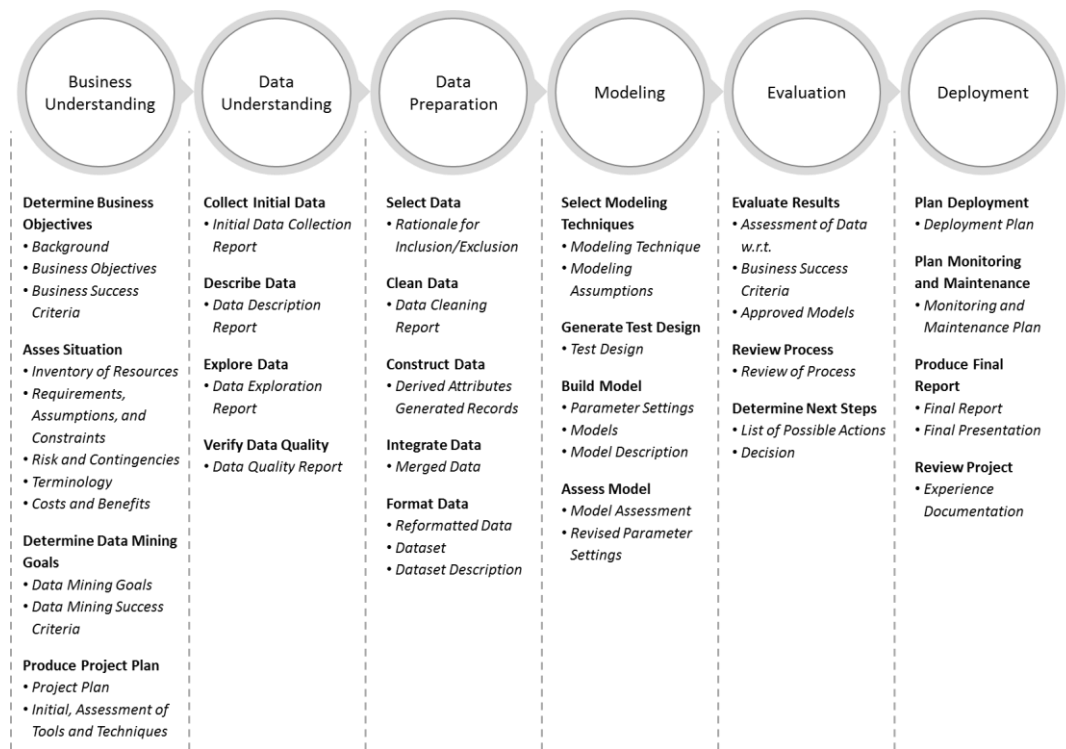


Figure 24: Phases, Generic Tasks (bold) and Outputs (italic) of the CRISP-DM Reference Model [source: own representation based on (Chapman et al., 2000)]

2.3 THE PUBLIC TENDER AS TRANSPARENT INFORMATION SOURCE

Public procurement is a substantial element of the European and German economy. Public clients spend about 19 percent of the German gross domestic product a year on supplies, services and construction works. This corresponds to a volume of more than 2.5 million public tenders. Therefore, the profitability of these procurements is of particular economic importance. The existing public procurement law has the purpose of promoting the acquisition of goods and services with as little burden on the budget as possible, enabling a comparative market overview and preventing arbitrariness, corruption and partiality. The public procurement law also includes the aspect of market liberalization within the EU by broadening the tender region if a specific threshold value is exceeded. (Byok and Jaeger, 2010: 2 et seq.)

A study by the European Union from 2013 estimates the costs of tendering procedures in Germany at around 32.85 million euro (Bundesministerium für Wirtschaft und Energie, 2013). This implicates that the current procedure is very complex and expensive. In addition to the historically grown complexity of the German procurement law due to periodic amendments and adaptations, the adoption of the procurement directives of the European Union also contributed to the intricacy and complexity. (Ley and Wankmüller, 2010: 7.) The Federal Ministry of Economy intended to reduce the complexity by introducing a reform of the VOL/A. However, the version that was finally implemented in 2009 no longer corresponded to the original version and did not lead to the desired simplification. (Ley and Wankmüller, 2010: 9.)

The European Commission also worked on a simplification of the public procurement law in 2013, however it did not meet expectations and even resulted in an additional increase of the volume of data due to the newly created duties of documentation and proof. (Bundesministerium für Wirtschaft und Technologie (BMWi), 2013a: 1–6.)

The complexity of the tendering procedure leads to a considerable amount of work and time exposure for the parties involved, in addition to an increased susceptibility to error, which may result in legal disputes. (Ley and Wankmüller, 2010: 7.).

2.3.1 Public Clients and Public Contracts

In order to determine who applies as a public client and who is subject to the provisions applicable for public procurement, it is necessary to define the term of public client in a first step. For tendering procedures above the EC threshold value the definition is regulated in the GBW¹⁹, for procedures below the threshold value in the budget law of the federal government, the federal states and the communities. In § 98 GWB the functional definition applies. This also implies positions that are not officially defined as national, as long as they assume national tasks in a functional manner. This is independent of the legal form of organization and prevents a bypassing of the EC guidelines by choosing a private form of organization. This includes all institutions fulfilling tasks considered to be of general interest, which distinguish themselves from industrial and trading companies in their form, have a legal identity and are predominantly financed or appointed by the federal government or by regional administrative bodies. According to § 98 GWB, the following are regarded as public clients:

- Regional administrative bodies: Communities, community organizations, rural districts, districts and federal states
- Legal entities under public law: This includes all so-called classic clients in the shape of all direct federal government, federal state and community corporations, institutions and foundations under public law. As an example, this includes federal institutions, pension institutions, social insurances, cooperatives or chambers of industry, commerce and crafts.
- Juristic persons governed by private law: Non-commercial institutions that serve the public interest and that are subject to state control are also regarded as public clients independent of their legal form. As an example, this includes health institutions (e.g. hospitals), cultural, social and sports institutions (e.g. museums, pre-schools, swimming pools) and educational, scientific and research institutions (schools, universities, etc.).

The term of public contract is legally defined in § 99 GWB. According to § 99 sect. 1 GWB, public contracts are “paid contracts by public clients with com-

¹⁹ Act against restraints of competition (GWB)

panies on the procurement of services involving supply, construction or services, works concessions and offer of rewards procedures that are intended to lead to service contracts.” Sections 2-13 of § 99 GWB distinguish between public contracts with regard to their their classification as construction/supply and service contracts.

2.3.2 Historical Evolution of the Public Procurement Law in Germany

Already in ancient Greece and the Roman republic public contracts were tendered to determine the most inexpensive bidder (*leges locations*). Officials and their relatives were excluded from this procedure in order to prevent nepotism. (Byok and Jaeger, 2010: 7.) Therefore, standardized and transparent tendering procedures are not an invention of modern times.

In the feudal systems of the Middle Ages the public demand for goods and services was met by purveyors to the court, craftsmen organized in guilds. The concept of tendering became more widespread in the 17th century. Back then, too, the party that succeeded in the process of verbal underbidding, the auction, was awarded the public contract. Kings Frederick William I. and Frederick the Great increasingly applied this procedure in the 18th century, and in the 19th century it was finally established in all German territories. In its outlines, the advancement of verbal bidding to so-called tenders is still applicable today. The weak spots of verbal bidding, such as incomplete bids, etc., were eliminated by introducing the written submission of tenders. Tenders that had been classified until then were opened in a public meeting. (Lampe-Helbig and Wörmann, 1995: 9 et seq.)

Written tendering procedures gained particular acceptance as from 1850, because the state was pursuing extensive public projects such as road construction and railway development, which brought about a very high demand. (Byok and Jaeger, 2010: 7 et seq.)

At the beginning of the 20th century the tendering procedure, which was previously defined in federal state decrees, was unified for the German Empire. The German Construction Contract Procedures (VOB/A) were introduced in 1926. The regulations for the award of service contracts – with the exception of construction services (VOL) did not become effective until 1936. This regulation also remained in existence in the times of National Socialism until the founding of the

Federal Republic. The German Committee for Construction Contract Procedures (DVA) has been in charge of amending and reworking the tendering and award regulations for construction contracts and other services since 1947. The field of other services (VOL) was removed from the assignment of the DVA in 1974 and transferred to the German Award Committee for Services (DVAL). (Brombosch, 2008: 18 et seq.)

A transboundary, unified tendering procedure was aspired within the framework of the European Community, but no binding laws were passed by the EEC, EC and EU. Only non-binding statements and objectives were published.

It wasn't until the objective of achieving a European single market by 1993 that regulations intended to open up the public tender markets for the Western European states, which had been isolated to date, were issued. Table 10 shows the directives issued in the course.

Table 10: EU directives from 1993 [source: own representation based on (Brombosch, 2008: 21.)]

Directive:	Regulatory Area:
Delivery coordination directive ²⁰	Procurement regulations for the public works, supply-and services sector.
Construction works directive ²¹	
Service coordination directive ²²	
Utilities directive ²³	Procurement regulations in the areas of water, energy, transport

²⁰ Directive on the coordination of procedures for the award of public supply contracts (93/36/EWG): *Richtlinie über die Koordinierung der Verfahren zur Vergabe öffentlicher Lieferaufträge: 93/36/EWG* (14.06.1993).

²¹ Directive on the coordination of procedures for the award of public works contracts (93/37/EWG): *Richtlinie über die Koordinierung der Verfahren zur Vergabe öffentlicher Bauaufträge: 93/37/EWG* (14.06.1993).

²² Directive on the coordination of procedures for the award of public service contracts (92/50/EWG): *Richtlinie über die Koordinierung der Verfahren zur Vergabe öffentlicher Dienstleistungsaufträge: 92/50/EWG* (18.06.1992).

²³ Directive on the coordination of the procurement regulations in the areas of water, energy, transport and telecommunications (93/38/EWG): *Richtlinie über die Koordinierung der Auftragsvergabe durch Auftraggeber im Bereich der Wasser-, Energie-und Verkehrsversorgung sowie im Telekommunikationssektor: 93/38/EWG* (14.06.1993).

	and telecommunications.
Monitoring policy ²⁴	Legal protection for tenderers
Sectors audit policy ²⁵	and applicants.

Although directives are mandatory for member states as a typical tool of community law, it is up to the states to choose the form and means to achieve the agreed objective. According to art. 10 directive I EC, they are required to implement the regulations into national law, however they are entitled to take national particularities into consideration. In Germany the implementation of the EC guideline led to a fundamental redesign of the public procurement law, which took place in three stages. See Figure 25.

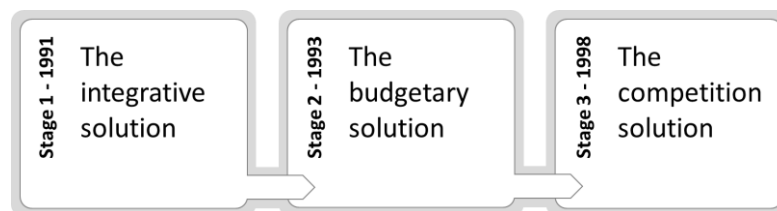


Figure 25: Stages of implementation in German law [source: own representation based on (Brombosch, 2008: 22.)]

The first stage of the implementation in Germany comprised a division of the public procurement contract tender award regulations VOB/A and VOL/A into those below and those above the threshold value. Tendering procedures below the threshold value were not affected by the European law and only had to

²⁴ Directive on the coordination of regulations and administrative provisions relating to the application of review procedures to the award of public supply and public works contracts (89/665/EWG): *Richtlinie zur Koordinierung der Rechts- und Verwaltungsvorschriften für die Anwendung der Nachprüfungsverfahren im Rahmen der Vergabe öffentlicher Liefer- und Bauaufträge*: 89/665/EWG (30.12.1989).

²⁵ Directive on the coordination of regulations and administrative provisions relating to the application of Community rules on the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors (92/13/EWG): *Richtlinie zur Koordinierung der Rechts- und Verwaltungsvorschriften für die Anwendung der Gemeinschaftsvorschriften über die Auftragsvergabe durch Auftraggeber im Bereich der Wasser-, Energie- und Verkehrsversorgung sowie im Telekommunikationssektor*: 92/13/EWG (25.02.1992).

correspond to the national basic paragraphs. Tendering procedures above the threshold value were divided into three sections, depending on the sector they belonged to. As the tender award regulations were grounded in the budget law, they remained internal administrative regulations, the enforcement of which external third-parties could not call upon. (Brombosch, 2008: 22.)

For want of an assurance that the regulations would be enforced and a sufficient guarantee of Europe-wide tendering procedures, the tender award regulations for the construction, supply and sector directives as well as the two legal remedy directives were implemented into the national law (stage 2) in 1993. The EC service directive was not implemented into the national law until 1997. The corresponding legislation can be found in the law on budgetary procedures (HGrG) in § 57 a-c. This legislation is only applied in contract awarding above threshold. For purely national contract awarding below threshold, the tool of the administrative directive continues to be applied. (Brombosch, 2008: 23f.)



Figure 26: Sections of the act against restraints of competition (GWB)

[source: own representation based on (Brombosch, 2008: 25.)]

The third stage of implementing the EC directives took place after, in a revision, the EC Commission criticized that bidders were not granted any enforceable rights (subjective legal protection) and that the requirements had not been met. It decided that the German solution infringed the community law. In order to avoid trade policy sanctioning, the federal government decided on a new regulation of the entire public procurement law. The “competition solution” for the third stage

is derived from the fact that parts of the public procurement law were now integrated into the antitrust and competition law. The new regulation came into effect on 1/1/1999 according to art. 4 of the law amending the legal provisions governing the award of public contracts (VgRÄG). (Brombosch, 2008: 24.) It is divided into three sections, as shown in Figure 26.

A major reform of the EU tender award directives was accomplished in 2004 and had to be implemented into the national law by 2006. This reform linked the directives for construction, supply and services to a joint directive on the coordination of procedures²⁶, and the directive on the coordination of the procurement procedures of entities operating in the water, energy and transport sectors²⁷ was updated. Technological development made an electronic tendering procedure possible. Furthermore, the possibilities of concluding framework agreements were extended and aspects of environmental protection and social matters were included as award criteria. (Brombosch, 2008)

The latest amendment of the directives took place in March 2014. This reform was aimed at simplifying the tendering procedure, making it more flexible, extending the electronic awarding of contracts and improving the access for small and medium-sized enterprises to tendering procedures. In the course of this amendment the directive for concession contracts²⁸, the directive on the coordination of the procurement procedures of entities operating in the water, energy and transport and postal sectors²⁹ and the public procurement directive³⁰ were

²⁶ Directive on the coordination of procedures for the award of public supply, works and service contracts (2004/18/EG): *Richtlinie über die Koordinierung der Verfahren zur Vergabe öffentlicher Bau-, Liefer-, und Dienstleistungsaufträge: 2004/18/EG* (31.03.2004).

²⁷ Directive on the coordination of the procurement procedures of entities operating in the water, energy and transport sectors (2004/17/EG): *Richtlinie zur Koordinierung der Zuschlagserteilung durch Auftragsgeber im Bereich der Wasser- Energie- und Verkehrsversorgung: 2004/17/EG* (31.03.2004).

²⁸ Directive for concession contracts (2014/23/EU): *Richtlinie über die Konzessionsvergabe: 2014/23/EU* (26.02.2014).

²⁹ Directive on the coordination of the procurement procedures of entities operating in the water, energy, transport and postal sectors and repealing Council directive 2004/17/EC (2014/25/EU): *Richtlinie über die Vergabe von Aufträgen durch Auftraggeber im Bereich der Wasser-, Energie-, und Verkehrsversorgung sowie der Postdienste und zur Aufhebung der Richtlinie 2004/17/EG: 2014/25/EU* (26.02.2014).

adapted. According to specifications by the EU this revision must be implemented into the national legislation of the member states by April 2016 (Bundesministerium für Wirtschaft und Energie, 2014: 35.).

2.3.3 Characteristics of the Public Procurement Law

The public procurement law is characterized by the state's demand for goods and services in order to meet a public task based on a return service. The substantial goal is to enable preferably profitable purchases and to promote the competition and transparency as well as the non-discriminating award of contract for more growth and employment in Europe. The public procurement law distinguishes between commercial procurement and procurement by public authorities. Although non-public clients are not bound by the public procurement law according to § 93 GWB, it makes sense to orientate on the norms and guidelines in connection with the public procurement law. In particular, this applies to the phrasing of the specifications for tenders as well as the assessment and award criteria. Furthermore, commercial clients are subject to the freedom of contract according to the three principles of the freedom of form, the freedom to contract and the freedom of legal arrangement regarding the content, as far as this does not violate the applicable legal provisions according to § 134 German Civil Code (BGB) and moral and ethical standards according to § 138 BGB (Schünemann, 1993: 111 et seq.).

The public procurement law is based on the German public procurement contract tender award regulations (VgV) and the contract regulations, and is complemented by the act against restraints of competition (GWB). In a revised version, the VgV has been in existence since 2010, which also includes important EU directives. A differentiation is made between the German Construction Contract Procedures (VOB), the Contract Awards for Public Supplies and Services (VOL) and Awarding of Contracts for Freelance Services (VOF). A further distinction is based on the estimated net contract value. The so-called threshold value

³⁰ Public procurement directive and repealing Council directive 2004/18/EC (2014/24/EU): *Richtlinie über die öffentliche Auftragsvergabe und zur Aufhebung der Richtlinie 2004/18/EG: 2014/24/EU* (26.02.2014).

thereby defines the limit according to which a public contract must be tendered on a Europe-wide level. This is adjusted based on the euro rate, among others, in a regular cycle of two years. Table 11 shows the current values since the last determination on January 1, 2014.

Table 11: Thresholds of the European Union from 01st Januar 2014 [source: own representation based on (Bundesministerium für Wirtschaft und Energie, 2014)]

EU directive:	Order type:	Thresholds:
2004/18/EG	Supply and service contracts for the higher, supreme and comparable Federal authority.	134.000 €
	Supply and service contracts for all other public clients.	207.000 €
	Public works contracts.	5.186.000 €
2004/17/EG	Supply and service contracts from sectoral contracting entities.	414.000 €
	Public works contracts.	5.186.000 €
2009/81/EG	Defence and security-related supply and service contracts.	414.000 €
	Defence and security-related public works contracts.	5.186.000 €

It must be taken into account that the individual member states are able to pass stricter thresholds than the directives specified by the EU. If the values of the VgV (see § 2.1-2.3 VgV) are lower than those stated in the EU directives, the national, and therefore stricter, regulation shall apply until it is adjusted. With the publication in the Federal Law Gazette of 03/21/2012 (BGB 1st part I no. 14, 488), Germany has already carried out an adjustment.

If the estimated net contract value is lower than the threshold value, the national budget law and the public procurement law of the federal states shall be decisive and the law against restriction on competition is not applicable. In this

case, § 30 HGrG and the administrative provisions are substantial (Bundesministerium der Justiz, 2009).

If contracts exceed or if they are equal to the threshold value, § 97 sect. 6 GWB refers to the public procurement contract tender award regulations that stipulate the liabilities of the contract tender award regulations VOL, VOB and VOF (Schulz, 01.09.13). Furthermore, the respective types of awards must be selected according to the provisions of the tender award regulations (cf. Figure 27).

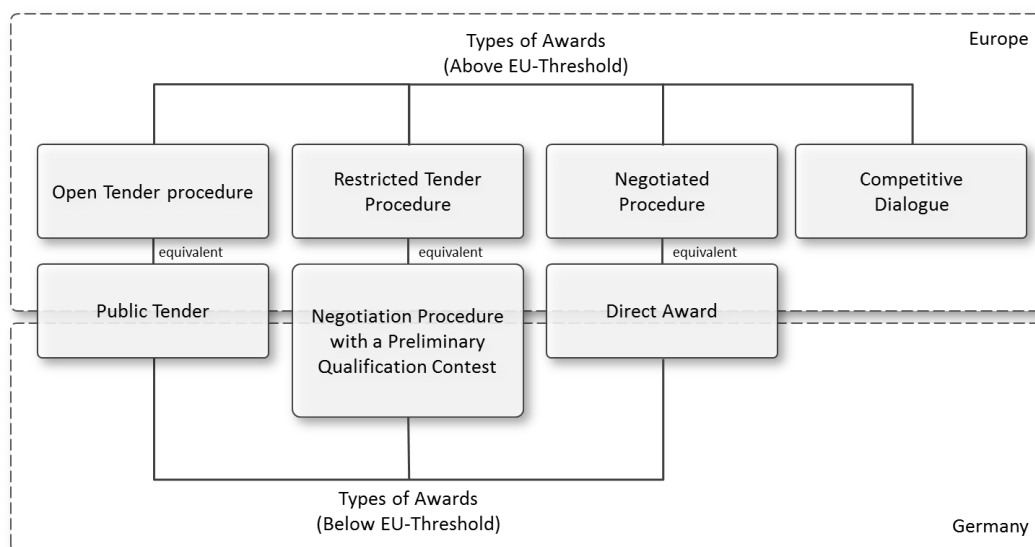


Figure 27: Public procurement law above and below the EU threshold. Section 1/2 VOB/A & VOB/A-EG or rather VOL/A & VOL/A-EG [source: own representation based on (Schulz, 01.09.13)]

The open procedure above the threshold resp. the public tender on a national level is regarded as the tendering procedure with the greatest possible competition, i.e. with an unlimited circle of bidders. For reasons of transparency the Europe-wide tender must be published in the official gazette of the EU or an equivalent awarding entity. It is only permissible to deviate from these tendering procedures if there are special reasons for selecting a different tendering procedure. As an example, these kind of arguments become effective if only a specific group of entrepreneurs is able to meet the requirements of the services or if a public tender is inexpedient for reasons of urgency or secrecy. In that case the non-

public procedure resp. the limited tender (national) will take effect. For this purpose the actual procedure is preceded by a public competition that interested companies can apply to. Based on suitability and qualifications, the client limits the number of bidders, requesting them to submit a tender (Bundesministerium des Innern (BMI), 2013). The negotiated contract resp. the direct award contract (national) is one of these very similar types of procedure. This also focuses on a competition that is however only bound by formal provisions and offers the possibility of negotiating the content and prices with the bidders in the on-going procedure. The exceptions for direct award contracts are also specified in § 3 sect. 4 VOL/A (cf. Table 12).

Table 12: Exceptions for direct award contracts in VOL/A [source: own representation based on (Bundesministerium der Justiz, 2009: 9–10.)]

Direct award con- tracts are per- missible...	after cancellation of a tender.
	subsequent to development activities.
	for the performance of specialist scientific-technical tasks in re- search, development and studies.
	for minor repeat orders subsequent to an existing contract.
	for orders of spare parts or accessories to devices from vendors of the original service.
	from reasons of secrecy.
	if the service fulfillment is particularly urgent.
	if the service cannot accurately be described and comparable of- fers could not be expected.
	if they are admitted for implementation provisions by an Minister.
	if they were only be released to sheltered workshops for disabled people or penal institutions.
if only one company could be taken into account.	

The dialog regarding the competition law on an EU level implies the possibility to enter into dialog with a selected group of companies in order to define

the requirements in the case of particularly complicated contracts. Therefore, this is also referred to as a non-public procedure with a preceding technical dialog. (Schulz, 01.09.13)

2.3.4 Key Principles of the European Procurement Law

In Germany the key principles of the European procurement law are implemented in § 97 GWB and comprise four areas as shown in Table 13.

Table 13: Principles of the European procurement procedure [source: own representation based on (Brombosch, 2008: 45–48.)]

Principles of the European procurement procedure	Requirement for competition
	Requirement for transparency
	Principle of non-discrimination
	Promotion for small and medium enterprises, so called German „Mittelstand“ (irrelevant for the investigation)

This thesis will not be considering the area of the German “Mittelstand”, as this is not relevant for the subject matter at hand. It describes the promotion of small and medium-sized companies in the award of public contracts by segmenting the overall contract. The three other areas are explained in the following.

Requirement for competition

The requirement for competition is rooted in § 97 sect. 1 GWB and has the objective of liberalizing the public tender markets in the European region. It connects clients as well as bidders who commit themselves, as for the former, to phrase tenders in a way that does not narrow the competition. Bidders, on the other hand, are prohibited from price fixing. (Byok and Jaeger, 2010: 108f.)

Requirement for transparency

The requirement for transparency is also included in § 97 sect. 1 GWB and implies the obligation of a public and transparent documentation of the tendering

procedure in order to guarantee reproducibility. This requirement for transparency includes the disclosure of an intention to tender, the publication of a detailed benefits catalog as well as the award criteria for the selection of bidders. Furthermore, it includes communication with the bidders who have not been selected. (Brombosch, 2008: 46.)

Principle of non-discrimination

The principle of non-discrimination is a mainstay of the European concept and of the community law. Discrimination based on nationality, origin, gender, language and political or religious disposition is not acceptable. This requirement is grounded in § 97 sect. 2 GWB, in the Treaty on the Functioning of the European Union (art. 18 AEUV) and the German Basic Law (art. 3 GG). With regard to tendering procedures, according to this requirement no additional proof of reliability may be demanded from foreign bidders and the bidders may not be required to deploy domestic workforce or products. (Brombosch, 2008: 47.)

As an additional regulation of the principle of non-discrimination, all bidders must be given access to the same information. Withholding information or providing access to information to specific bidders is not acceptable. (Byok and Jaeger, 2010: 120.)

Any specification of national norms or quality seals for the bidders must always include the addendum “or equivalent” in order not to give an advantage to domestic bidders.³¹

It is also regarded as a violation if a tender is published earlier in the inland than it is on the tendering platform of the EU. In this case domestic bidders would also be given an advantage and treated unequally. (Byok and Jaeger, 2010: 120.)

If a tender is phrased in a product-neutral way that limits the circle of bidders, this also applies as discrimination. The party issuing the invitation to tender

³¹ Award of public works contracts; tender with reference to a particular technical description without adding “or equivalent” (German: “oder gleichwertiger Art”), Az. 45/87: *Verstoß gegen die Koordinierung der Verfahren zur Vergabe öffentlicher Bauaufträge; Ausschreibung unter Hinweis auf bestimmter technische Beschreibungen ohne Zusatz “oder gleichwertiger Art”* (22.09.1988) *Jurion*, pp. 2–7, https://www.jurion.de/Urteile/EuGH/1988-09-22/45_87, accessed August 2015.

is obligated to give a clear and extensive description of the services in demand. (Bundesministerium der Justiz, 2009) This requirement of product neutrality often poses great challenges for the client. In general, no specific product or procedure and no brands, patents, types, etc. may be stated in specifications for tenders, as these would narrow the competition (§ 7 sect. 3, 4 VOL/A resp. § 8 sect. 7 VOL/A EC). A tender is considered non-neutral if a competition is made impossible due to a specific description of technical features. However, there are two exceptions which this regulation does not apply to and for which a specific tender is legal. According to § 7 sect. 3 VOL/A, this is justified “by the type of the service to be awarded” resp. according to § 8 sect. 7 VOL/A EC “by the subject of the contract”. In concrete terms, this is the case with a consecutive tender that must be compatible with a product already in use. This exception also applies if “it is impossible to make a sufficiently exact description by means of customary names” (§ 7 sect. 4 clause 1 VOL/A) resp. if “the subject of the contract cannot be described in a sufficiently exact and generally understandable manner” (§ 8 sect. 7 Sa 2 Hs. 1 Vol/A EC).

Furthermore, following reasonable review and justification, the client has the possibility of tendering a technical solution which he prefers, if other solutions would not be sufficient for the requirements imposed. The technical review and decision must be recorded in the tender documents. (Byok and Jaeger, 2010: 120 et seq.)

By creatively phrasing the call for tender, the clients are however capable of limiting the number of bidders without violating the legal framework despite the existing regulations. For the most part this is accomplished with the support of the manufacturers, consultants resp. the technology partners. Chapter 3 – *The Application of Business Analytics on Public Tenders in the Capital Goods Industry* will deal with uncovering this creative phrasing.

2.3.5 Structure and Process of a Public Tender

The process of a public tender is described in detail in the VOL/A and consists of ten phases altogether. Figure 28 (page 112) displays the chronology and order. The ten phases are listed and explained in the following:

- Creating the tender documents (§ 8 VOL/A)

- Disclosure (§ 12 sect. 1-2 VOL/A)
- Sending out the tender documents (§ 12 sect. 3 VOL/A)
- Submission of tenders (deadlines (§ 13 VOL/A)
- Opening date (§ 14 VOL/A)
- Explanation of tender content, if applicable (§ 15 VOL/A)
- Formal review of tenders, suitability test, calculatory review and appropriateness test (§ 16 VOL/A)
- Acceptance (§ 18 VOL/A) or
- Cancellation of the call for tenders (§ 17 VOL/A)
- Notification of bidders (§ 19 VOL/A)

The assessment of demand and the creation of tender documents by the client are followed by the publication of the tender. This can be accomplished via daily newspapers, official publications, specialist magazines or web portals. The portal-based publication must be made available on the tendering platform of the federal government, www.bund.de³². In the case of a Europe-wide tender, the tender must be published on the platform for the European award of public contracts.³³

The publication must thereby correspond to the standardized forms for public contracts³⁴ by the EU. During the subsequent correspondence phase the bidders communicate with the awarding entity. It is not until this point that the tender documents are exchanged and additional questions are answered. In order to ensure equal opportunity in this phase, the answers to individual questions must be made available to all bidders. The components of the tender documents are specified in VOL/A and contain all information necessary for making a decision on the participation in the tendering procedure. According to § 12 sect. 1 VOL/A they include the following (cf. Table 14):

³² Notification of awarding and contracting regulation for services – Part A (VOL/A) Release 2009, §12: *Bekanntmachung der Vergabe- und Vertragsordnung für Leistungen - Teil A (VOL/A)* (20.11.2009),

³³ Information system for European public procurement (SIMAP): <http://simap.europa.eu>, accessed March 2015.

³⁴ Standardized form of the information system for European public procurement (SIMAP): <http://simap.europa.eu/buyer/forms-standard>, accessed March 2015.

- cover letter (request for submission of a tender, or accompanying letter for submitting the requested documents),
- description of details for carrying out the procedure (application terms), including statement of award criteria, unless already stated in the publication, and
- contract documents consisting of specifications and contract terms.

Table 14: Components of tender documents [source: own representation based on (Bundesministerium der Justiz, 2009: 12.)]

Components of tender documents	Conditions for application
	Award criteria
	Contractual conditions
	Performance specification

Until the client's deadlines expire, all bidders have the possibility to submit tenders or to revise and re-submit already existing tenders (§ 10 Abs. 1 VOL/A). The submitted tenders are kept under wraps until the opening date. It is not until this date that the tenders are opened by at least two of the client's representatives under exclusion of the bidders. The opening resp. the tenders must be documented. (§ 14 VOL/A).

Subsequently, the tenders are reviewed in various steps. Following a formal evaluation (adherence to deadline, missing information, change of contract documents, etc.), the bidder is subjected to a suitability test, i.e. the requested verification of suitability is reviewed). The third step comprises the accuracy resp. adequacy check of the tender. This includes a calculatory check. In the last step the profitability of the tender is assessed in consideration of the previously announced award criteria.³⁵ The lowest price is thereby not solely decisive for the greatest profitability.

³⁵ Notification of awarding and contracting regulation for services – Part A (VOL/A) Release 2009, §14 Section 4 as well as §17 EG: Ibid.

As a result of the tendering procedure, a tender is either accepted (§ 18 VOL/A) or the call for tenders is cancelled (§ 17 VOL/A). As an example, the latter is possible if no tender that meets the requirements has been submitted. Bidders that have not been awarded the contract must be informed within 15 days after receipt of the application stating the reasons for the rejection.

According to § 20 VOL/A, complete documentation must be drawn up for the entire tendering procedure.

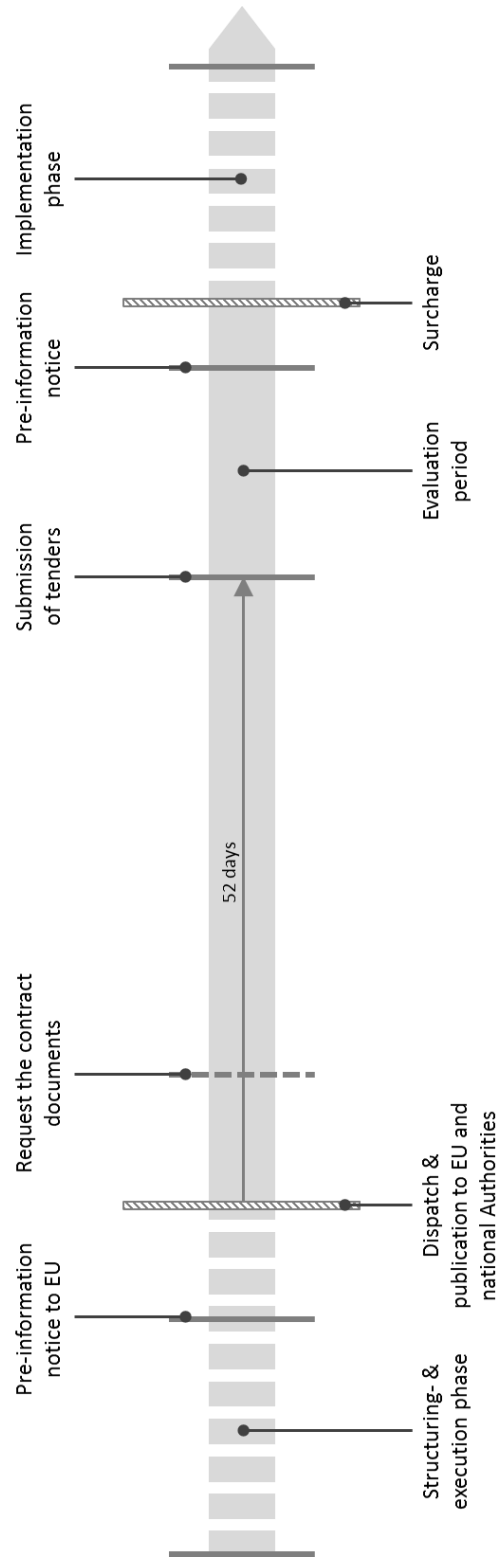


Figure 28: European procurement process [source: own representation]

2.3.6 The Public Tender in the Environment of IT

Contrary to what may be expected, public tenders in the IT industry do not require any particular regulations according to the European public procurement law. Tenders in the IT industry, no matter what kind, are subject to the provisions of the VOL/A. As a consequence thereof, the threshold values referred to in 2.3.3 also apply. Procurements by the federal government greater than or equal to 134,000 euro, resp. 207,000 euro by all other public authorities, must be tendered on a Europe-wide level.

With regard to the complexity of the procedure, the Federal Ministry of the Interior (BMI) has issued several documents and guidelines in support of public tenders in the IT industry. As an example, the documents on the tender and assessment of IT services (UfAB) provide assistance with the creation of award documents compliant with the public procurement law as well as with the objective, transparent and reasonable evaluation of tenders (Beschaffungsamt des Bundesministeriums des Innern, 2010). Furthermore, there is a contract prototype according to § 55 BHO available as supplementary contractual terms for the tender of information technology (EVB-IT) adapted to specific legal transactions in IT, which can therefore be regarded as the general terms and conditions of the public authorities. In concrete terms, these are not provisions of the public procurement law, but rather of the contract law (Bundesministerium des Innern (BMI), 2015).

When it comes to the creation of the award documents compliant with the public procurement law in the context of tenders in the IT industry, the specifications are of particular importance. As described in 2.3.4, these documents may not contain any statements that fall within the ban on discrimination. To some extent, this strongly contrasts the requirements of the VOL/A which define that the specifications represent the technical requirements of the tendered product and provide a clear and extensive description of the requested service to ensure comparable tenders.³⁶ Furthermore, the requirements regarding the specifications are even higher in a Europe-wide tender. According to § EC VOL/A, technical requirements must be described with reference to applicable national and European

³⁶ Notification of awarding and contracting regulation for services – Part A (VOL/A) Release 2009, §7: Ibid.

norms, approvals and specifications, or present their performance and functional requirements to convey a clear picture of the subject of the contract.

These requirements pose a great challenge to many authorities, which is why several detailed guidelines have been developed on product-neutral specifications and environmental and sustainable tendering in cooperation with the Procurement Office of the BMI and the Federal Association for Information Technology, Telecommunications and New Media (BITKOM), among others. The guidelines provide support in the development of brand-neutral and objective assessment criteria. They have been available for desktops, notebooks, servers, screens, thin-clients and printers since January 2014. Storage systems are currently not being considered.

2.4 DEFINITION AND CHARACTERISTICS OF CAPITAL GOODS

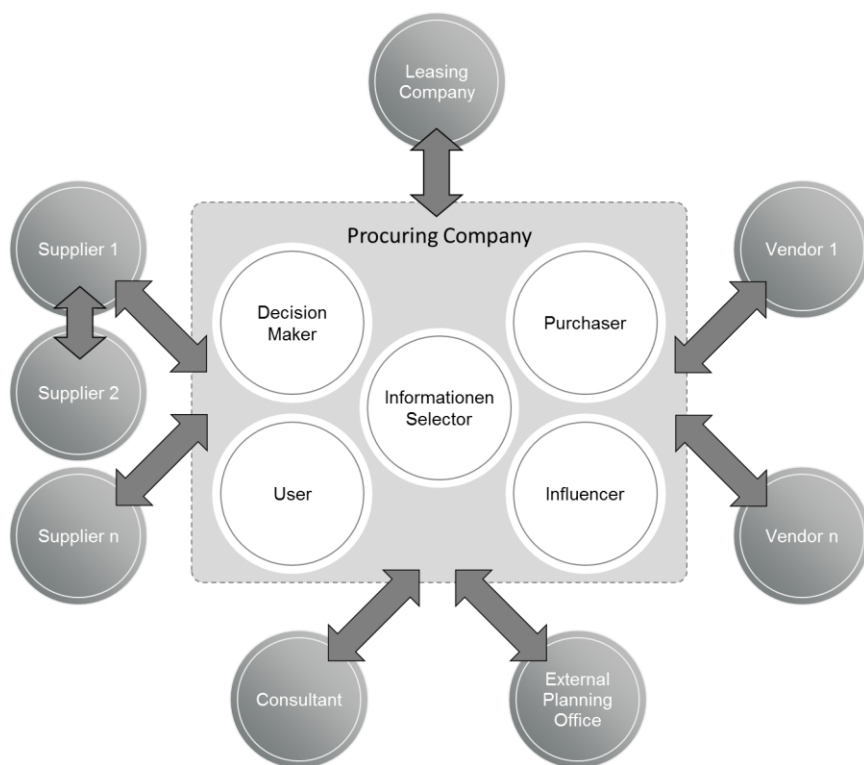


Figure 29: Involved stakeholder for the capital goods purchase [source: own representation based on (Webster Jr., F. E. and Wind, 1972)]

The procurement of capital goods recurrently poses great challenges for private corporations as well as the public sector. In addition to the high capital expenditure and a payback period of several years, it is the decision making process that is particular problematic, especially for complex acquisitions that require strategic and cross-functional action. Usually, the number of persons involved in the company resp. the public authority increases with the complexity and the investment capital. Buying centers are almost always established for the decision making process. Especially when it comes to the procurement of technical goods, various stakeholders must be brought together. In most cases this includes at least one or several specialist departments as well as the purchasing department. However, quite often they have different objectives and interests (Arnolds et al., 2013). Often the procurement of capital goods is accompanied by detailed considerations of the cost-benefit ratio and, in the case of the public sector, the issue of compliance management. The great number of persons involved requires particular accuracy regarding the transparency of the individual components, which has an effect on the choice of vendors, suppliers and service providers in particular. In this regard it is not uncommon for public authorities to introduce external players, e.g. to ensure legal conformity. (Hofmann et al., 2012) Figure 29 visually reflects the complexity of the buying center in the corporate context.

All in all it can be established that whenever there is a need for a transparent procurement of capital goods, the initiation of a tendering procedure proves to be a suitable measure to fulfil the requirements. (Hofmann et al., 2012) This becomes even more important with respect to the capital goods industry and its influence on the European and especially the German economy. The capital goods industry comprises extensive fields of application. These range from the production of steam boilers to the repair and installation of machines and equipment, through to the manufacture of data processing and peripheral devices. The resulting product diversity is the backbone of the German economy and the basis of Germany's strength in export. According to the Federal Office of Statistics, the capital goods industry generated revenue in the amount of 1.291 billion euro in 2014 alone. This corresponds to an increase of 2.1 percent compared with the previous year and 127.6 percent compared with 2005 (567 billion euro) (Statistisches Bundesamt, 2015). The capital goods industry can also be seen as an indicator for the overall economic situation within a country. If the development is positive,

investments, e.g. in machines and IT, increase, while investment is held back during a pessimistic assessment of the economic situation. Due to the high export ratio and the great number of companies, the effects are particularly well perceivable in Germany (Hofmann et al., 2012). As an example, small and medium-sized enterprises in Germany, the German “Mittelstand”, comprise more than 3.68 million companies with more than 15 million employees altogether that have a clearly higher turnover than the 30 German DAX-listed companies in total. Furthermore, this is regarded as one of the most innovative fields in Europe (Bundesministerium für Wirtschaft und Technologie (BMWi), 2013b).

Capital goods (also known as investment goods) are generally referred to if the sales are not geared towards consumers, but the industry or the public sector. Goede defines them as *“goods with a long lifecycle that are not required for their own sake, but for the production of consumer goods and other capital goods. They are not exhausted in one billing period and they are usually depreciated over a period of several years (capital goods, equipment goods, industrial goods, investment goods, producer goods)”* (Goede, 2003: 1579 et seq.).

Current literature offers no consistent definition of the term of capital goods, which is why there are other definitions available apart from the one provided by Goede, e.g. by Steiner (*“Permanent means of production are referred to as capital goods. They offer a stream of usage possibilities during their lifecycle (e. g. engineering facilities)”*) (Luck, 2004: 337.), Engelhardt/Günter (*“Capital goods are services that are procured for the manufacture of additional goods to cover third-party requirements with their application.”*) (Engelhardt and Günter, 1981: 24.) or Backhaus (*“Capital goods are services to create further services that are not focused on the distribution to end consumers”*) (Backhaus, 1982: 4.). However, all of the above focus on engineering facilities. Only Large offers a wider definition by referring to all *“material goods that continuously serve the business process”* as capital goods (Large, 2012: 12.).

Information technology as a capital good

With regard to this thesis and the prevailing focus on IT, the definitions by Swan et al. and Leenders et al. can be regarded as especially relevant. Swan et al. highlight the particular business focus by stating that *“capital goods are assets used*

to support business operations. [...] Capital goods are typically high-cost, infrequent purchases that require good up-front decision-making to minimize long-term costs” (Swan et al., 2002: 795.). Leenders amends this statement by saying that “capital assets are long-term assets [...] [which] have an ongoing effect on the organization’s operations [...], have an expected use of more than one year [...] and generally are depreciated. Assets may be tangible or intangible” (Leenders, Johnson and Flynn, 2006: 423.). Both authors therefore substantiate Large’s belief that the information technology resp. IT facilities must be declared as (complex) capital goods (Large, 2012: 12.).

In this day and age information technology represents a special kind of capital good. In the past decade IT has made its way into almost any company and revolutionized communication via e-mail, budget and resource planning by means of elaborate ERP software, or customer relationship management, among others. At the minimum, IT provided assistance with everyday office tasks, e.g. with text processing and central filing. In this respect, it is quite fitting to speak of the industrialization of information processing. (Rüter et al., 2010)

Within the course of the increasing digitalization of companies, IT has constantly taken on greater significance. In 2011 the term of “Industry 4.0” was introduced in Germany. A vogue expression based on the Internet of Things that sees the future of manufacturing companies in intelligent, autonomous production units (Siemens, 2014). The key role in this vision goes to machine to machine communication which is already applied in many steps of production today (Mittermair, 2015). Once again, this makes IT a crucial competitive advantage in the increasingly globally oriented markets (VDMA, 2015). According to a current estimation by the Federal Ministry for Education and Research (BMBF), more than 80% of investments develop on the basis of IT (Bundesministerium für Bildung und Forschung, 2015). Mobile check-in via QR code or mobile payment are only two known examples.

IT as a capital good is distinguished by particular characteristics that complicate investment in a considerable way and have a direct impact on the cost-benefit ratio. (Schumann and Linß, 1993) The following table provides an overview of the most important characteristics:

Table 15: Characteristics of IT as Capital Good [source: own representation]

Characteristic:	Characteristic value:
Great innovational strength (Stratopoulos and Jee-Hae, L. I. M., 2010)	In the past years new technological ideas are systematically developed to the point of commercial take-off and frequently lead to the founding of startup companies.
Short product lifecycles (Moore, 2000) (Jones, 2013)	Based on Roger's diffusion study, Moore proved that a competitive advantage in IT usually lasts 18 months or less. Following this period there is at least one manufacturer executing a "me too" strategy at lower prices. Compared with the product lifecycles of other industries this is extremely short.
Disruptive technologies (Manyika et al., 2013) (Wessel and Christensen, 2013)	Well-established and well-functioning business models are not endangered by a consistent further development of the competition, but completely replaced by technological developments by new and previously unknown competitors. Flash (replacing classic hard disks) or the Cloud (replacing on-premise solutions) can be named as prominent examples in this respect.
High labor turnover rates (Adams, Fontana and Malerba, 2012) (Herzwurm and Pietsch, 2009)	IT must be regarded as a global market characterized by great fluctuations on the provider side due to frequent market entry and exit.
Low market entry barriers (Perez and Soete, 1988)	Software development in particular usually does not require a high capital investment. Trends such as software-defined solutions or software appliances ³⁷ for

³⁷ Example: Amazon Machine Images (AMI): [...] You can also make your custom AMI public so that the community can use it. [...] You can also create an AMI and sell it to other Amazon EC2 users. <http://docs.aws.amazon.com/AWSEC2/AMIs.html>, accessed October 2014.

(Herzwurm and Pietsch, 2009)	the Cloud put increasing pressure on well-established manufacturers.
Insufficient market transparency (Herzwurm and Pietsch, 2009) (Hofmann et al., 2012)	Due to the above characteristics such as a great innovational strength, disruptive technologies and short product lifecycles, compiling a market review is not only a snapshot in time, but also very complex. In addition to the well-established vendors there is a great number of startup companies, which leads to a distinctly higher number of products. Furthermore, capital goods are usually procured in irregular intervals, which makes it impossible to compare with historical prices.

When assessing the characteristics stated above it is not surprising that the IT industry resp. the components it requires feature a hard-fought, highly competitive market. Products with a clear market advantage providing the manufacturer with a unique selling point for a certain period of time degenerate to matchable bulk goods over time. As a consequence, products only distinguish themselves (in their substantial features / their substantial use) by means of the price (cf. Figure 30). Rogers describes this cycle, which is generally known as diffusion theory (Rogers, 1995), in his book *Diffusion of innovations*. At the time of a mere price war, manufacturers should have introduced a crucial strategy for preventing this development. By combining different (product) features, the manufacturer tries to generate one or several unique selling points and to purposefully influence partners, customers and calls for tenders. The “educate your customer” approach is referred to in this context (Lacity, 2002; Ingram, 2007; Ebener and Buchkremer, 2015).

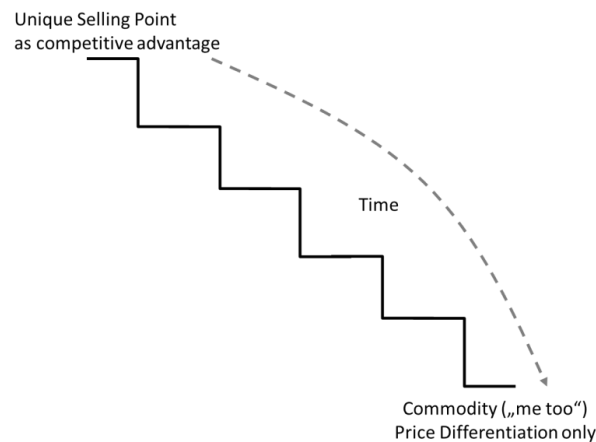


Figure 30: Degeneration of competitive advantages [source: own representation based on (Moore, 2000)]

The purposeful development of vendor-specific know-how against the backdrop of influencing potential decisions is a long-standing matter. In the consumer goods environment there are extensive studies available on measures and their success (cf. 2.1.2.1, 2.1.3). However, due to fact-based decisions these approaches are not applicable in the classic buying center. The corporate message or the type of influence can be regarded as crucial in this respect. According to a customer survey carried out by Gartner in August 2013, highly qualified purchasers regard social media, press releases or classic advertising as having little influence or relevance today (cf. Figure 2, page 17). This is still pitted against traditional methods such as direct vendor interaction with a sales representative, possible customer references or, in third place, so-called white papers (Gartner Inc., 2013h).

2.5 DEVELOPING A PROCESS MODEL OF A TEXT MINING BASED PUBLIC TENDER ANALYSIS AND AN OPINION LEADER IDENTIFICATION

A process model is now developed based on the intensive analysis of specialist literature and taking into account the issues of opinion leader identification and management, business analytics with the focus on text mining and the process of public tendering. This model pursues several objectives: (1) Revelation of

the potential impact of opinion leaders on public tendering. (2) Evaluation of the degree of impact on a tender. (3) Identification of opinion leaders³⁸. (4) Extraction of vendor-specific functionalities which decrease competition. (5) Predicting the probability for each tender that a vendor is awarded the contract.

The model was developed in accordance with the most recent insights from opinion leader research and takes into account different perspectives. It is based on experiences from interpersonal communication in which consumers spread the advertising message rather than the advertiser. This procedure has crucial significance for the formation of an opinion and the subsequent purchasing decision. Interpersonal communication assumes a special role if the purchasing risk perceived or the investment volume is high. Here the purpose of key informants is to reduce existing uncertainties and to provide advice with recommendations.

Obtaining and working with key informants, referred to as opinion leaders, pays off twice over. Investigations show that a person who has received a recommendation once tends to pass their recommendation on to others. The same is apparent for advice. A person who is asked for advice asks other people for advice just as often. Opinion leaders are no exception. This means that they also actively seek advice or more detailed information, but still act as a multiplier.

Opinion leaders always communicate and act on an issue-specific basis, possessing corresponding relevance for their followers. In contrast to other approaches, the author therefore follows the conviction of Flynn et al., that opinion leadership is always product-specific and is therefore based on one-dimensionality. Consequently, there are no general or comprehensive opinion leaders. This is also apparent in the sphere of influence of the Internet with regard to information exchange. Forums, blogs or websites tend to be constructed on a topic-specific basis around persons with the same interests and convictions. These include a few producers of content and a large quantity of consumers.

Figure 31 takes the insights described above and depicts them graphically on the basis of the multi-step flow of communication model. In this context, ven-

³⁸ In this construct an opinion leader does not need to be an individual, but can also be represented by an entity. An entity can be a vendor, a partner or an independent advisor.

dors who attempt to drive their advertising messages in the market can be described as communicators. Normally, they provide a range of information materials inter alia in the form of product descriptions and datasheets, press releases or application examples. However, information relevant to the customer does not necessarily need to be provided via the mass media in the multi-step model. What is even more important, the vendors can only perform a neutral evaluation for example of the advantages or benefits of a solution to some extent. The customer does not give him credit for the necessary neutrality, nor does the vendor have a vested interest. The special role of the opinion leader is clear in this construct. In the multi-step flow of communication model he not only possesses a relay and multiplier function for mass media or advertising messages of vendors. What is more, opinion leaders select and enrich the advertising messages of the vendors with their own opinion and evaluations.

Enrichment of the vendor's information by first- and second-degree opinion leaders in turn entails further information material (blogs, forums, white papers, etc.). It is not unusual for influencing or an exchange to take place between the opinion leaders themselves, as described in the two-cycle flow model. It is vital for opinion leaders to have very good market access and also to have great domain-specific knowledge in order to enrich the vendor's information. The product-specific, but at least the topic-specific, information materials of the communicators and opinion leaders are compiled in a central data repository.

Customer tenders which are also compiled in a repository constitute a further data source. Figure 31 shows these documents as customer output in the multi-step flow of the communication model. The impact of the opinion leaders in the communication process can be proven in these documents according to the understanding of interpersonal communication. This should apply in particular as especially opinion leaders have the necessary market knowledge and vendor-specific functionalities, including delimitation to the respective competition.

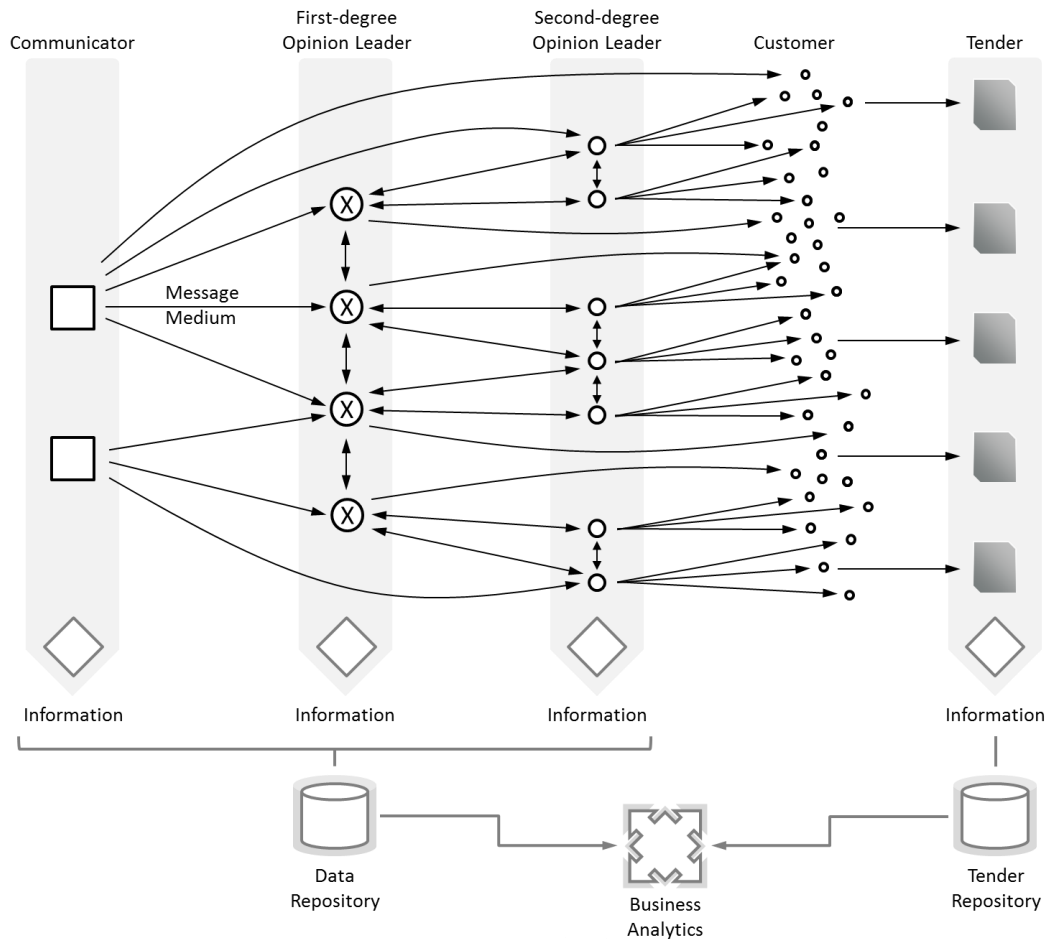


Figure 31: Developed Process Model based on the Multi-Step Flow of Communication: Information Sources for the Data Repositories [source: own representation in line with (Dressler and Telle, 2009)]

Primary data of vendors, customers and opinion leaders is thus processed in the model. The public tendering is evaluated as the object of a transparent information source in this context. It is regarded as transparent, as all steps in the tendering process must be comprehensible, and it is also embedded in the principle of non-discrimination that no product-specific features, patents, standards or similar may be described. Furthermore, the requirement for competition states that a tender must not be formulated in a manner which restricts competition and that open competition must be possible in this regard. This basically contradicts

the approach to a text mining-based analysis outlined in Figure 31 and described here of public tenders for the revelation of the impact of opinion leaders.

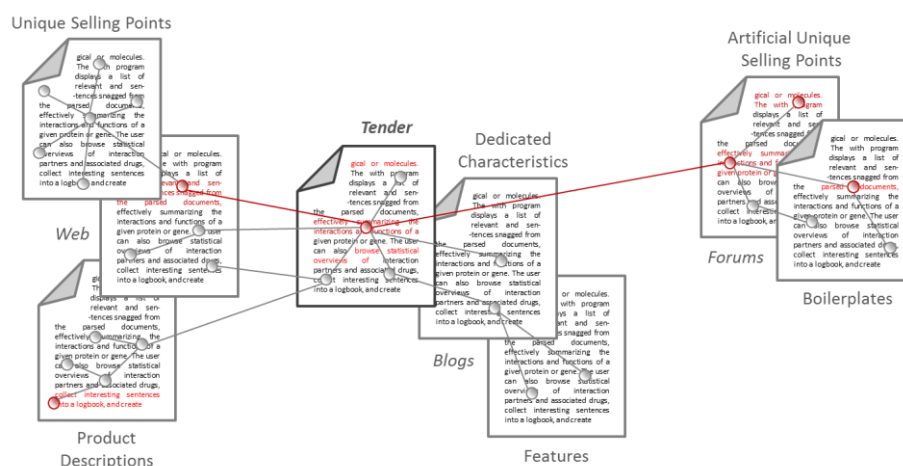


Figure 32: Idea of Identifying Product Specific Characteristics of a Vendor from Different Sources through the Application of Business Analytics [source: own representation]

The approach pursued in the process model developed assumes willful or coincidental exploitation of legal loopholes in European procurement law or a targeted contravention of the legislation enacted in 2.3.4 – *Key Principles of the European Procurement Law*. Figure 32 is a schematic representation of the basic idea for the proof of manipulation of a public tender. In accordance with this, certain characteristic features in the tendering document can be proven from the available information material of a vendor, including the product-specific documents enriched by the opinion leader. The tender itself serves as an indicator for successful manipulation by the opinion leader.

However, there is currently no process for proving such a manipulation, nor clearly identifying the opinion leaders in the awarding process of a public tender in literature. Common methods of opinion leader identification, e.g. the approaches stated in Table 6 (see page 38), cannot be achieved by such a venture. The sociometric method consults participants in the system about their opinion leaders. This is a procedure which cannot be applied due to the complexity, size and incalculability of the system. The same applies to the consulting of key in-

formants. The method of self-designation assumes that an opinion leader can assess his impact on the customer and buying center and tender neutrally. However, the validity of such a statement would be difficult to prove. Neither does the social network analysis provide a satisfactory solution, as it only gauges social interaction but ignores offline relationships and the content of messages as far as possible. Due to the stated restrictions of existing methods, a new procedure was developed which utilizes the opportunities of business analytics and analyses where the influence should lead – to tendering.

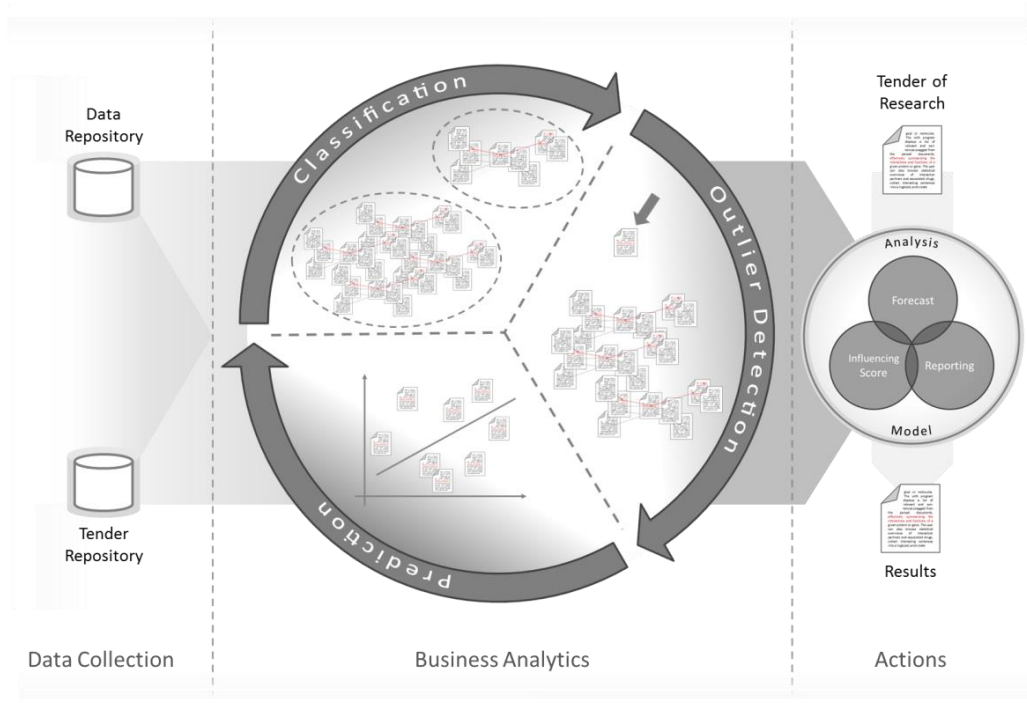


Figure 33: Developed Process Model: Information Processing and Tender Analysis through Business Analytics [source: own representation]

Business analytics provides different techniques to solve the problem described. Above all, the analysis of massive unstructured data, referred to here as the tender repository with the service directories of public tenders and output on the part of vendors and opinion leaders in the data repository (cf. Figure 33). The information from both data sources is made accessible using text mining and

evaluated by the analytical process of data mining. The procedures of classification, prediction and clustering including outlier detection are used in the process. An analytical model on the basis of the data repository and historic tenders in the tender repository is developed with the help of which new tenders can be analyzed and correctly assigned. The entire processing process is based on the CRISP-DM procedure.

Relevant recommended actions can be derived from the results of the tender analysis, which finally fall under the heading of opinion leader management. As an example, the evaluation of an individual new tender can also be split into specific actions for vendor sales.

The validity of the model should be verified in Chapter 4 – *Are Opinion Leaders Leading Opinions in the Capital Goods Industry?* on the basis of expert interviews.

2.6 CONCLUSION

The task of the current chapter was to create the necessary bases for the thesis and it therefore dealt with five key topic areas. These are (1) opinion leader identification and management, (2) the use of business analytics techniques, (3) the public tender as a transparent object of exertion of influence, (4) the derivation and definition of the capital goods industry and finally the (5) development of a text mining-based model for the analysis of public tenders and the identification of opinion leaders.

The first section can be summarized as stating that today the challenge for many companies is ensuring that their public advertising messages actually get through to the recipient. Due to information overload, many consumers tend to selectively perceive and ignore or filter information which does not correspond to their assumed requirements. This behavior can be observed regardless of the transmission medium; however it is especially apparent within the scope of mass media communication which is all too often classified as inspiring little trust. The opinion leader aims to reduce this circumstance by enriching mass media communication and channeling it to less interested persons. This interpersonal communication, or opinion leadership, is increasingly gaining significance and has already been investigated in research for over seven decades. The two-step flow

of communication model and the multi-step flow of communication model consider the special position of the opinion leader and his key role in the diffusion process for the first time. Opinion leaders can be assigned a range of functions, e.g. the relay and multiplier function, as well as motives, increased prestige, reduction of cognitive dissonance or ego-involvement and the most diverse of characteristics. Identification of this group of persons is becoming ever more important due to the economic significance. Overall, 13 different procedures were pointed out here, of which four were explained in detail. After identification, the opinion leader must be managed, which includes inter alia the development of an opinion leader marketing concept. This must be different from communication with normal consumers, as opinion leaders want to satisfy at least their increased need for information.



Over 13 different opinion leader identification strategies exist. The identification is becoming more important due to the economic significance.

The second section in the introductory chapter dealt with business analytics methods. Initially, the special challenge in the context of processing of massive amounts of unstructured data was referred to. It is currently assumed that a company's data stock doubles every 1.2 years. Unstructured data has above average growth. Consequently, it is envisaged that by 2020 the proportion of such data will increase to fourfold of the entire data volume. Further on, the key concepts in the field of business analytics, including predictive analytics, big data, business intelligence, information retrieval, data retrieval, data mining and text mining as well as text analytics were processed and differentiated from one another. This is necessary to the extent that terms in the comparatively young discipline are frequently used synonymously and on a basis which is differentiated according to the application. The process and procedures of text and data mining as key components of the dissertation were then explained in detail. The methods of decision trees, a possibility of deriving rules inductively from data, the logistic regression for modelling of the distribution of discrete dependent variables on a binary outcome variable and artificial neuronal networks as a method to also solve non-linear functions by its self-learning approach, must be emphasized in particular. Finally, a compact introduction was made to the standardized process for handling of a data mining analysis, the CRISP-DM model.



The proportion of unstructured data will reach 90% by 2020. Business Analytics is the approach to dig up the information treasure.

The background of European procurement law and public tendering was the object of section three. This analysis focused on the characteristics of public procurement with the three basic principles: the requirement for competition, the requirement for transparency and the principle of non-discrimination. The former has the objective of liberalizing public procurement markets and should oblige both principals and agents to formulate tenders in such a way that they do not restrict competition. The requirement for transparency envisages public and transparent documentation of the awarding process for the purposes of comprehensibility. However, the principle of non-discrimination is crucial. In addition to the customary clauses regarding nationality, origin or in fact gender, it describes the product-specific formulation of tenders and the associated restriction of the number of bidders as discrimination. Therefore, no specific products, procedures, brands, patents and similar may be stated in a service description.

In section four the essential characteristics of the capital goods industry were described and the complexity of buying centers addressed. Furthermore, a definition was made of information technology as a capital good and the special significance in public tendering. In addition, the unique challenges were addressed – the great innovative force, short product life cycles and disruptive technologies and also the vendors' strategy for creation of artificial unique selling propositions.



The public tender is a transparent object for the three cornerstones of the European procurement law: Requirement for competition and transparency as well as the principle of non-discrimination.

Finally, a process model was developed for the analysis of public tenders and the identification of opinion leaders. The model is based on insights from literature research and it pursues a completely new approach by using public tendering as an indicator of success of the impact of opinion leaders. It uses different documents from different sources for the revelation and correlation of product-specific features. Lastly, the origin of data can be assigned to the opinion leader. The business analytics approach, including the procedures of text and data mining, is used in this respect.

3 THE APPLICATION OF BUSINESS ANALYTICS ON PUBLIC TENDERS IN THE CAPITAL GOODS INDUSTRY

*“My deepest interest lies
between data and culture”*

Jer Thorp, Software Artist

The previous chapter referred to the basics of opinion leader identification and management, of business analytics as well as European procurement law. Consequently, the author developed a process model for the analysis of public tenders based on text mining, including the new approach of opinion leader identification. This combines the findings of opinion leader research with the conceptually new approaches of text mining. In the current chapter the model is applied to the “storage” system in an experimental approach. First of all, the course and the focus of the examination are explained and the process is performed on the basis of the CRISP-DM model, before the model accuracy is reviewed using different parameters. A further object of investigation includes the transferability of the model to systems of other industries. The chapter concludes with a summary of the most important insights, leading over to chapter four in which the results of the text mining analysis are validated by means of expert interviews.

3.1 EXPERIMENTAL RESEARCH DESIGN

In order to apply the developed process model it is necessary to transfer the provided data, the respective steps of the process and the overriding objectives to the procedure of the CRISP-DM model. In this context, CRISP-DM aims at helping to meet the identified challenges using the often applied data mining approaches and at providing a structured process model. Since the CRISP-DM model was formerly designed to be used within companies in combination with data mining techniques, there are some phases or tasks that are specifically geared

towards the coordination of the business objectives with the data mining objectives. However, this can be neglected within the framework of the examination, as there is no necessity for overriding business objectives. Business objectives could be formulated as a better understanding of customer behavior, a revenue increase of a specified percentage or a reduction of the churn rate. As a consequence, not all tasks of the CRISP-DM model have to be applied. Nevertheless, all of the tasks that are expedient for the result are taken into consideration. Consequently, the course of the examination is based on the main phases of the CRISP-DM model, which was already referred to in detail in 2.2.4 – *CRISP-DM: A Standard Process Model for Data- & Text-Mining*.

The examination is mainly based on three scientific methods referred to as (1) theoretical-deductive, (2) empirical-inductive and (3) model-oriented simulation.

From an abstract perspective, the (1) theoretical-deductive procedure is grounded on literary research in which the essences of public procurement are compiled in a first step. The aim is to define and document different influential factors and dependencies (cf. *Chapter 2 – Theoretical Principles: Facts Or Opinions – Who Cares?*). Furthermore, individual public tenders are called upon for the assessment and reproducibility.

The (2) empirical-inductive procedure uses several individual observations, in this case a random sample of tenders, to draw a conclusion on a general regularity to be substantiated in the next steps. This regularity is based on the assumption that a major part of the public tenders is (deliberately or unknowingly) influenced. In the course of the examination three workshops were carried out with different industry experts³⁹ who each had high-level knowledge in their field. In a first step an empirical analysis of the initial mass was performed in order to check for plausibility. Components that were not sufficient in terms of the content were dropped accordingly. Subsequently, the mass derived using the theoretical-deductive approach was categorized in order to determine variables, indicators and factors dependent upon the defined goal. The measurability of each variable

³⁹ Participants: Kay Niederfahrenhorst (Director Sales Public Sector, NetApp Deutschland GmbH); Johannes Wagnmüller (Director System Engineering, NetApp Deutschland GmbH); Bernd Schmid (Head of Tender Management, Bechtle AG); Lars Hilgenberg (Head of Technical Consultant, Bechtle AG)

and indicator was defined in an additional expert workshop to examine whether its content was complete and workable. The concluding round of discussions was used to validate the construct based on a reference tender with the aim of a final check for applicability.

To continue, as a final step, the (3) model-oriented simulation method is the computer-oriented implementation of the systematized text and meta data analysis.

As described in the previous chapter, the developed model is based on the assumption that opinion leadership is subject to one-dimensionality. Consequently, voiced opinions are always specific to the product or the field and cannot simply be translated to other areas. The identification of influencing within the framework of public tenders is also based on this premise. The following examination applies the model to the domain-specific “storage” system and tries to prove its validity. The “storage” system was selected as an example from the segment of capital goods, or more precisely from the field of IT. This area is particularly suited for the argumentation, as the storage industry is characterized by its high innovational strength and constantly emerging disruptive technologies (e.g. new storage media). Today other areas, such as the server market, are referred to as commodities⁴⁰ and can no longer simply be differentiated via the actual product. Among others, the power of innovation within the storage industry is reflected in the great number of startups that are founded every year. There have been 639 since the year 2000 alone. In 2014 the top ten startups generated 2.1 billion dollars in financial aids. (Maleval, 2015) For this reason the small number of well-established providers is forced to secure resp. expand its technological supremacy organically or by acquisitions. This leads to a strong differentiation of the products and the necessity of marketing the unique selling points that can hardly be compared to any other industry.

However, a limitation to the “storage” system due to the above stated reasons does not suffice to purposefully test the developed model in a practical context in a first step. Heterogeneous markets, language barriers and cultural differences are only a couple of challenges that may be mentioned in this context. This

⁴⁰ In the IT industry, this term is used for a product that has no qualitative differentiation across a market. The only differentiator is the price.

requires additional restrictions resp. a stronger focusing that is described in the following two subchapters.

3.1.1 Market Segmentation

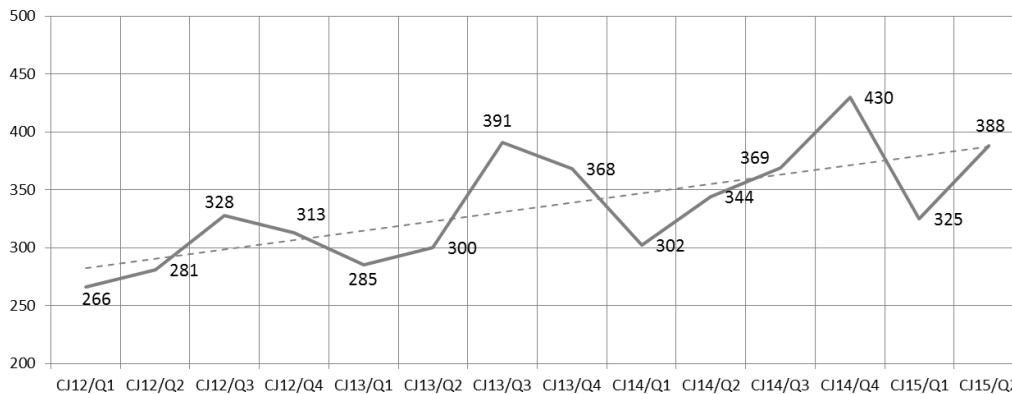


Figure 34: Amount of Tenders Over the Last 15 Quarters [source: own representation; data source: DTAD]

According to the Federal Ministry for Economic Affairs and Energy (BMWi) a total volume of more than 2.5 million tenders was published in 2013. This includes 1,190 supply orders above the threshold value of 130,000 euro applicable at that time that were tendered and awarded by public clients throughout Europe. An analysis of the database of “Deutscher Auftragsdienst” (DTAD) (cf. Figure 34) revealed 4,692⁴¹ published Europe-wide tenders in Q1/2012 until the end of Q2/2015. Figure 34 shows the publications of the tenders in the last 15 quarters and points out the typical seasonality of public tenders according to which a higher demand can be expected in each third quarter. In 2014 this demand moved into the fourth quarter due to the budget freeze by the federal government and several federal states. The chart also shows a seasonality-adjusted growth of Europe-wide tenders of about 10.3 % (YoY).

In order to effectively evaluate tenders in the capital goods industry it is essential to isolate the high volume of documents by confining and segmenting.

⁴¹ This value is already based on the limitations of the relevant CPV code from chapter 3.1.2.

Accordingly, the market is segmented based on the criteria provided by Kotler (Kotler, Bliemel and Keller, 2011) (*Market segmentation in B2B marketing*).

In the course, tenders are restricted to the German-speaking regions of Switzerland, Austria and Germany (geographic criteria). This area is known as the most competitive in Europe (Höfer, 2008). The linguistic restriction is both required and reasonable, as it leads to a considerable reduction of complexity in the text mining process.

The next step is to segment the market to a specific industry sector in order to focus on a partial amount of tenders (general criteria). The selection of the industry sector is based on the requirement of identifying and evaluating concealed USPs resp. vendor specifics. Consequently, a deeper expert and domain-specific knowledge is required. Furthermore, the contents of the tenders within the industry sector must feature a high level of easy to compare functionalities (key words), a relatively standardized form and the possibility of categorization. Finally, the segment must provide a sufficiently large amount of tenders to ensure that the statements are representative (criteria of general procurement politics). As already pointed out, all of these features are satisfied by the IT sector.

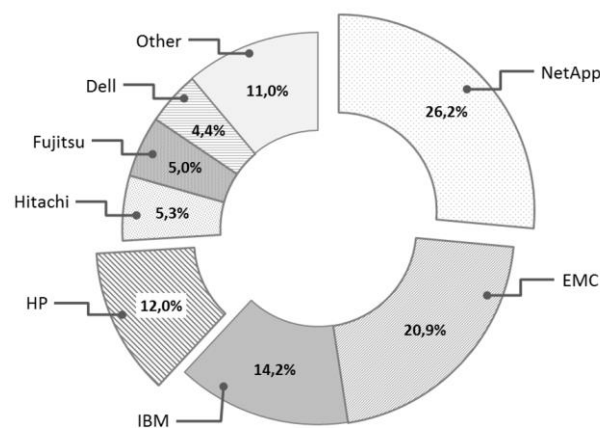


Figure 35: Storage Market Share in Germany (Revenue) 4 Quarters (w/o ESCON/DAS) [source: International Data Corporation (International Data Corporation (IDC), 2015)]

However, practical experience shows that there are no general IT-specific tenders, but that these always have a domain-specific character. Therefore, it is

vital to further segment the bandwidth of the tendered components. This is why the present case is limited to the storage industry, which in turn features a broad field of innovative solutions ranging from archiving software to flash arrays and tape robots. The stated examples clearly show how hard it is to compare these technologies resp. their diversified use in the company. Therefore, it makes sense to segment them once more according to Kotler's operative variables: the technologies used by the customer. Consequently, the examination is focused on the market of central SAN and NAS storage systems without ESCON and DAS.

Furthermore, it is important to limit the relevant period for all tenders. The goal is to examine a preferably homogenous phase. Due to the industry's great innovative capacity, according to "Moore's law" (Moore, 1975, 1998), this period is at least 18 to 24 months, but it can be extended to three to five years. The maximum timeframe is determined by the emerging of disruptive technologies.

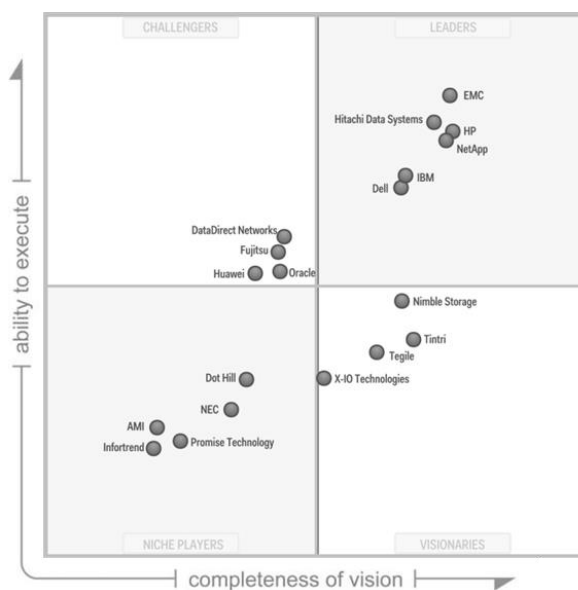


Figure 36: Magic Quadrant for General-Purpose Disk Arrays [source: Gartner (Gartner Inc., 2014)]

According to the IDC, the German storage industry generated sales of about 2.1 billion euro in the last back-to-back quarters and it is known to be hard-fought by four renowned vendors that supply about three-quarters of the market (cf.

Figure 35) (International Data Corporation (IDC), 2015). These key players in the industry include EMC and HP, which Gartner refers to as the industry leaders in its regularly published *Magic Quadrant*. This also points out an increasing number of startups that continue to intensify the competitive pressure throughout the industry (cf. Figure 36). According to the latest growth forecasts by the IDC (cf. 2.2 – *The Application of Business Analytics Techniques to Analyze Unstructured Data*), the need for storage systems will clearly increase by 2020. As a result, larger, and in sum also a greater number of systems, will be requested in the future, which may also mean an increase in tenders (International Data Corporation (IDC), 2014).

The application of the developed process model is therefore focused on the four vendors on the German-speaking storage system market that are most significant by market share. According to Figure 35 these are NetApp, EMC, IBM and HP.

3.1.2 Limitation of Relevant Procurement Law and Technology

Based on the EU legislation on the requirement of competition and the principle of non-discrimination according to §7 VOL/A and §8 VOLA/A EG, the examination focuses on the open tender procedure above the threshold value resp. the public tender on a national level (cf. Figure 27, page 104). In particular, this refers to supply services (§99 sect. 2 GWB, cf. also §1 VOL/A) regarding the procurement of goods, in particular based on purchase, installment purchase or leasing agreements as well as rental and lease contracts.

In 2002 the European Union introduced a consistent classification system for public tenders, the reference structure of which public clients use to describe the object of their procurement order. This was necessary, because tenders were predominantly classified according to predefined categories which were however not consistent on all platforms for publication (e.g. engineering, landscaping, supply services, etc.). Furthermore, public tenders are mostly categorized according to the VOB and VOL, which only describes the procurement law and does not draw any conclusions on the object of tendering.

The classification system is represented by a predefined list of services and articles of sale with a consistent glossary, the so-called CPV codes (Common Pro-

curement Vocabulary) (Die Kommission der Europäischen Gemeinschaft, 2007). This glossary is subdivided into a main part that defines the subject of the order and an extended section that comprises qualitative tasks. The vocabulary is based on a tree structure consisting of nine figures, whereas specific blocks describe different segments (department, group, class, etc.). The last three figures correspond to an additional specification within the respective category (cf. Figure 37). In addition to the classification, the CPV codes also enable the targeted search for tenders for each segment of public clients. As an example, all tenders of the “computer storage units” subcategory can be searched using the CPV code 30233100-2. Since 2006 CPV classification has been obligatory in the European Union (Simap - Informationen über das öffentliche Auftragswesen in Europa, 2008).

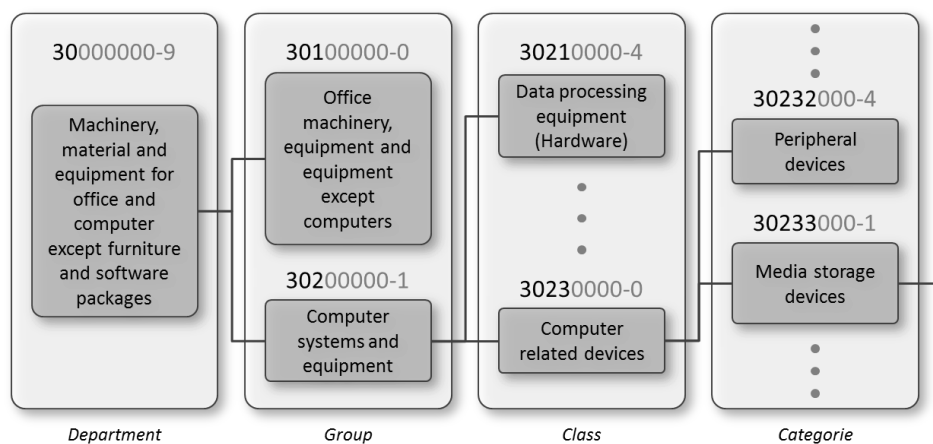


Figure 37: CPV Tree Structure [source: own representation based on the Commission of the European Community (Die Kommission der Europäischen Gemeinschaft, 2007)]

The following CPV codes are relevant for public tenders (cf. Table 16). Altogether six categories including the associated subcategories are drawn on for the examination. Additional explicit subcategories were used for media storage devices (CPV: 30233100), as this area also features tape systems and DVD readers, among others, which are however not relevant. The CPV codes have the purpose of further isolating the tenders significant for the examination.

Table 16: List of Relevant CPV-Codes for the Investigation [source: Commission of the European Community (Die Kommission der Europäischen Gemeinschaft, 2007)]

CPV Code:	Description:
30233100	Computing storage devices
30233130	Disk storage
30233132	Hard disk drives
30233140	Direct access storage
30233141	RAID (Redundant Array of Independent Disks)
30233180	Flash storage devices
30233190	Hard disk controller
30234000	Storage media
30234100	Magnetic disks
30234600	Flash memory
30236100	Storage expansion device
48814000	Medical information systems
48823000	File manager
72317000	Data storage

To continue, analyzing the relevant CPV codes with respect to the number of times they are used in tenders has shown that there is a prevailing demand for storage media, data storage, RAID as well as medical information systems on the German-speaking market (cf. Figure 38). In the last 15 quarters storage devices (23%) and, hardly surprising due to the current market development, flash storage devices (135%) as well as flash memory (34%) accounted for the biggest growth. 95% of the evaluated tenders can therefore be attributed to the segment of open tender procedures. The analyses are based on the database of DTAD in the period of Q1/2012 to the end of Q2/2015.

Due to the market segmentation in the capital goods industry, only public tenders and open tender procedures from the specific storage area are taken into consideration. Furthermore, both tendering procedures have specific requirements regarding the principle of non-discrimination, or more precisely regarding product-neutral tenders (cf. 2.3.4 – *Key Principles of the European Procurement Law*). Additionally, only tenders from the storage industry that feature one of the above CPV codes are taken into consideration.

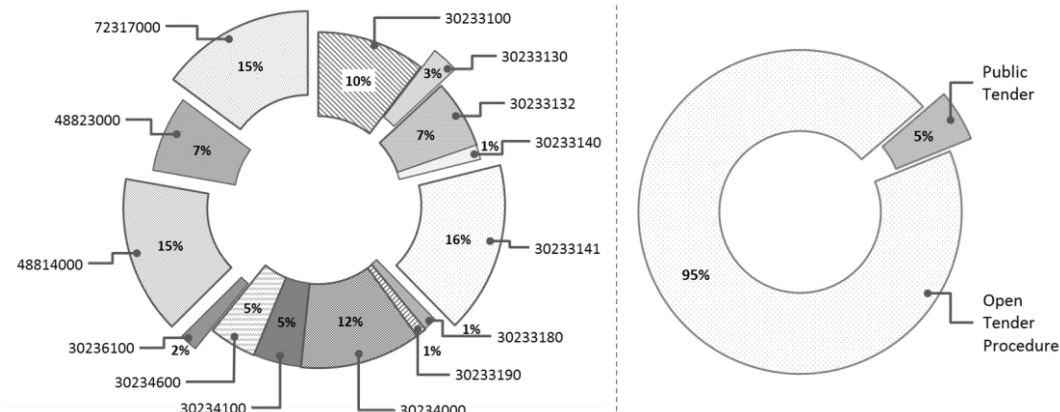


Figure 38: Distribution per CPV Code and Share of Public Tenders (timeframe: last 15 quarters) [source: own representation; data source: DTAD]

3.2 USING THE CRISP-DM METHODOLOGY FOR CONCEPTUALIZATION AND OPERATIONALIZATION

The methods of business analytics for analyzing the tender documents were applied according to the recommendations and guidelines of the CRISP-DM standard which was referred to in detail in the previous chapter (cf. 2.2.4 – *CRISP-DM: A Standard Process Model for Data- & Text-Mining*). In addition to best practice approaches, the CRISP-DM standard also offers a range of preliminary considerations that could be regarded as essential for any data mining project.

The following subchapters are therefore oriented on the method of the CRISP-DM process model. Due to the modified area of application outside of a company, not every phase, task or output has to be explicitly performed or presented. However, the overriding idea of the following statements still is to explain the underlying concepts and procedures and to present the subsequent output of the operationalization.

3.2.1 Business Understanding

In the first phase of the CRISP-DM model, the business understanding phase, the overriding goals of the examination are determined, while defining corresponding criteria for success. The criteria for success can be of a general nature, e.g. to uncover various motivations, or they can be specific and measurable. The latter refers to precise objectives such as reducing the rate of employees at a certain level leaving the company, which should then also be made understandable and assessable using data and the techniques of data mining.

The overriding objective in the context of the selected examination is to verify the influence of opinion leaders on the specifications of a tender. Since this does not represent a goal that can be measured directly, the aim is to determine the degree of influencing specifications on a scale. For this purpose it is necessary to extract and evaluate vendor-specific functionalities from the texts, among others. Furthermore, opinion leaders are supposed to be identified via texts from various sources in the specifications. Fundamentally, the stated objectives for the application of the developed process model are taken over. The following table lists the definition of the goal including the success and measurement criterion (cf. Table 17).

Table 17: Business Understanding: Objectives and Success Criteria for the Data Mining Process [source: own representation]

Objective:	Success Criterion:	Measurement Criterion:
(1) Uncovering the potential influence of opinion leaders on the public tender	General purpose	Uncovering abnormalities in the specifications (patterns, accumulations, etc.)
(2) Evaluating the degree of influencing a tender	Specific and measurable	Degree of influencing on a developed scale. Value > 3.0 corresponds to significant influencing.
(3) Identifying opinion leaders	Specific and measurable	Proof of a correlation of opinion leader texts in the specifi-

		cations. Correlation coefficient > 0.5.
(4) Extracting vendor-specific functionalities that lead to a narrowing of the competition	Specific and measurable	Number of detected vendor-specific products, USPS or distinct descriptions
(5) Predicting the probability for each tender that a vendor is awarded the contract	Specific and measurable	Model with lowest erroneous classification value

Before entering the next phase, an essential task is to provide an extensive analysis of the actual situation. This includes the clarification of required resources, possible limitations, assumptions and other factors that could endanger the implementation (cf. Table 18). Among others, the required software packages for the analysis as well as the amount, quality and availability of the data, including an analysis of the corresponding sources, should be taken into consideration for this purpose.

As an example, a sufficient data basis is a crucial requirement. Furthermore, the analysis is subject to the assumption that the influence of opinion leaders on the specifications can be verified at all. The availability of specifications has turned out to be a restriction. The various tendering platforms usually only provide general information on the tenders. Detailed information such as the specifications of tender can be requested via the platforms against payment or ordered directly from the entities issuing the invitation to tender at neutral cost. However, in most cases this is not possible retroactively, which does not only make the procurement of information very time-consuming, but also quite expensive to some extent. Further information on this aspect is available in 3.2.2 – *Data Understanding*.

Table 18: Resources, Requirements, Assumptions and Constraints of Reaching Data Mining Goals [source: own representation]

Assessing the initial situation:	<p>Inventory of resources: Software: SAS Content Categorization Studio, SAS Information Retrieval Studio, SAS Enterprise Miner 12. Data from public tenders including the service specifications. List of available tender sources of supply. Product data sheets and whitepapers from the specific vendors. Data from forums and blogs.</p> <hr/> <p>Requirements: Sufficient amount and meaningful data.</p> <hr/> <p>Assumptions: The description of vendor specific features like unique selling points or dedicated functions is not random and detectable.</p> <hr/> <p>Constraints: The availability of service specifications is limited. Furthermore available documents must be comparable.</p> <hr/> <p>Risks and contingencies: Sufficient data basis does not exist. Service specifications do not include any conspicuity. No relationship between the documents of opinion leaders and the given service specification could be exposed.</p>
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3.2.2 Data Understanding

The first step of this phase deals with obtaining the required data. This can be roughly subdivided into two areas. One repository represents all tenders, whereas the other repository includes all information on vendors, products or potential competition monitoring by opinion leaders. This is followed by an initial exploration of the data resp. a preliminary analysis regarding a possibly required preparation.

In a first step, the field of tenders deals with the identification of suitable data sources and obtaining a sufficiently large amount of tenders from the market segment of IT, or precisely the German-speaking software industry. Potential sources of tenders can be subdivided into two areas: cost-based and cost-neutral sources. In addition to various tendering platforms that enable the selection of individual tender information and the request of specifications, it is also always

possible to inquire directly with the respective awarding entity of the authorities, the local community, etc. during the tendering process.

Commercial tenders are also published via Internet portals, however they are also sent to suppliers and service providers directly. In individual cases, if direct distribution is possible and desired, tenders are also openly provided to the vendors. Table 19 (see page 143) gives an overview of the examined online portals for commercial and public tenders as data sources and categorizes them according to different aspects such as according to the reach or the scope of the offer. Furthermore, some offer sites have specialized in region-specific awarding on a national, EU-wide or even on an international level.

Supplier:	Description:	Address:	Periodic update	Offers:	Positives of classification:	Coverage:	Fee-based:	Cost-neutral:	Public Tenders	Commercial:
Bundesverwaltungsamt	Tenders of the federal-, regional- and the local government	www.bund.de/ausschreibungen.de	Daily	approx. 8.100 tender	Award office, Region, Type of tender, Procurement procedure, CPV-Code, Kategorie: Materials, products or services	National	Y	Y	N	
Deutscher Auftragsdienst AG	Information service for public, commercial and private oder information	http://www.dtad.de	Daily	approx. 600.000 tender p.a.	Region, Type of tender, Kategorie: Materials, products or services	Inter-national	Y	N	Y	
Deutsche eVergabe	Software- and service provider for the electronic procurement	http://www.deutsche-evergabe.de	N.A.	N.A.	Type of tender	Limited national	N	N	Y	N
Vergabe24 GmbH	Vergabe24 is a joint project of the government gazette and the tender journal of Bayern, Baden-Württemberg, Hessen, Sachsen, Sachsen-Anhalt und Thüringen	http://www.vergabe24.de	Daily	approx. 250.000 tender p.a.	Region, CPV-Code, Kategorie: Materials, products or services	Limited national	Y	N	Y	N
Europäische Union	Supplement to the official Journal of the European Union	http://ted.europa.eu	5 times a week	approx. 1.500 tender by the week procurement (Current tender in total 92394)	Region, procurement procedure, CPV-Code	Inter-national	N	Y	Y	N
Deutsche Medienagentur	Information broker für public, commercial and private tenders	http://www.it-ausschreibung.de	Daily	287 tender	Region	National	Y	N	Y	Y

Table 19: Overview of Common Suppliers of Tenders [source: own representation]

“Tenders electronic daily” (TED), the tendering platform of the European Union, can be drawn on as a source for tender texts. This is where all tenders exceeding the threshold for awarding contracts are published. In addition, the tendering platforms of the federal government and the federal states can also be referred to. However, obtaining data via these platforms has turned out to be complicated, as the entries are only notifications on the respective tender. Although the complete specifications for tenders are generally included in the tender documents, they have to be requested individually by the provider (vendor or e.g. system house). The TED archive does not contain specifications for tenders, either. By written request it was confirmed that the platform only represented the European Union’s information service.

“Deutscher Auftragsdienst” (DTAD) also enables access to its platforms resp. to its database including the archive system on a test basis. This is where about 60,000 tenders are stored. Specifications can be requested for a fee of 19 euro, even if these have already been requested for other customers. DTAD is a commercial provider with various service offers for vendors, system houses, etc. A request for access to awarded tenders or specifications was declined.

For this reason the awarding entities of the federal government, individual federal states and selected cities and districts were addressed directly in writing. A large part of the authorities declined the request and justified their rejection with insufficient personnel resources, the fact that they did not have a document management system or with data privacy reasons. Only North Rhine-Westphalia and the city of Munich gave a positive response. Furthermore, the procurement chambers of all federal states were contacted and asked for data. Procurement chambers act as an auditing entity for procurement law violations. Data sets from potentially controversial tendering procedures would have been well-suited as test data for the text mining analysis. All of the procurement chambers replied to the request within 48 hours. They appeared to be very interested in the dissertation, however they were not able to provide the requested data and referred to the respective awarding entities.

Due to the fact that the majority of the requested public entities declined the disclosure of the requested and necessary information in the shape of specifications for tenders, various system houses and the vendors NetApp, EMC and HP were approached. In the tendering procedure they either receive the respective

documents directly from the awarding entities or they call them up via the listed tendering platforms. Altogether it was possible to collect 517 tenders, including specifications from the relevant subset (open tender procedure and public tender, defined CPV codes). However, in some cases the data was anonymized by the suppliers for data privacy reasons. The anonymization mainly referred to information on the publishing entities.

Due to the selection procedure it is not possible to guarantee the representability of the data resp. the obtained findings, as the characteristics of the current sample do not necessarily have to correspond to the entirety of all tenders with respect to their distribution. Characteristics may include the relevant awarding entity (federal government, local authority, etc.), the investment volume and a possible vendor preference, among others. In particular the last point could lead to an undesired clumping⁴² if vendors or system houses only processed tenders that matched the respective portfolio.

The second repository for information on vendors, products or a potential competition monitoring by opinion leaders, which has already been referred to, is supplied by different data from freely accessible sources. The respective providers, vendors, system houses and consultants usually offer an extensive database with technical datasheets on the specific products. Basically, four different categories of information sources can be listed:

- 1) Marketing materials of the providing companies (product flyers, whitepapers, press releases, etc.)
- 2) Analyses by independent market research agencies (e.g. Gartner)
- 3) Recommendations by independent sales associations (e.g. SNIA⁴³)
- 4) Individual communication by market experts and opinion leaders

Modern communication, reduced to product-specific communication in this context, comprises an extensive portfolio of communication tools. This dissertation relies on the tools that enable a customer to provide tenders with vendor-specific functional characteristics, which includes product flyers, whitepapers, blog entries or press releases with new product features, to name but a few. Fur-

⁴² In this context, clumping refers to a not equally distributed sample.

⁴³ Storage Networking Industry Association (non-profit organization)

thermore, a few vendors have developed a specific communication on RFPs (requests for proposal) and e.g. offer an RFP builder⁴⁴, a mobile app resp. a website to validate one's requirements based on yes-no questions. As a result, the customer receives a tender that is predefined to some extent.

In regular intervals, independent market research agencies publish analyses on the current market development, focusing on various key topics in the technology sector. In its annual study *DCIG 2014 Enterprise Midrange Array Buyer's Guide* (Wendt and Clipperton, 2014), DCIG⁴⁵ questioned purchasers on their current preferences. Among others, based on a weighted catalog of questions, a scoring model and a ranking table are developed to enable companies to easily compare storage systems. Furthermore, created datasheets are intended for the selection of a product shortlist to meet the own requirements. In addition to DCIG, further renowned market research institutes such as Gartner⁴⁶ or IDC⁴⁷ publish alternative analyses of various vendors (*IDC Storage Tracker*, *Gartner Magic Quadrant*, etc.).

The Storage Networking Industry Association is an independent non-profit organization with the aim of developing and promoting technology standards all around storage networks (Storage Networking Industry Association, 2013). For this purpose the organization holds the annual vendor-independent congress *Storage Networking World* with exhibitions, presentations and expert talks. Furthermore, members have access to comprehensive publications, recommendations and tutorials on various topics. As an example, in the spring of 2012 John Webster gave a talk on how to phrase storage RFP in 2012 and on which promising technologies should be considered (Webster, 2012).

Furthermore, market experts' and opinion leaders' communication on vendor products, industry trends and innovations is a data source that should not be underestimated. As an example, they communicate via relevant forums, blogs and social networks, and mostly they comprise sources with plenty of background information and expert knowledge.

⁴⁴ <http://storage-rfp.com>

⁴⁵ <http://www.d cig.com/>

⁴⁶ <http://www.gartner.com/>

⁴⁷ <http://www.idc.com/>

Data procurement for the second repository is based on the use of a webcrawler that addresses specified websites in an automated way, processing the data according to a domain-specific taxonomy.

The following Table 20 lists the different data sources, including information on their origin, and describes the respective approach for data collection as well as any possible challenges.

Table 20: Overview of Data Sources, Location, Sourcing Approach and Challenges
[source: own representation]

Data collection	Data sources:	DS01: Tenders
		DS02: Marketing material (product flyers, white-papers, press releases, etc.)
		DS03: Market research agencies
		DS04: Forums, blogs, social media
Data location:		DL01: Provision by vendors and system houses
		DL02: Available online: vendor websites
		DL03: Available online: websites of the respective providers resp. downloadable whitepapers
		DL04: Available online: websites of various providers
Sourcing approach:		SA01: Manually by request
		SA02: Manually or partly automated by webcrawler
		SA03: Manually
		SA04: Fully automated by webcrawler based on a developed taxonomy
Challenges of sourcing:		CS01: By personal contact, high procurement effort. Problem of a possible unconscious pre-selection by the intermediators, representatives and uniform distribution of the random

	sample.
CS02:	Low number of texts for the German-speaking region. Many in English.
CS03	Access to studies by Gartner and IDC is cost-based
CS04:	Access partly only with registration, after review or on invitation. Webcrawlers are partly blocked. Developing the taxonomy is complex.

Various documents with different formats were procured from the four sources. In addition to Word, .txt and HTML files, the vast majority is available as PDF files. In addition to freely accessible texts, tenders in a PDF format in particular include protected or scanned documents that need to be transformed before they can be processed. The final product of all available documents is a plain, easy-to-process text document without formatting marks or the like.

The volume of the communication depends on the selected product category and the limitation of the area to be examined. Singling out a specialized product category provides less, but higher-quality results. The same applies to the collection of mass data from forums, blogs and social media. The more detailed and domain-specific the taxonomy was developed, the better the data quality, but the fewer applicable documents there are.

Altogether 517 documents were collected from the available tenders, 495 of which from the period of 2012 to 2015. In a comparable period the database of DTAD shows 4,692 tenders for the relevant CPV codes in all of Europe. Using this value as the entirety of documents, this would correspond to a sample of 10.55%. By limiting the tenders to the German-speaking region, the entirety of DTAD is reduced to 1,912, which would correspond to a new sample of 25.88% with respect to the available tenders. Due to the different tendering platforms, the market segmentation described and the limitations, it is however difficult to reliably define the entirety. Therefore, the stated values must be regarded as approximated values. Table 21 summarizes the most important available data.

Table 21: Data Description [source: own representation]

Data description	General description:	GD01: Specification from the tender process
		GD02: Technical product descriptions and data sheets
		GD03: Market analyses, product comparisons and decision matrices
		GD04: Expression of opinion, evaluation of products and vendors
Data format:		DF01:
		DF02: Raw format of the documents range from
		DF03: PDF, Word and HTML to simple TXT
		DF04:
Data quantity:		DQ01: The collected data was transformed into a table with four columns (date, target vendor, text [service spec.], text [existing env.]) and 517 records in total
		DQ02: The collected data was transformed into a table with two columns (vendor, text) and 79 records in total
		DQ03: The collected data was transformed into a table with three columns (source, vendor, text) and 42 records in total
		DQ04: The collected data was transformed into a table with four columns (source, author, vendor, text) and 12.184 records in total

An initial exploration of the collected tenders is shown in Figure 39. A large part of the available documents originates from 2012 and 2013. However, the current year is also represented with about 13%. The large bandwidth of the specifications for tenders is of particular interest. These range from less than 5,001 characters (55%) to 27,404 characters, while the documents with more than 20,000

characters only represent 2% of the entirety and can surely be regarded as run-away values.

To continue, the so-called target variable represents a different field. If the data is available or known, it states the vendor that was awarded the respective contract. The chart shows the vendors relevant for the examination – NetApp, EMC, HP and IBM – highlighted in gray. All other vendors, which are marked in a lighter color, are rejected according to 3.1.1 – Market Segmentation. For 14.89% of the tenders the variable is not populated. Furthermore, the fairly high number of tenders associated with NetApp (44.65%) is striking. Once more, it should be pointed out that due to the data procurement, the fact that the intermediators unconsciously preselected the tenders cannot be excluded. Although NetApp holds a dominant position on the German market with a share of 26.2%, compared with EMC in particular the percentage should be lower. This could be seen as an indication of a sample that is not evenly distributed, which however does not represent an area of conflict for the examination.

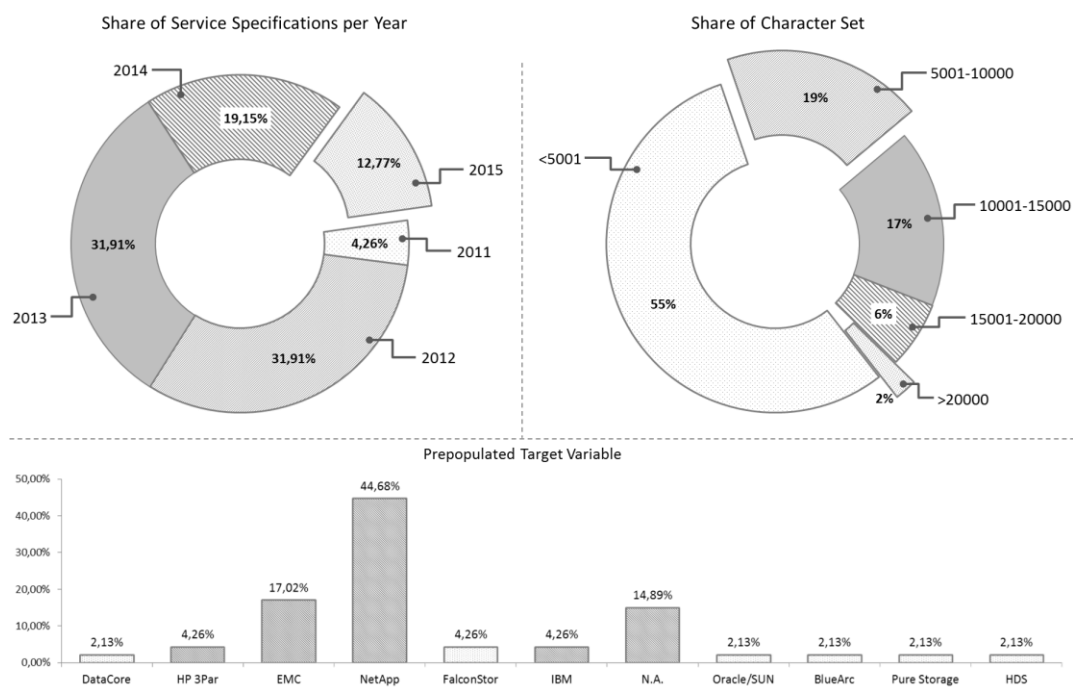


Figure 39: Share of Service Specifications per Year, Size of the Character Set and Prepopulated Target Variable [source: own representation]

The specifications for tenders with the specific requirements as well as the description of the existing IT environment are exclusively available as text. Therefore, no further visualizations, simple statistical analyses or reporting techniques are applied. Additional analyses require at least text parsing, or more preferably the definition of variables, including the associated extraction of information by means of text mining.

The data of the second repository – forums, blogs⁴⁸ as well as various whitepapers and market analyses – can be categorized by quantity and quality depending on its origin. There is little information provided by the vendors (0.6% of the entire repository), however with a high and relevant information density. The same applies to the documents provided by analysts (0.3%). On the other hand, forums and blogs (95%) can be classified as mass data that poses the biggest challenge of information extraction. The residual 4.1% are comprised of the tender documents. The low number of German forums and blogs dealing with system storage is of particular interest. Also, most sources are editorial sources and only a few are managed by independent individuals. If the analysis were expanded to the English-speaking region, it would not only be possible to examine a considerably higher number of sources, there would also be a higher number of independent bloggers. However, expanding the analysis to a second language would have extensive consequences on the complexity and scope, which is why this is skipped for the time being.

The analysis of the quality of the collected data resulted in a positive image for the tender documents as well as the other documents. A random testing showed that neither automatic spell-checking nor a grammar check would be necessary. In many cases the origin of the documents leads to the assumption that these have already been reviewed. Smaller mistakes can be ignored due to the quantity of the available documents. Only forums and blogs undergo additional spell-checking within the framework of the data mining process.

The amount of missing values in the tender documents is 14.89%. This can be ignored since it refers to the target variable. The missing values are predicted within the context of the model, which is one of the main tasks. The residual data

⁴⁸ A complete list of the analyzed forums and blogs is provided in Appendix A19.

showed a missing value rate of less than 1%. This data was deleted instead of statistically or artificially completing it using sophisticated procedures, which would not have been possible for all textual variables anyway. Aside from the missing values, the available data is complete and correct.

3.2.3 Data Preparation

The data preparation phase includes the selection, preparation and the set-up of data as well as a final formatting before the actual modeling. Various procedures are used for this phase, which are partly based on the same data, but distinguish themselves depending on the targeting as shown in Table 17 (page 139).

The datasets of the tenders are all available in natural-language texts. Therefore, this is why preprocessing procedures such as term eliminating, stemming, but also part-of-speech methods for the identification of entities are the first steps of preparation. Before the data is processed, the texts must be filtered using a start word resp. stop word list, whereas one list is based on the other. A stop word list defines all words that are deleted from the texts by the system before the full text indexing, because they appear often and they are usually not relevant for recording the content of the document. As an example, for the German language these are articles (“der”, “die”, “das”) or conjunctions (“und”, “oder”, “doch”). The start word list includes exactly the opposite. This is where terms are defined that are supposed to be transferred exclusively to further processing. Terms that are not included in this list are removed from the system. Therefore, it is only possible to state one of the two lists. The approach of the start word list is not productive for the desired analysis, as the technological development takes place at such a fast pace that it would have to be constantly updated. Furthermore, creating an extensive and high-quality start word list is particularly elaborate. Instead, an adjusted and further developed stop word list was created, extended from initially 217 to 603 words. The described procedures of stemming, part-of-speech as well as stop word lists are language-independent and limited to German. The use of English terms, which is not uncommon in IT, is however still processed by the system. Filler words, etc. are not filtered, whereas these words practically do not exist in tenders.

The filtering step is followed by an analysis of the identified and weighted terms. These terms are the basis for the subsequent modeling and require particular attention. The software extracted 20,000 terms altogether for the entire tender, which also is a preset limitation. Figure 40 shows a compilation of various term analyses. At first the terms are visualized in a Zipf plot that puts the frequency of terms in a text in relation to their rank. 15,399 ranks were calculated in the course. According to Zipf's law, certain words appear more often than others and the distribution is similar to a hyperbola ($1/n$). In many languages this leads to the fact that words appear less often the longer they are. The top left chart also confirms this insight for the entirety of all texts from the tenders. The lowest rank is represented by the word "Cachepufferung" (cache buffering), the highest by "sein" (to be).

The range of the supplied terms is very extensive, whereas the respective frequency of appearance in the documents is also widely distributed (Figure 40 - Number of Documents by Frequency: Complete Tender). It ranges from words that can be found in all documents, represented by the marker in the top right corner, to terms that exactly appear once in a document (lower left corner). An accumulation for terms below 1,000 and up to 75 documents can be detected. This means that there are many individual terms that can be found in an average of 15% of all documents. However, there is only a small number that is found in the residual part of the tenders.

The last two charts in Figure 40 deal with the reduction of the identified 20,000 terms by the principle of weighting. The size of the corpus is thereby limited using the procedures of entropy or inverse document frequency. Entropy weights according to the expectancy value of the information from each collected document. Therefore, Shannon also speaks of the average information content or the information density of a message that also describes the probability for the occurrence of an independent event (Shannon, 2001). Inverse document frequency on the other hand measures the general significance of a term for the entire volume of the document at hand. The value increases in proportion to the occurrence of a term in a document, but is balanced by Zipf's law (Rajaraman and Ullman, 2011). Furthermore, it can be specified that terms have to appear in at least two documents in order to be weighted at all. The chart "Number of Documents by Weight: Complete Tender" shows the weighting of the terms with respect to their

frequency in the documents. By applying the weighting method of inverse document frequency, it was possible to reduce the terms by 4,926, from 20,000 to 15,074. Words with a weighting of zero, represented by the markers on the Y-axis, are filtered accordingly. The bar graph below explains which types of words the major part of the terms was discarded from.

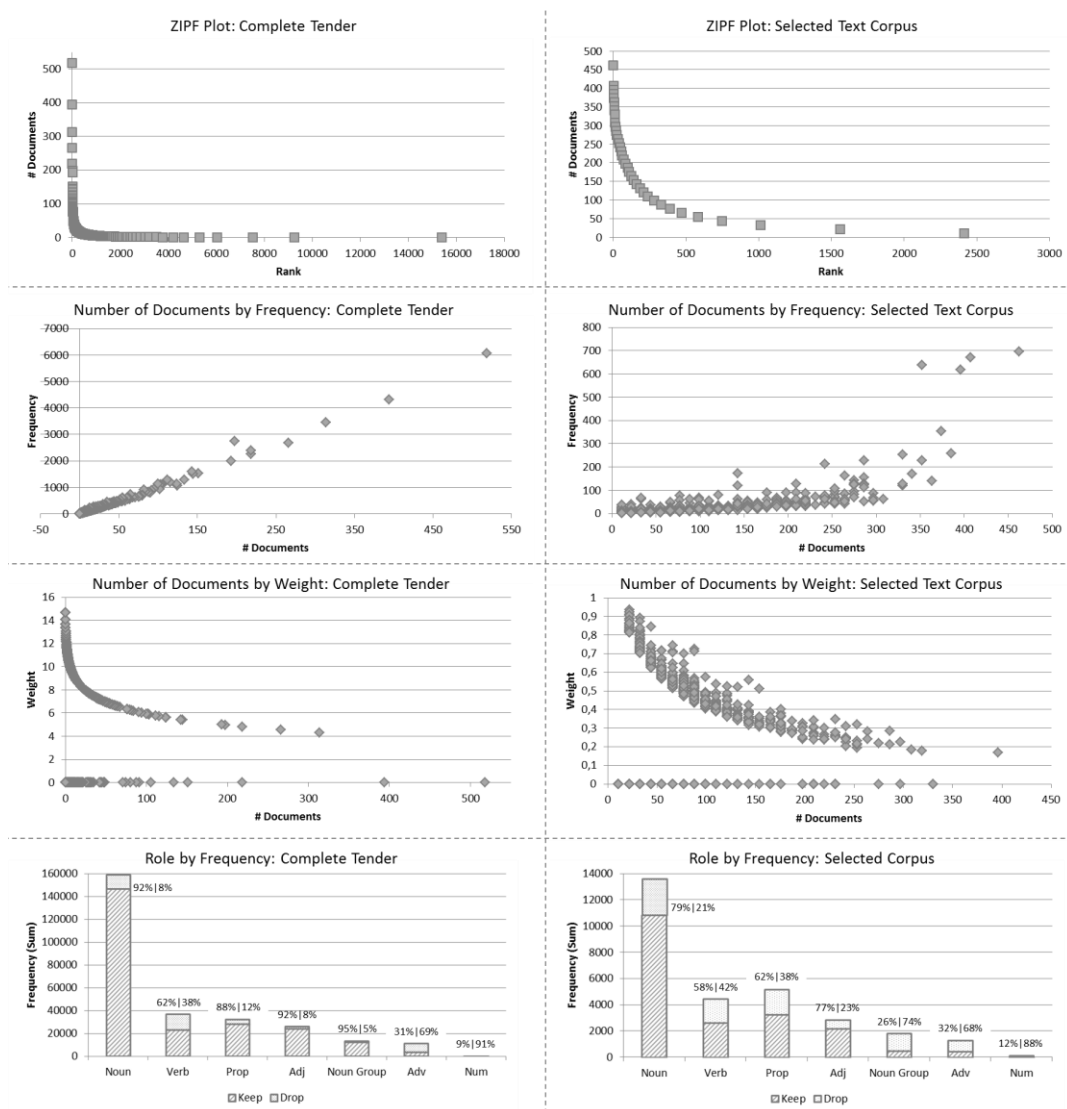


Figure 40: Document/Term Analysis Before and After the Corpus Selection [source: own representation]

Despite this procedure, the amount of the terms is so extensive that no obvious signals can be detected in further processing, and static prevails. According to Ansoff's theory, this reflects an insufficient focusing on certain topic areas that makes it impossible to filter the relevant information from the data mass (Ansoff, 1975). Weak signals are often of poor quality, which leads to an overshadowing by other non-relevant information and existing characters pointing in conflicting directions. The more data is collected, the more difficult it becomes to transform it into specific information. At the same time, a large quantity of specific information complicates the selection of a course of action, as demonstrated by Harris (Harris and Zeisler, 2002), among others.

The analysis shows that a premature limitation of the text corpus is inevitable, as the static would otherwise outweigh the results. Therefore, the areas that are relevant for the analysis at a later point in time must be selected accordingly. Transferred to the object of research of the tenders, this includes the specifications as well as functional and non-functional requirements that limit the number of providers or imply an undeniable influencing of vendors. Functional requirements are product features used for a specific purpose, which are mostly formulated as specifications for tenders (e.g. compressing of data for storage space extraction). In a reverse conclusion, non-functional requirements are defined as characteristics that are not product-specific and that specify additional vendor efforts such as financing offers or support services. Furthermore, specifications for tenders can consist of several batches, e.g. a batch for servers, another for virtualization, etc. In this case the text corpus is limited to the specific batch of the storage requirements.

By limiting the text corpus, in a first step, it was possible to reduce the maximum rank to 2,435 and the total number of all identified terms by 12,933 to 7,067 (cf. Figure 40 – Zipf Plot). The term frequency within the documents now also has a considerably lower bandwidth, which implies that the focusing meets its purpose. Applying the weighting procedures once more enables an additional reduction to only 2,005 terms.

The statistic procedure for term reduction creates a good starting basis for the subsequent modeling, however it also implies a crucial weakness. It is based on frequency distributions and might therefore ignore decisive information. This is why a manual quality control of all discarded terms is carried out in order to re-

include important storage-specific features into the model, which had been discarded for statistical reasons. Furthermore, terms that were previously regarded as important (keep) can be rejected manually. With a quantity of 7,067 terms this is a considerable effort, which is why the method of concept linking was applied (cf. Figure 41). This procedure is a possibility to join terms (concepts) together using connecting words to generate new statements resp. insights. According to Safayeni, the relationships uncovered by this method enable a description, definition and also a re-organization of knowledge on a given domain. This is also referred to as concordance. The following example presents the method of concept linking based on the key word "System". The "+" sign in front of the term stands for the possibility of additional concept linking. This type of visualization enables a further refinement and improvement of the upcoming modeling.

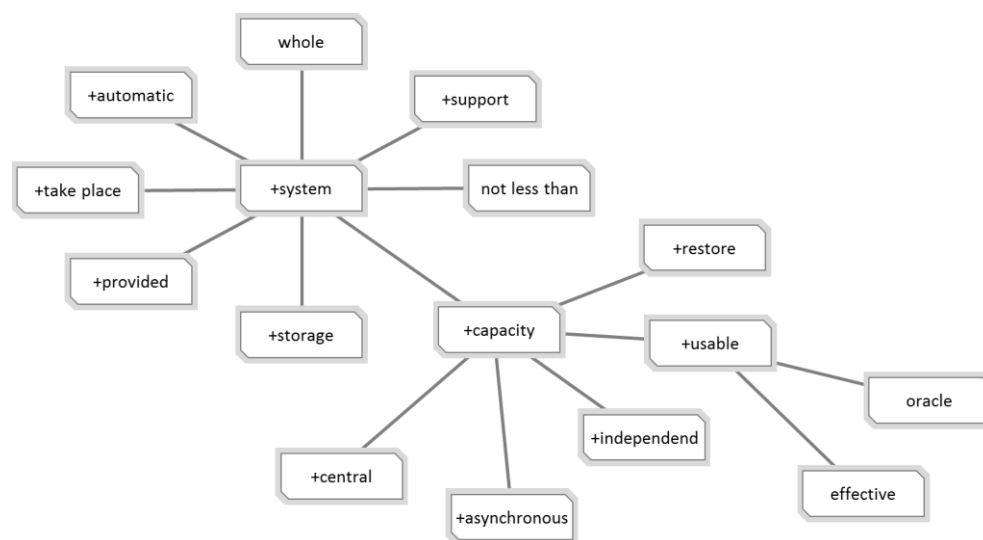


Figure 41: Exploration of Important Terms with Concept Linking [source: own representation]

At this point the tender texts are sufficiently prepared to uncover trends, patterns and anomalies with an extended exploration. Individual variables are deduced that are finally used to develop a significant model. Among others, the procedures of cluster analysis and topic identification are applied in an iterative process to identify patterns. The significance of the later model does not depend

on the amount of data, but rather on the relevance of groupings and derivable statements.

Table 22 lists all variables that were derived within the framework of the extended data exploration. Based on four predefined variables the list now includes 20 variables, the values of which were all extracted from the two text corpora. Variables 1 to 5 have an informative character, number 6 gives a conclusion on possibly existing systems resp. the last purchase decision and variables 7 to 16 are characterized according to Boole⁴⁹ with an indication of influencing. Last but not least, variable 20 represents the target variable to be evidenced resp. predicted with the model.

Table 22: Defined Variables for the Model [source: own representation]

No.:	Variable:	Role:	Description:
1)	Date	Interval	Issue date
2)	Publisher	Nominal	Name of the publisher
3)	Organizational form	Nominal	Authority, university, etc.
4)	RFP name	Nominal	Designation of publisher
5)	Type of RFP	Nominal	Public tender, etc.
6)	Inventory system / existing vendor	Nominal	Name of existing vendor system
7)	Use of lots	Binary	Is the tender divided into lots?
8)	Use of exclusion criteria	Binary	Do exclusion criteria exist?
9)	Weighting / scoring system	Binary	Is a scoring system used?
10)	Dependencies to existing environ-	Binary	Do requirements exist that require compatibility with the legacy system?

⁴⁹ In general, a variable according to Boole is a variable that can assume a limited number of values or states: in this context the variable is understood as a dichotomous pair of values with the specification true/false.

ment			
11)	German support	Binary	German-speaking support staff is necessary
12)	German technical documentation	Binary	German-language documentation is requested
13)	Need for trainings	Binary	A training program must be part of the offer
14)	Indication of product specifications	Binary	Detailed descriptions like amount of memory or height units are specified
15)	Use of product names	Binary	Vendor specific product names are listed
16)	Use of corporate name	Binary	Vendor names are listed
17)	No. of specified features	Numeric	Dedicated vendor features can be detected
18)	Tender service specifications	Text ⁵⁰	Selected text corpus from tender.
19)	Description of existing environment	Text ⁵¹	Selected text corpus from tender
20)	Vendor prediction	Target	Reliable assignment of a vendor to a tender service specification

As already pointed out, variables 7 to 16 imply an intentional use for reasons of narrowing the competition. In the first step this should be seen independent of the target variable. The following bar graph (cf. Figure 42) displays the frequency in which these variables are used. At first the left chart presents the number of variables applied per tender. About 59% of all specifications have at least

⁵⁰ Some of the listed variables were explicitly extracted from this text corpus, e.g. German support

⁵¹ Some of the listed variables were explicitly extracted from this text corpus, e.g. existing vendor system

five verifiably used variables. Variable 8 (“Use of exclusion criteria”) can be found in 61.5% of all documents (cf. chart on the right). The occurrence of these variables alone does not prompt any conclusions as to a narrowing of the competition. However, combined with variable 14 (“Indication of product specifications”) or 17 (“No. of specified features”), it may theoretically lead to an exclusion of competitors.

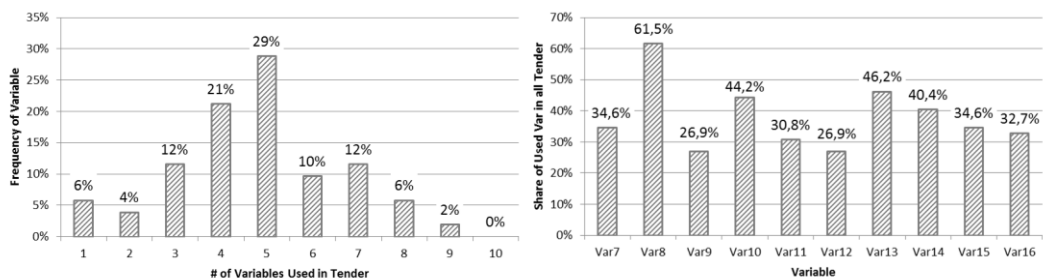


Figure 42: Usage of the Variables in a Tender [source: own representation]

This theory will be verified and an analysis for the identification of individual vendors’ specific functionalities (variable 17) will be carried out following the consideration of a possible correlation of the variables. Pearson’s correlation coefficient is used to measure the linear relationship between two variables. The result of the measurement can be between -1 and 1, and is interpreted as follows:

- $r \approx 0$: Two variables have a correlation around zero and are therefore referred to as uncorrelated. There is no correlation.
- $r > 0$: There is a positive correlation. Higher X values also always lead to higher Y values.
- $r < 0$: There is a negative correlation. Higher X values lead to lower Y values (and vice versa).

As a general rule, values of $r \geq \pm 0.5$ are regarded as a high, $r = \pm 0.3$ as a medium and $r = \pm 0.1$ as a low correlation (Hartung, Elpelt and Klösener, 1999).

Table 23 (see page 161) shows a calculation of all correlation coefficients of variables 7 to 16 and takes a possible correlation with the existing system (variable 6), if available, into consideration. Therefore, it was possible to detect a very high correlation between the use of vendor and product names. However, this is

not surprising, as the vendor name is usually placed in front of a product name, e.g. "IBM V7000". A medium correlation coefficient can be found between the requirement of a technical documentation in German and the application of weighting. If this is not provided, points are deducted. Furthermore, the variables "Use of product names" and "Use of corporate names" correlate with the variable "Dependencies to existing environment". Tenders leading to an extension or replacement of an existing system use product and vendor names clearly more often in order to describe the new requirements. Verification according to dedicated product specifications also correlates with variables 15 and 16. This is due to the fact that unique characteristics of a product are described in most cases, which are ultimately also associated with the respective product name.

Furthermore, according to the calculation, there are ten additional correlations with a low Pearson correlation coefficient. The variables can be found in Table 23. At this point it is merely pointed out once more that an existing system correlates with the requirements of a training offer. This could be due to the fact that the replacement of the existing system by a different vendor is not desired and is made more unlikely by additional training costs.

The previous analysis of the variables already shows that the occurrence of these variables in the tenders enables initial conclusions on the intentions of the party issuing the invitation to tender, and that there are various correlations. In the following CRISP-DM model phase a profile of the available variables is created with regard to the impact on the target variable "vendor prediction", the vendor's prediction with the highest detectable influence.

In addition to the specified variables that were extracted from the text corpus using the respective methods, the text is once more processed for the purpose of the actual modeling. The procedures of clustering and topic identification are applied in this step. The idea is to isolate significant or representative terms that display the target variable in the most reliable way.

	Use of Lots:	Use of exclusion criteria	Weighting / Scoring system	Dependencies to existing Environment	German Support	German Technical Documentation:	Need for Trainings:	Indication of Product Specifications:	Use of Product Names:	Use of Corporate Name:	Inventory system:
Use of Lots:	1										
Use of exclusion criteria	-0,0895	1									
Weighting / Scoring system	-0,0771	0,4799	1								
Dependencies to existing Environment	-0,2410	-0,0918	-0,1041	1							
German Support:	0,1280	-0,0725	-0,0289	0,0774	1						
German Technical Documentation:	-0,0771	0,2125	0,3158	-0,1041	0,1590	1					
Need for Trainings:	0,2183	0,0976	-0,3010	0,0299	0,2186	0,2208	1				
Indication of Product Specifications:	0,1426	-0,1549	-0,3229	0,2140	-0,0392	-0,2345	-0,0544	1			
Use of Product Names:	-0,1046	-0,1726	-0,0771	0,4101	0,0404	0,0140	-0,1060	0,4721	1		
Use of Corporate Name:	-0,1624	-0,1232	-0,0533	0,4524	-0,0205	-0,0533	-0,1518	0,4290	0,9578	1	
Inventory system:	-0,1391	-0,1283	-0,2321	-0,2967	-0,0597	0,1224	0,1224	-0,3238	-0,2457	-0,2307	1

Table 23: Correlation of Variables 6-16 [source: own representation]

Text clustering is used to disassemble the documents into disjunctive groups of documents and defines these groups based on describing terms. Hierarchic text clustering is applied in this specific case to partition the texts using complex distance and similarity measures, or to transfer them into a tree structure. The approach is based on singular value decomposition (SVD) which translates the original weighting of the term-document frequency matrix into a low dimensional representation. In simple terms this means that the texts are displayed in columns of figures which, in the further course, can be used for calculations according to the standard procedure or regression. Thanks to this procedure it was finally possible to represent the specifications with 41 SVDs.

Text topic identification enables the description, characterization and finally the segmentation of a mass of documents by automatically assigning terms. This procedure distinguishes itself from clustering, as in this case one document can deal with or belong to several topics, whereas clustering assigns a document to exactly one cluster. In text topic identification a score on the respective topic is calculated for each document and term. Subsequently, threshold values are used to define whether the relationship is strong enough to assign the document/ term to the respective topic. As a result, a document or a term can be associated with several topics or none at all. In this way it was possible to identify 24 multiterm topics for the specifications.

The application of both procedures each provides a great amount of new input variables. These include 41 SVDs from clustering and 24 multiterm topics from topic identification. Now all input variables can be used with the modeling.

A taxonomy must be set up for the development of a model in order to verify the objectives (1) of the potential influence, the (4) extraction of vendor-specific functionalities that lead to a narrowing of the competition or the concrete measurement of the (2) level of influence on a tender. This taxonomy is used for quantifying variable 17 (no. of specified features). The approach is based on the procedure of "content categorization", the targeted content-specific categorization of documents. For this purpose it is necessary to develop a key word index (so-called indicators) that includes the essential vendor-specific characteristics. The setup of this vocabulary is based on the extraction of key words from various documents that are based on data exploration procedures such as clustering or topic identification. The key word index can be described by means of simple

lists, the application of regular expressions, part-of-speech tagging as well as the complex use of grammar. Furthermore, sophisticated heredity structures can be applied.

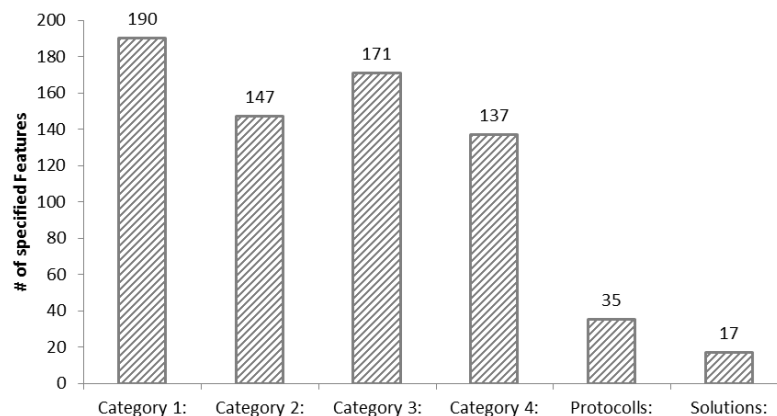


Figure 43: Taxonomy: Number of Indicators per Category [source: own representation]

A total of 697 indicators was filtered from the described procedure and defined in the taxonomy. Within the framework of the workshop referred to above, the indicators are segmented into four main and two subcategories. Matches in the subcategory are transferred to the respective main category depending on the indicator, the frequency and the relationship. In this context, categories I to IV represent segments that reflect a narrowing of the competition to different degrees. As an example, category IV contains terms that are completely vendor-specific and also include explicitly described USPs in addition to brand and product names. On the other hand, category I only contains indicators that are commodities and that are usually part of the basic functionalities of each product today. This means that requirements from this category cannot lead to an exclusion of competitors (cf. 3.2.4 – Modeling). The “protocols” category includes all possible connection protocols (e.g. iSCSI, FCoE, etc.) that can be interpreted as narrowing the competition depending on the amount and combination, and are therefore passed on to the correct main category. The same applies to the “solutions” segment that includes various requirements of application integrations and support (e.g. VMware vVOLs). The following Figure 43 reflects the key word in-

dex according to the process of segmentation. Category 1 contains the most terms with 190 indicators, but with 137 terms, category 4 is also considerably extensive.

The preparation of whitepapers, product/fact sheets and market analyses is carried out analogously with the texts of the tenders. Precisely this means that they pass through all process steps of preprocessing and the statistical procedure for term reduction. Only the identification and population of own variables can be refrained from. This procedure was also applied to the automatically recorded texts of the crawler. Other than with the documents from manually preselected and editorially verified sources, the mass data requires a taxonomy that automatically classifies it into relevant and irrelevant texts. This taxonomy is mainly based on the above described taxonomy for the extraction of indicators. At this point it is however applied in a modified way so that it only stores texts that fall into the pattern identification of the taxonomy instead of an extraction.

3.2.4 Modeling

During the modeling phase several suitable models are developed in order to achieve the goals listed in 3.2.1 (cf. Table 17). All models are based on the prepared data which has already been referred to in the previous subchapter. Depending on the objective, different procedures are required for the demonstration, which are subdivided into the following four areas.

3.2.4.1 *Model to Predict the Probability of the Acceptance of a Bid*

Objective (5), the prediction of the probability that a specific vendor's bid is accepted, is mainly based on three methods: neural networks, regression as well as simple decision trees. The aim is to identify the optimal model with respect to the target variables by applying various methods using different variables.

84 different variables were introduced in the previous subchapter 3.2.3, which can now be drawn on in the modeling phase. The particular challenge resp. difficulty lies in deciding how many and which of the input variables ideally describe the target. Furthermore, the goal is to identify and eliminate variables that are either redundant or do not have any impact on the target value. A quantity of variables reduced from the entirety is expected as a result of this procedure. For this purpose, independent representatives are selected that do not have to be

completely uncorrelated, but their correlation should not be similarly high to that of the original quantity. What is more, these representatives must have a high relevance with respect to the target. Therefore, it is crucial to perform a profiling of the variables before the actual application resp. the regression.

The result of the profiling procedure can be seen in Figure 44 and Figure 45. The chart displays the different variables that describe a segment in the best possible way. The calculation is based on the logworth of all input variables that were identified for each of the segments. The logworth is used to measure the difference of the individual variables and with respect to the compilation of the entire segment. The higher the difference (logworth value) between two variables, the more reliable the contemplated separation will function. If this theoretical description is transferred to the envisioned goal, each of the charts displays the variables that best describe the probability that a specific vendor's bid is accepted from top to bottom. This means, for segment V (left chart) variable TT10 (logworth of 0.030) has a higher separation function than TT12 (logworth of 0.225), or e.g. the number of specified features (logworth of 0.172).

The graphs in Figure 44 are divided into two columns to reflect the significance of text mining for the prediction of the target variable. In the left column all 84 variables are used for profiling. The right column only contains the specifically declared 16 variables introduced in Table 22 (cf. page 157). Both columns have already been adjusted by the redundant variables with respect to the target variable. A direct comparison of each segment clearly shows that the text topic variables have a better predictive character than the dedicated variables. However, five of the defined variables prevailed over the total volume, especially the number of specified features. The remaining four variables are German technical documentation, use of exclusion criteria, existing vendor system and use of product names.

The second chart (cf. Figure 45) is a grid of histograms to compare the distribution of the identified variables and the entire population for each segment. In this context each row represents one segment. The order of the variables from left to right is oriented on the logworth values that have already been displayed in Figure 44. The bars highlighted in blue show the distribution of values in the respective segment, while red signifies the distribution of the entire population. The chart can thereby be used to derive central statements in a very descriptive way. As an example, specifications with a number of specified features that is higher

than the average can be assigned to segment V. This assignment also applies to the above-average use of exclusion criteria. As another example, the above-average use of the text topic 25 is the most important indicator in segment I.

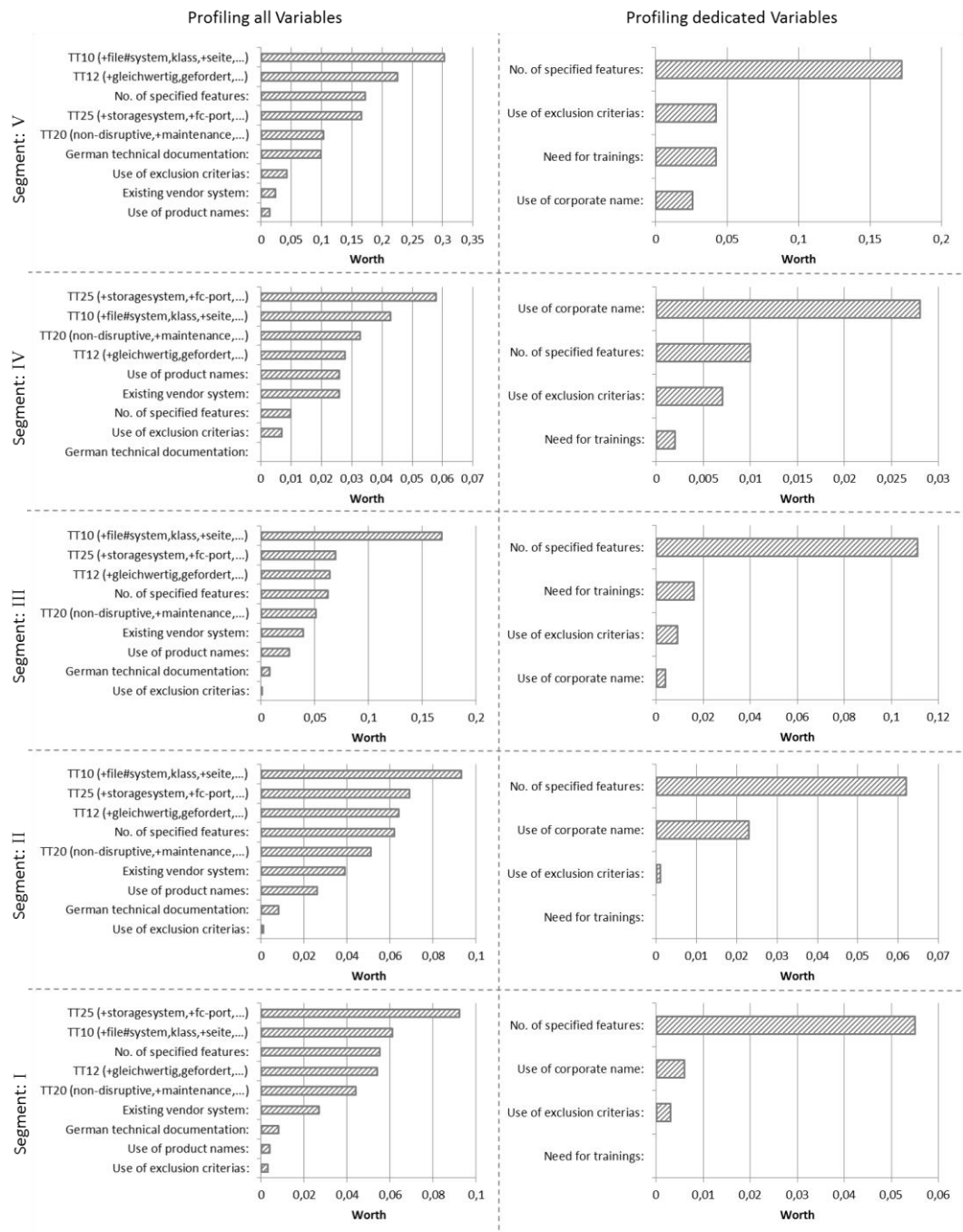


Figure 44: Profiling Variables to Predict the Target based on Logworth [source: own representation]

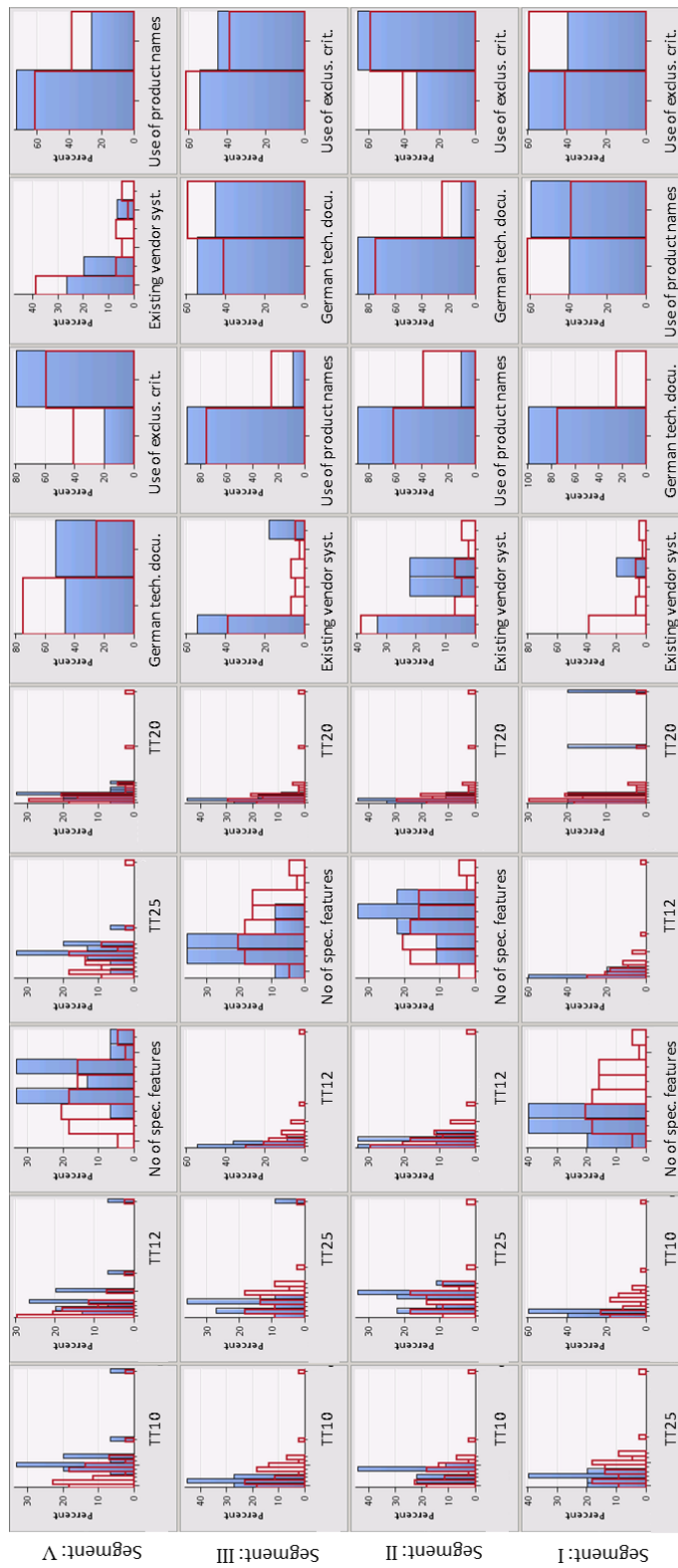


Figure 45: Histogram of Profiled Variables for Segment I-III and Segment V [source: Output from SAS Enterprise Miner]

Furthermore, profiling was used to reduce the variables from 84 to 9. These variables are now used as initial parameters for the regression, the decision tree and a neural network. Table 24 once again lists all variables and compares the theoretical and verifiable impact on the target variable.

Table 24: Verification of the Defined Variables on the Target Variable [source: own representation]

Variable:	Role:	Theoretical Effect on the Target:	Detectable Effect on the Target:
Date	Interval	No	No
Publisher	Nominal	No	No
Organizational form	Nominal	No	No
RFP name	Nominal	No	No
Type of RFP	Nominal	No	No
Inventory system / existing vendor	Nominal	Yes	Yes
Use of lots	Binary	No	No
Use of exclusion criteria	Binary	Yes	Yes
Weighting / scoring system	Binary	Yes	No
German support	Binary	Yes	No
German technical documentation	Binary	Yes	Yes
Need for trainings	Binary	Yes	No
No. of specified features	Numeric	Yes	Yes
Use of product names	Binary	Yes	Yes
Use of corporate name	Binary	Yes	No
Indication of product specifications	Binary	Yes	No

Tender service specifications	Text	Yes	Yes ⁵²
Description of existing environment	Text	Yes	Yes ⁵³
Vendor prediction	Target	N.A.	N.A.

At first, the methods for predicting the target variable are calculated simultaneously and the “best” procedure for the model is predicted. In this case “best” refers to the model with the highest quality, which can be derived from the training and validation data.

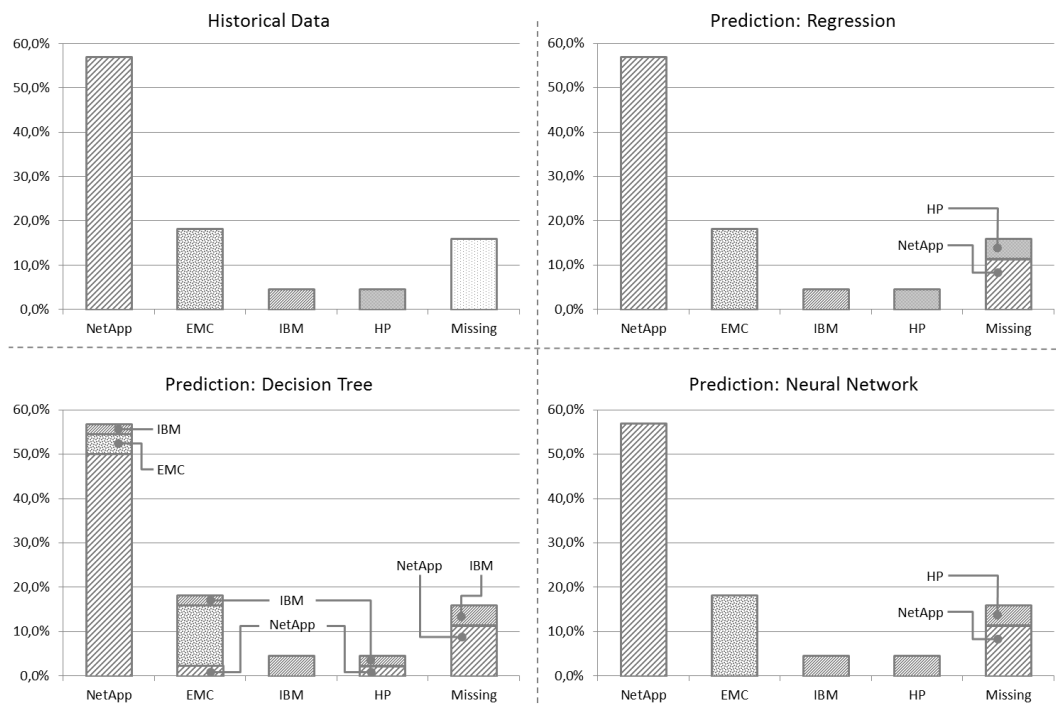


Figure 46: Comparison of Different Prediction Methods [source: own representation]

⁵² The text from the tender service specification is transformed into four Text Topics, which are dedicated variables in the analysis (TT10, TT12, TT20, TT25).

⁵³ “Yes” as part of the variable: Existing vendor system. The values of the variable were extracted from this text.

Figure 46 displays the historical data in the top left chart. The target variable is already prepopulated with values for 84.1% of the specifications and is divided among NetApp with 56.8%, EMC with 18.2% and IBM and HP with 4.5% each. 15.9% are so-called missing values to be predicted by the model. For this purpose, the nine remaining variables are used for the method of regression, for the decision tree and the neural network, and applied to the target variable.

Regression (cf. upper right corner of Figure 46) falls in line with 11.4% of the specifications that have not yet been assigned to NetApp, and 4.5% to HP. The remaining documents stay true to the original data with respect to the assignment. The decision tree shows a different picture (cf. bottom left corner of Figure 46). At first the model also assigns 11.4% of the missing values to NetApp. The remaining documents are however allocated to IBM, contrary to the regression method. Yet, the chart shows that a divergent allocation was also calculated in the original data. In the decision tree 4.5% of the available specifications of NetApp are assigned to EMC and 2.3% to IBM. A similar behavior can be detected with the original documents by EMC and HP. According to the calculations of the model, there are no documents by HP available. This can clearly be regarded as a misclassification, which is confirmed by the system with a misclassification value of 0.2121. For the regression and for the neural network this value is zero. Therefore, it is hardly surprising that the neural network (cf. bottom right corner of Figure 46) has the same result as the regression. An exact analysis of the model accuracy can be found on the next page under the heading: Criteria for assessing model accuracy

All in all, the regression and neural network models are suitable for predicting the probability of a vendor's bid being accepted based on the specifications for tenders. The model can take on a self-learning character if the real data is fed into the system and a new calculation is started after acceptance of the bid.

Criteria for Assessing Model Accuracy

The quality of a model can be determined using various criteria and describes the general model accuracy. A high model accuracy is distinguished by means of the fact that the error rate is as low as possible for new datasets, which at the same time implies a good transferability. The most well-known statistics are

the lift method, the misclassification rate, the average square error and the ROC curve (Receiver Operating Characteristics).

The assessment of a model depends on the applied statistics oriented on the prediction type. As an example, the average square error is particularly suitable for predictions based on estimated values, as is the ROC index for rankings and the lift resp. the misclassification rate for decisions on model application. In order to achieve a precise answer, the data is subdivided into training and validation data and the respective procedure is applied. In this case the training data is used for modeling and the validation data is used for verifying the transferability to new datasets and therefore the evaluation of the model accuracy.

The following section explains the selection procedure for the best model using the lift method. The lift chart, which is also referred to as the cumulative gains chart, is a method for evaluating the model accuracy for the classification. It displays how the results of a classification change as soon as these are transferred to other datasets. The rate of change is therefore referred to as "lift". The more the lift curve is set apart from the baseline, the better the performance of the model (Kuusisto et al., 2014). As an example, the lift chart shows the reply rates in percentiles of the test samples of the entirety of the data. However, the highest value is assumed, and not the lowest as it is by default for the percentiles. This means that the 10% lift is derived from the 90% percentile (Kantardzic, 2011). In practice, usually the 10% lift is applied (Nie et al., 2011).

Marketing studies comparing groups that have been subject to marketing activities with the data generated by a control group are popular examples for the application of lift charts (Lo, V. S. Y., 2002; Radcliffe, 2007). In medicine the procedure is also used to verify the effects of certain medication (Chyou, 2007).

The following figure shows the cumulative lift in a direct comparison between the regression, the decision tree as well as the neural network. The focus should be on the value of the 10% percentile which measures 8 for the regression and the neural network, and 5.33 for the decision tree. This means that it is eight times more likely to generate the right primary results with respect to a random value for the top 10% of cases (classified according to the predicted probability). A useful model shows a high lift in the low percentiles and decreases with the rise of percentiles. This is the exact behavior that can be found in Figure 47.

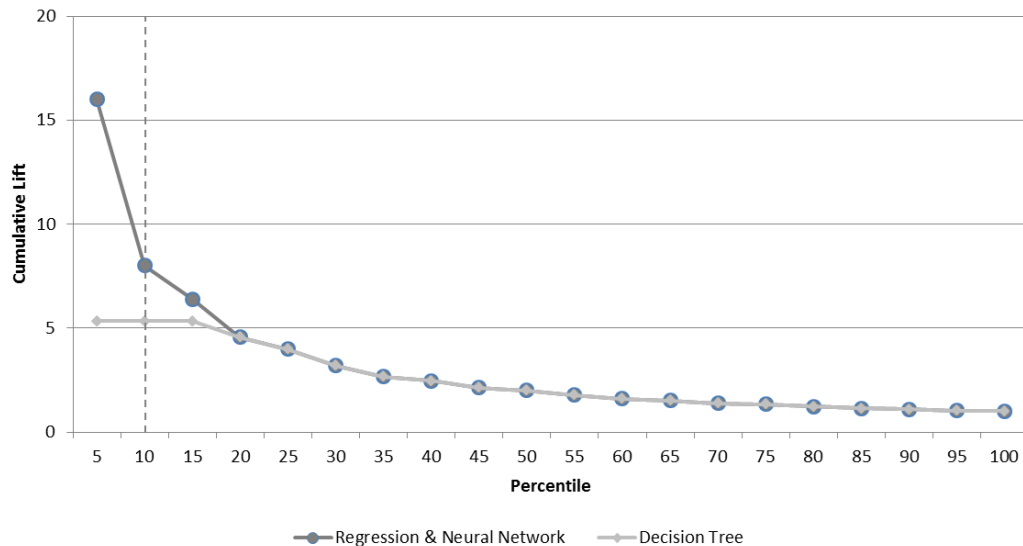


Figure 47: Model Comparison Based on Cumulative Lift to Describe Model Accuracy
 [source: own representation]

The misclassification rate states the misclassification of a predicted value compared with the actual value, and is applied with respect to a target variable. As described above, this value is zero for the regression and the neural network, and 0.2121 for the decision tree. The lowest value serves as an indicator for the highest model accuracy. Consequently, based on these values and the available test and validation data, the regression, or alternatively the neural network, can be used as a model for predicting the probability that a contract is awarded.

3.2.4.2 Model for Opinion Leader Identification

The model for (3) identifying opinion leaders is based on a correlation analysis of the tender and data repositories. Both sources have already been introduced in *chapter 2.5* (cf. Figure 33, page 125) within the framework of the process model, populated with the respective sources in *chapter 3.2.2* and sufficiently prepared in *chapter 3.2.3*. The present model checks all specifications for correlations with all documents of the data repository. For this purpose the texts are divided into short, summarizing terms using the method of topic identification, and correlated. As with the other models, this implies that all documents have been pre-

pared accordingly. There are three different approaches for text topic identification. Either the documents are divided into up to 1,000 individual terms that best represent the total volume, or up to 1,000 multiterm topics are created based on singular-value decomposition (SVD). As a third possibility, self-defined topics can be included in the procedure. The different procedures can be applied individually or combined. The first approach has the advantage that individual, prominent terms that represent specific documents are extracted. As an example, these prominent terms can be vendor-specific functionalities. The multiterm topics on the other hand can mainly be used to identify combinations of specific requirements that are repeated in the documents. Last but not least, 455 indicators from categories II to IV are defined as user topics from the developed taxonomy. The three approaches represent the most important topics of the documents for the respective repositories and can therefore be correlated. To sum up, each topic is represented by a number of terms that are in turn based on a number of documents selected by the system. For reasons of replicability and visualization, this dissertation confines itself to a 25x25 correlation matrix of the extracted text topics.

Altogether four correlations are carried out according to this procedure, which can be described as follows:

Whitepapers, product/fact sheets	↔	Tender service specifications
Blogs, forums	↔	Tender service specifications
Reviews of market research companies	↔	Tender service specifications
Tender service specifications	↔	Tender service specifications

The model is based on the assumption that relevant and documented information by vendors, partners and opinion leaders is retrievable in the specifications for tenders and that it is therefore subject to correlations. The number and degree of the correlation in the associated matrix increases if the documents crossed with the specifications describe detailed information on products or solutions. Therefore, a scattered matrix with only a small number of correlations is determined in documents with a similarly low density of relevant information. Just like with the analysis of the different variables, Pearson's correlation coefficient is applied in this case.

Correlation Matrix: Whitepapers, Product/Fact Sheets

The correlation of the specifications with whitepapers and product sheets resulted in altogether 168 correlations, which corresponds to 26.0% of all points of comparison (n=625). As shown in the correlation matrix (cf. Table 25, page 176), 18.1% of the values fall to a low, 7.4% on a medium and still 1.4% on a strong correlation coefficient. An analysis of the highly correlating text topics – i.e. the two terms that jointly display a correlation (e.g. TT24xTT11: $r = 0.7$) – revealed that the terms “Blockspeichersysteme” [block storage systems] in connection with “Gateways von HP” [gateways by HP] are described in detail in particular. In this context it also becomes obvious that product descriptions by HP are almost always used with exclusion criteria in the specifications. On the contrary, there is a high association between the terms of the primary and the secondary system as well as the description of branch offices with the vendor descriptions by NetApp. The topic of backup and replication is also closely connected with NetApp. However, a high correlation coefficient could not be determined for EMC and IBM.

According to the matrix, there is a moderate to high scattering of the text topics regarding the specifications. This is due to the fact that many generally applicable descriptions are taken up in the whitepapers, which the vendors do not use to differentiate themselves. In other words, except for a few examples, the vendors’ product descriptions are interchangeable and on a superficial level, which is reflected in the high number of low resp. not available correlations.

As a consequence, traces of HP and NetAPP can be verified in the specifications with respect to the examined whitepapers and product descriptions using the procedure that was applied. Both vendors can be regarded as indirect opinion leaders in the shape of the provided documents.

Correlation Matrix: Blogs, Forums

The correlation matrix (cf. Table 26, page 177) on the recorded blogs and forums shows a picture similar to the matrix for whitepapers. However, a considerably lower number of correlations and fewer occurrences were calculated in this case. Altogether the result is only 15% (n=625). 9% of the values have a low, 5.6% a medium and only 0.5% have a high correlation efficient. The scattering of the respective text topics can be regarded as high and there are no definite terms that

can be flawlessly verified in the specifications. As a general rule, most of the blog entries contain offers for webinars, job offers or e.g. reference stories. The few entries that are actually relevant mostly describe superficial experiences or questions on product specifics. The same more or less applies to the great number of forum entries. Only forums on products, which are mostly managed by the vendors, can be excluded. Many of the texts feature tips and tricks for the application or describe new technological functionalities that naturally have yet to find their way into the tenders. Consequently, only loose text fragments by various authors can be identified in the specifications. Opinion leadership on one or several vendors cannot be verified for various reasons: most importantly, the linguistic aspect. The German-speaking region offers less cross-vendor blogs/forums that intensively deal with various vendors and give detailed purchase recommendations. The page visits per month are also marginal when compared on an international level (cf. A19). On the other hand, English-language blogs/forums are clearly more frequented, they have more entries and in some cases they are managed by internationally renowned key players of the industry. In this context, these can be referred to as “real” opinion leaders. The applied procedure however does not enable a correlation analysis between several languages. This would require the manual creation and management of extensive multilingual synonym lists, which would only be possible for single terms.

All in all, when it comes to the correlation of specifications and German-language blogs/forums, it must be pointed out that due to the low correlation rates it was neither possible to identify topics nor opinion leaders.

		TextTopics: Whitepaper, Product/Fact Sheets																								
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
TextTopics: Tender Service Specifications	25	-0,07	-0,08	0,19	-0,07	-0,06	-0,04	0,29	-0,09	-0,07	-0,09	-0,06	-0,10	-0,10	-0,11	-0,06	0,38	-0,07	-0,09	-0,08	0,19	-0,08	0,23	-0,06	-0,06	-0,09
	24	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	0,56	0,43	-0,04	-0,05	0,70	-0,06	-0,06	-0,06	-0,03	-0,03	-0,04	0,04	0,48	-0,05	0,48	0,48	-0,03	-0,03	-0,05
	23	-0,06	0,31	-0,07	-0,06	0,48	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	0,24	-0,09	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	22	-0,06	0,31	-0,07	0,38	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	0,24	0,21	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	21	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	-0,08	-0,08	-0,09	-0,04	-0,04	-0,06	-0,07	-0,06	-0,07	-0,06	-0,06	0,48	-0,04	-0,07
	20	-0,09	-0,11	0,10	-0,09	0,27	-0,05	-0,09	0,10	-0,09	0,10	-0,07	0,07	0,07	0,05	0,27	-0,07	-0,09	-0,12	0,14	0,10	-0,11	0,14	0,27	-0,07	-0,12
	19	0,38	-0,06	-0,07	0,38	-0,04	0,70	-0,06	0,27	-0,06	-0,07	-0,04	-0,08	-0,08	0,21	-0,04	-0,04	0,38	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,07
	18	-0,04	-0,04	0,43	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,05	-0,03	-0,06	-0,06	-0,06	-0,03	-0,03	-0,04	-0,04	-0,05	-0,04	0,43	0,48	-0,04	-0,03	-0,05
	17	-0,04	0,48	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,05	-0,03	0,39	0,39	-0,06	-0,03	-0,03	-0,04	0,43	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	0,43
	16	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	0,24	-0,09	-0,04	-0,04	-0,06	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	0,48	-0,07
	15	-0,06	0,31	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	0,24	0,21	0,48	-0,04	-0,06	0,27	0,31	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	14	-0,06	-0,06	0,27	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	0,27	-0,04	0,24	0,24	-0,09	-0,04	-0,04	-0,06	-0,07	-0,06	0,27	0,31	-0,06	-0,06	-0,04	-0,07
	13	-0,06	0,31	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	0,38	-0,07	-0,04	0,24	0,24	-0,09	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	12	-0,07	0,54	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,19	-0,06	0,16	0,16	-0,11	-0,06	-0,06	-0,07	0,19	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	-0,09
	11	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	-0,08	-0,08	-0,09	-0,04	0,48	-0,06	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,07
	10	0,38	0,31	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	0,24	-0,09	-0,04	-0,04	0,38	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	09	-0,07	0,54	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,47	-0,06	0,68	0,68	-0,11	-0,06	-0,06	-0,07	0,47	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	0,47
	08	0,29	0,23	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,19	-0,06	0,42	0,42	-0,11	-0,06	-0,06	0,29	0,19	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	0,19
	07	0,38	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	0,27	-0,04	0,24	0,24	-0,09	-0,04	-0,04	0,38	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,07
	06	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,04	-0,03	0,39	0,39	-0,06	-0,03	-0,03	-0,04	-0,05	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	-0,05
	05	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,05	-0,03	-0,06	-0,06	-0,06	-0,03	-0,03	-0,04	-0,05	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	-0,05
	04	-0,06	0,31	-0,07	0,38	-0,04	0,70	-0,06	0,27	-0,06	-0,07	-0,04	0,24	0,24	0,21	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
	03	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	0,38	-0,07	-0,04	-0,08	-0,08	-0,09	-0,04	-0,04	-0,06	-0,07	0,31	-0,07	-0,06	-0,06	-0,04	0,48	-0,07
	02	-0,07	-0,08	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,19	-0,07	-0,09	-0,06	-0,10	-0,10	0,14	-0,06	-0,07	-0,09	-0,08	-0,09	-0,08	0,23	-0,06	-0,09
	01	-0,07	0,54	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,19	-0,06	0,16	0,16	-0,11	-0,06	-0,06	-0,07	0,19	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	-0,09

Table 25: Correlation matrix of Tender Service Specifications, Whitepapers and Product/Fact Sheets
[source: own representation]

	TextTopics: Blogs, Forums																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
25	-0,07	-0,08	-0,05	-0,07	-0,06	-0,04	0,29	-0,09	-0,07	-0,09	-0,06	-0,10	-0,10	-0,04	-0,06	0,38	-0,07	-0,09	-0,08	-0,05	-0,08	0,23	-0,06	-0,06	-0,09
24	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	0,56	-0,05	-0,04	-0,05	-0,03	-0,06	-0,06	-0,06	-0,03	-0,03	-0,04	-0,05	0,48	-0,05	-0,04	0,48	-0,03	-0,03	-0,05
23	-0,06	0,31	-0,07	-0,06	0,48	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	-0,09	-0,04	-0,04	-0,04	-0,06	-0,05	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,04
22	-0,06	0,31	-0,07	0,38	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	0,24	-0,05	-0,04	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
21	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	-0,08	-0,08	-0,09	-0,04	-0,04	-0,06	-0,07	-0,04	-0,03	-0,06	0,48	-0,04	-0,07	-0,07
20	-0,09	-0,03	-0,05	-0,09	0,27	-0,04	-0,03	-0,06	-0,09	0,10	-0,07	0,07	0,07	0,05	0,27	-0,07	-0,09	-0,12	-0,06	-0,04	-0,07	0,14	-0,05	-0,07	-0,07
19	0,38	-0,06	-0,03	-0,06	-0,04	-0,06	-0,04	-0,07	-0,06	-0,07	-0,04	-0,08	-0,08	0,21	-0,04	0,04	0,38	-0,07	-0,06	-0,04	-0,07	-0,06	-0,04	-0,04	-0,07
18	-0,04	-0,04	-0,04	-0,07	-0,03	-0,06	-0,04	-0,07	-0,04	-0,05	-0,03	-0,06	-0,06	-0,06	-0,03	-0,03	-0,04	-0,05	-0,04	0,43	0,48	-0,04	-0,03	-0,03	-0,05
17	-0,04	0,48	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,05	-0,03	-0,06	-0,04	-0,07	-0,03	-0,03	-0,04	0,43	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	0,43
16	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	0,27	-0,04	-0,04	-0,03	-0,06	-0,04	-0,04	-0,06	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	0,48	-0,07
15	-0,06	0,31	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	-0,04	-0,03	-0,06	0,48	-0,04	-0,06	-0,05	0,31	-0,07	-0,06	-0,06	-0,04	-0,04	-0,04
14	-0,06	-0,06	0,27	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	0,27	-0,04	-0,06	-0,04	-0,07	-0,04	-0,04	-0,06	-0,07	-0,06	-0,03	0,31	-0,06	-0,04	-0,04	-0,07
13	-0,06	-0,04	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	0,38	-0,07	-0,04	-0,06	-0,04	-0,07	-0,04	-0,04	-0,06	0,27	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,04
12	-0,04	-0,03	-0,06	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	-0,06	-0,04	-0,07	-0,03	-0,11	-0,06	-0,06	-0,07	-0,05	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	-0,09
11	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,08	-0,09	-0,06	-0,04	-0,07	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,07
10	0,38	0,31	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,07	-0,04	-0,07	0,24	-0,09	-0,04	-0,03	-0,06	-0,03	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,04
09	-0,06	-0,04	-0,07	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,47	-0,04	-0,07	-0,04	-0,05	-0,06	-0,06	-0,07	0,47	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	0,47
08	-0,04	-0,03	-0,06	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	-0,03	-0,04	-0,07	-0,04	-0,11	-0,06	-0,06	-0,03	-0,05	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	0,19
07	0,38	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	-0,05	-0,04	-0,04	0,24	-0,05	-0,09	-0,04	-0,04	0,38	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	-0,07
06	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,05	-0,04	-0,04	0,39	0,39	-0,06	-0,03	-0,03	-0,04	-0,05	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	-0,05
05	-0,04	-0,04	-0,05	-0,04	-0,03	-0,02	-0,04	-0,05	-0,04	-0,05	-0,03	-0,06	-0,06	-0,04	-0,03	-0,06	-0,04	-0,05	-0,04	-0,05	-0,04	-0,04	-0,03	-0,03	-0,05
04	-0,06	0,31	-0,07	0,38	-0,04	0,70	-0,06	-0,05	-0,06	-0,07	-0,04	-0,05	0,24	-0,06	-0,04	-0,07	-0,06	-0,04	-0,06	-0,07	-0,06	-0,06	-0,04	-0,04	0,27
03	-0,06	-0,06	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	0,38	-0,07	-0,04	-0,08	-0,08	-0,06	-0,04	-0,07	-0,06	-0,07	-0,06	-0,07	-0,06	-0,06	-0,04	0,48	-0,07
02	-0,07	-0,08	-0,09	-0,07	-0,06	-0,04	-0,05	-0,04	-0,07	-0,09	-0,06	-0,10	-0,10	0,14	-0,06	-0,06	-0,07	-0,09	-0,08	-0,09	-0,08	0,23	-0,06	-0,06	-0,09
01	-0,07	0,54	-0,09	-0,07	-0,06	-0,04	-0,07	-0,09	-0,07	0,19	-0,06	0,16	-0,04	-0,05	-0,06	-0,06	-0,07	0,19	-0,08	-0,09	-0,08	-0,08	-0,06	-0,06	-0,09

Table 26: Correlation matrix of Tender Service Specifications, Blogs and Forums [source: own representation]

TextTopics: Reviews of market research companies

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
25	-0,03	0,00	0,00	0,00	0,00	-0,04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,04	-0,04	-0,04	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
24	-0,03	0,00	0,00	-0,04	0,00	0,00	0,00	0,00	0,00	0,00	-0,04	0,00	-0,84	0,00	-0,84	0,00	0,00	0,00	-0,06	-0,04	-0,03	-0,06	-0,07	0,00	0,00	0,00
23	0,08	-0,09	-0,03	-0,03	-0,06	0,21	0,21	-0,03	-0,06	-0,04	-0,03	-0,06	-0,07	0,00	0,21	0,21	0,21	-0,06	-0,04	-0,03	-0,06	-0,07	-0,06	-0,24	-0,09	
22	0,44	-0,04	-0,03	-0,02	-0,04	-0,05	0,44	-0,02	-0,16	0,44	0,44	0,44	0,44	0,72	0,44	0,44	0,44	-0,06	-0,04	-0,03	-0,06	-0,07	0,44	-0,06	-0,09	
21	0,00	-0,06	-0,04	-0,03	-0,06	-0,07	-0,09	-0,16	0,44	-0,07	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,02	-0,07	-0,06	-0,04	-0,03	-0,06	-0,07	0,44	-0,07	
20	0,00	-0,06	-0,04	-0,03	-0,06	-0,07	-0,07	0,44	-0,16	-0,02	-0,02	-0,03	-0,02	-0,02	-0,03	-0,02	-0,02	-0,07	-0,06	-0,04	-0,07	-0,09	-0,06	-0,16	-0,05	
19	0,00	-0,06	-0,04	-0,03	-0,06	-0,07	-0,05	-0,16	0,44	-0,07	-0,02	-0,02	-0,07	0,70	-0,02	-0,02	-0,02	-0,06	-0,04	0,88	-0,06	-0,07	-0,16	0,44	-0,16	
18	0,00	-0,06	-0,04	-0,03	-0,06	-0,07	0,00	0,00	0,65	0,00	0,00	-0,07	0,00	0,88	0,00	0,00	-0,07	-0,06	-0,04	0,88	-0,06	-0,07	0,00	0,00	0,00	
17	0,44	-0,07	-0,06	-0,04	-0,07	-0,09	0,44	-0,16	-0,09	0,44	0,44	0,44	0,44	0,88	0,44	0,44	0,44	-0,07	-0,06	0,88	-0,07	-0,09	0,44	-0,07	-0,06	
16	-0,16	-0,06	-0,04	-0,03	-0,06	-0,07	-0,16	0,44	-0,07	0,06	-0,16	0,65	-0,16	0,91	-0,16	0,06	-0,16	-0,07	-0,06	0,88	-0,07	-0,09	0,44	-0,07	-0,06	
15	0,44	-0,06	-0,04	-0,03	-0,06	-0,07	0,44	-0,16	-0,09	0,44	0,56	0,44	0,44	0,91	0,44	0,44	0,44	-0,06	-0,04	0,88	-0,07	-0,09	0,44	-0,07	-0,06	
14	0,00	-0,07	-0,04	-0,03	-0,06	-0,04	-0,05	0,00	-0,07	0,00	0,56	0,56	0,00	0,00	0,00	0,00	0,00	-0,04	-0,03	-0,02	-0,04	-0,05	0,00	0,00	-0,06	
13	-0,09	-0,07	-0,06	-0,04	-0,03	0,56	0,56	0,70	-0,05	-0,06	0,21	0,21	0,21	0,91	0,21	-0,06	-0,04	-0,03	-0,02	-0,04	-0,05	-0,24	0,21	-0,03	-0,06	
12	0,44	-0,06	-0,06	-0,04	-0,03	-0,06	0,38	-0,04	-0,16	0,44	0,44	0,44	0,91	0,44	0,65	0,65	-0,06	-0,04	-0,03	-0,06	-0,07	0,00	0,44	-0,04	-0,02	
11	-0,09	-0,04	-0,06	-0,04	-0,03	0,38	0,38	0,48	0,56	0,70	-0,16	0,06	-0,06	-0,16	0,70	0,65	-0,06	-0,04	-0,06	-0,04	-0,03	-0,06	-0,07	-0,03	-0,07	
10	0,65	0,65	-0,06	-0,04	-0,03	-0,06	0,38	-0,04	-0,24	0,65	0,88	0,91	0,65	0,65	0,65	0,70	-0,06	-0,04	-0,03	-0,06	-0,07	-0,24	0,65	-0,24	-0,05	
09	0,44	0,44	-0,07	-0,06	-0,04	0,38	0,38	0,48	-0,16	0,44	0,56	0,65	0,44	0,44	0,44	0,56	0,56	0,70	-0,03	-0,06	-0,07	-0,16	0,44	0,00	-0,16	
08	0,45	0,45	-0,06	-0,04	-0,03	-0,06	-0,07	0,08	-0,30	0,56	0,45	0,70	0,45	0,45	0,45	-0,06	0,38	-0,04	-0,04	-0,07	-0,09	-0,30	0,45	-0,30	0,08	
07	0,21	-0,09	-0,06	-0,04	-0,03	-0,06	-0,07	0,21	-0,24	0,21	0,21	0,65	0,70	0,21	0,65	0,38	0,38	0,48	-0,03	-0,06	-0,07	-0,24	-0,06	-0,06	0,21	
06	0,00	-0,07	-0,07	-0,06	-0,04	-0,07	-0,09	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,06	0,38	-0,04	-0,03	-0,06	-0,07	0,00	0,00	0,00	0,00	
05	0,00	-0,05	-0,07	-0,06	-0,04	-0,07	-0,09	0,00	-0,09	0,00	0,00	0,00	0,00	0,56	0,00	0,38	0,38	0,48	-0,04	-0,07	-0,09	0,00	0,00	0,00	-0,03	
04	0,44	0,44	-0,06	-0,04	-0,03	-0,06	-0,07	-0,03	-0,07	0,44	0,44	0,56	0,44	0,44	0,44	0,44	0,44	-0,07	-0,06	-0,04	-0,07	-0,09	0,00	0,44	-0,16	-0,04
03	-0,06	-0,16	-0,04	-0,03	-0,02	-0,04	-0,05	-0,02	-0,05	-0,16	-0,03	0,56	-0,16	0,72	-0,16	-0,16	-0,06	-0,04	-0,03	-0,06	-0,07	-0,07	-0,16	0,44	-0,03	
02	-0,03	-0,06	-0,07	0,00	0,00	0,00	0,00	-0,03	-0,06	-0,07	-0,02	0,00	0,00	0,00	0,00	0,00	-0,04	-0,03	-0,02	-0,04	-0,05	0,00	0,00	0,00	0,00	
01	0,00	0,00	0,00	0,00	-0,03	-0,02	-0,04	0,00	0,00	0,00	0,00	0,00	0,00	0,56	-0,03	-0,02	0,00	0,00	0,00	0,00	0,00	0,00	-0,07	-0,03	-0,02	

TextTopics: Tender Service Specifications

Table 27: Correlation matrix of Tender Service Specifications and Reviews of Market Research Companies
 [source: own representation]

		TextTopics: Tender Service Specifications																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
TextTopics: Tender Service Specifications	25	-0,07	-0,07	-0,06	-0,06	-0,04	-0,04	-0,06	-0,07	-0,07	-0,06	-0,06	-0,07	-0,06	-0,06	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	0,19	-0,06	-0,06	-0,06	-0,04	1,00
	24	-0,04	-0,04	-0,03	-0,02	-0,02	-0,03	-0,03	-0,04	-0,04	-0,03	-0,03	-0,04	-0,03	-0,03	-0,03	-0,03	-0,03	-0,02	-0,02	-0,03	-0,05	-0,03	-0,03	-0,03	1,00	-0,04
	23	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	0,38	0,38	0,48	-0,04	0,06	0,48	-0,04	0,48	-0,04	0,48	0,70	-0,03	-0,04	-0,07	-0,04	0,48	1,00	-0,03	-0,06
	22	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	0,38	0,38	0,48	-0,04	0,06	0,48	-0,04	0,48	-0,04	0,48	0,70	-0,03	-0,04	-0,07	-0,04	1,00	0,48	-0,03	-0,06
	21	-0,06	-0,06	-0,04	-0,04	-0,03	-0,03	-0,04	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	-0,04	-0,04	-0,04	-0,04	-0,03	-0,03	-0,04	-0,07	1,00	-0,04	-0,04	-0,03	-0,06
	20	-0,09	-0,09	-0,07	-0,07	-0,05	0,43	-0,07	-0,09	0,19	-0,07	-0,07	-0,09	-0,07	0,27	0,27	0,27	0,27	-0,05	-0,05	-0,07	1,00	-0,07	-0,07	-0,07	-0,05	0,19
	19	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	-0,06	-0,06	-0,04	-0,04	-0,06	-0,04	-0,04	-0,04	-0,04	-0,04	-0,03	-0,03	1,00	-0,07	-0,04	-0,04	-0,04	-0,03	-0,06
	18	-0,04	-0,04	-0,03	-0,03	-0,02	-0,02	-0,03	-0,04	-0,04	-0,03	-0,03	-0,04	-0,03	-0,03	-0,03	-0,03	-0,03	-0,02	1,00	-0,03	-0,05	-0,03	-0,03	-0,03	-0,02	-0,04
	17	-0,04	-0,04	-0,03	0,70	-0,02	-0,02	-0,03	0,56	0,56	0,70	-0,03	-0,04	0,70	-0,03	0,70	-0,03	0,70	-0,03	1,00	-0,02	-0,03	-0,05	0,70	0,70	-0,02	-0,04
	16	-0,06	-0,06	-0,04	-0,04	-0,03	0,70	-0,04	-0,06	0,38	-0,04	-0,04	-0,06	-0,04	0,48	-0,04	0,48	-0,04	1,00	-0,03	-0,03	-0,04	0,27	-0,04	-0,04	-0,03	-0,06
	15	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	0,38	0,38	0,48	-0,04	-0,06	0,48	-0,04	1,00	-0,04	0,48	0,70	-0,03	-0,04	-0,07	-0,04	0,48	0,48	-0,03	-0,06
	14	-0,06	-0,06	-0,04	-0,04	-0,03	0,70	-0,04	-0,06	0,38	-0,04	-0,04	-0,06	-0,04	1,00	-0,04	0,48	-0,03	-0,03	-0,04	1,00	-0,07	-0,04	-0,04	-0,04	-0,03	-0,06
	13	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	0,38	0,38	0,48	-0,04	-0,06	1,00	-0,04	0,48	-0,04	0,48	0,70	-0,03	-0,04	-0,07	-0,04	0,48	0,48	-0,03	-0,06
	12	0,64	-0,07	-0,06	-0,06	-0,04	-0,04	-0,06	-0,07	-0,07	-0,06	-0,06	1,00	-0,06	-0,06	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	-0,09	-0,06	-0,06	-0,06	-0,04	-0,07
	11	-0,06	-0,06	-0,04	-0,04	0,70	-0,03	-0,04	-0,06	-0,06	-0,06	-0,04	1,00	-0,06	-0,04	-0,04	-0,04	-0,04	-0,03	-0,03	-0,04	-0,07	-0,04	-0,04	-0,04	-0,03	-0,06
	10	-0,06	-0,06	-0,04	0,48	-0,03	-0,03	-0,04	0,38	0,38	1,00	-0,04	-0,06	0,48	-0,04	0,48	-0,04	0,48	0,70	-0,03	-0,04	-0,07	-0,04	0,48	0,48	-0,03	-0,06
	09	-0,07	-0,07	-0,06	0,38	-0,04	0,56	-0,06	0,29	1,00	0,38	-0,06	-0,07	0,38	0,38	0,38	0,38	0,38	0,56	-0,04	-0,06	0,19	-0,06	0,38	0,38	-0,04	-0,07
	08	-0,07	-0,07	-0,06	0,38	-0,04	0,81	-0,06	1,00	0,81	1,00	0,29	0,38	-0,06	0,38	-0,06	0,38	-0,06	0,56	-0,04	-0,06	-0,09	-0,06	0,38	0,38	-0,04	-0,07
	07	-0,06	-0,06	-0,04	-0,04	-0,03	-0,03	1,00	-0,03	1,00	0,81	-0,06	-0,04	-0,06	-0,04	-0,04	-0,04	-0,04	-0,03	-0,03	-0,04	-0,07	-0,04	-0,04	-0,04	-0,03	-0,06
	06	-0,04	-0,04	-0,03	-0,03	-0,02	1,00	-0,03	-0,03	-0,04	0,56	-0,03	-0,03	-0,04	-0,03	0,70	-0,03	0,70	-0,02	-0,02	-0,03	0,43	-0,03	-0,03	-0,03	-0,02	-0,04
	05	-0,04	-0,04	-0,03	0,03	1,00	-0,02	-0,03	-0,03	-0,04	0,38	-0,03	0,70	-0,04	-0,03	-0,03	-0,03	-0,03	-0,03	-0,02	-0,02	-0,03	-0,05	-0,03	-0,03	-0,02	-0,04
	04	-0,06	-0,06	-0,04	1,00	-0,03	-0,03	-0,04	0,38	0,38	0,48	-0,04	-0,06	0,48	-0,04	0,48	-0,04	0,48	0,70	-0,03	0,48	-0,07	-0,04	0,48	0,48	-0,03	-0,06
	03	-0,06	-0,06	1,00	-0,04	-0,03	-0,03	-0,04	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	-0,04	-0,04	-0,04	-0,04	-0,03	-0,03	-0,04	-0,07	-0,04	-0,04	-0,04	-0,03	-0,06
	02	-0,07	1,00	-0,06	-0,06	-0,04	-0,04	-0,06	-0,07	-0,07	-0,06	-0,06	-0,06	-0,07	-0,06	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	-0,09	-0,06	-0,06	-0,06	-0,04	-0,07
	01	1,00	-0,07	-0,06	-0,06	-0,04	-0,04	-0,06	-0,07	-0,07	-0,06	-0,06	0,64	-0,06	-0,06	-0,06	-0,06	-0,06	-0,04	-0,04	-0,06	-0,09	-0,06	-0,06	-0,06	-0,04	-0,07

Table 28: Correlation matrix for Tender Service Specifications [source: own representation]

Correlation Matrix: Reviews of Market Research Companies

The correlation matrix (cf. Table 27, page 178) of the market research companies with specifications for tenders generates the highest values with respect to the amount and the absolute occurrence of the correlation. 33.4% of all values correlate (n=625). Precisely, there are 11.7% with a low, 13.6% with a medium and 8.2% with a high correlation coefficient. The scattering of the values is low to moderate, which indicates that individual texts deal with the entire field of the competition (in this case EMC, NetApp, IBM, HP) in a very intensive way, or that there are detailed market analyses on individual vendors available. The highest correlations can be found in the *DCIG Buyer Guide*. Once a year the organization publishes a detailed market consideration, including a scoring system on the systems available on the market for each segment, e.g. midrange storage. In particular technical functionalities and peculiarities of the respective vendors are taken into consideration. As an example, text topic 14 represents terms of the documents published by DCIG, which can be found in almost all specifications. The market analyses provided by Gartner, which are less technical compared with DCIG, but still enable a good differentiation between the vendors as well as leaving room for the vendors' visions, are also of particular interest. It was not possible to identify any verification of the documents by SNIA in the specifications.

All in all, this correlation analysis leads to the conclusion that in particular DCIG has a high impact on the design of the specifications. Gartner also assumes an important role as an opinion leader, even if the market research company delivers less technical information. Influence by the IDC could not be detected in the specifications.

Correlation Matrix: Tender Service Specifications

The final correlation refers to a comparison among the tender documents (cf. Table 28, page 179). Even if this procedure cannot be used to identify opinion leaders, it is reasonable in so far as cross-vendor terms are identified on the one hand, and dependencies are uncovered on the other hand. Altogether it was possible to identify 110⁵⁴ correlations, which corresponds to 17.6% (n=625). 2.9% go to

⁵⁴ This value has already been adjusted by 1.00 correlations of the diagonals of the identical text topics.

a low correlation coefficient, 10.2% to a medium and 4.5% to a high correlation coefficient.

There are several conspicuous features among the high values. The term “Pool” combined with “Tier” (TT14) very strongly correlates with “Speichervirtualisierung” [storage virtualization], which in turn can be associated with the application of exclusion criteria. Finally, the total combination of text topics can be assigned to IBM. As with the correlation matrix of the whitepapers, NetApp can be associated with primary and secondary systems as well as the requirement of a branch office solution. In addition, NetApp displays a high association between the topics of “File Service”, “schnell” [fast] and “Mandant” [client].

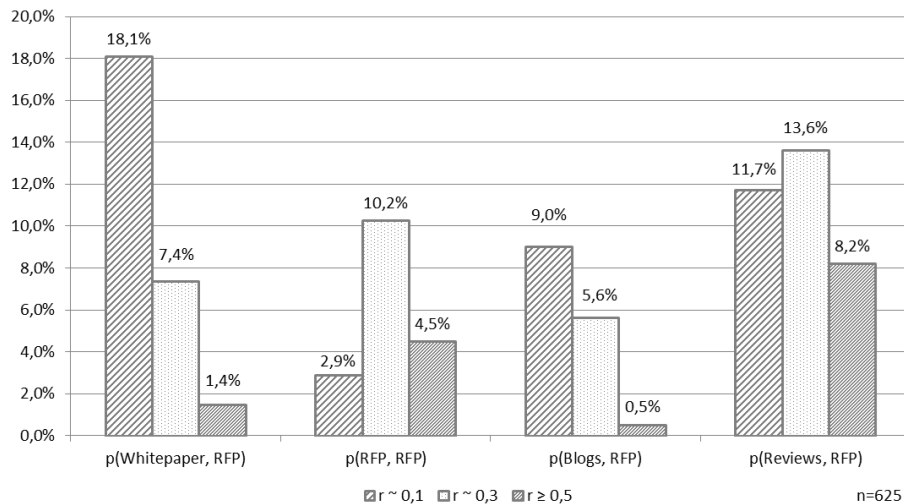


Figure 48: Summary of Correlation Matrices according to Pearson ($r \geq \pm 0.5$ high correlation; $r = \pm 0.3$ moderate correlation; $r = \pm 0.1$ poor correlation) [source: own representation]

The approach for (3) identifying opinion leaders is based on the application of a correlation analysis for which altogether four matrices were created. Figure 48 displays the respective results with regard to the number as well as the degree of correlation by comparison. In absolute numbers it was possible to uncover most of the correlations in the market research companies’ analyses (Reviews). The same applies with respect to the occurrence of a medium and a high correla-

tion coefficient. On the other hand, the analysis of the blogs/forums was rather disappointing. In this case the values fell behind expectations.

Using the data of the whitepapers and market analyses, it was possible to identify opinion leaders. Due to the nature of the data, only institutions resp. vendors were determined as opinion leaders in the place of individuals. The search for individual persons acting as opinion leaders in the storage industry remained unsuccessful due to non-existent relevant data.

3.2.4.3 Model to Measure the Degree of Influence

The following model addresses the objectives (2) and (4) referred to in Table 17. The (4) extraction of vendor-specific functionalities that lead to a narrowing of the competition, conditions the (2) evaluations of the degree of influence on a tender. Both objectives are based on the developed taxonomy which has already been explained in the previous subchapter. The taxonomy results in a hierarchically ordered structure, the lowest level of which represents an indicator amount. Each of the indicators is based on a measurement procedure that can clearly detect this term in a tender. Overlying factors make it possible to highlight the weighting of individual parameters according to their relevance. This approach implies that it is not exclusively the quantity of the indicators that is drawn on as a parameter. The following formula calculates the absolute occurrence of a category for each tender in consideration of the indicators and associated factors. The formula is applied four times per tender, once per defined category.

$$Cat_n = \sum_i g_i \left(\sum_j x_{ij} \right) \quad \begin{matrix} n=1, \dots, 4 \\ i, j=1, \dots, n \end{matrix} \quad (1)$$

The degree of influencing a tender is calculated using the following formula that normalizes the occurrence of a tender per category to the maximum. Consequently, the range lies between zero and one. If there are no indicators of a category to be found in the specifications, the sum of the preceding formula is zero and therefore also the normalized sum. Consequently, the tender cannot be part of the checked category. Due to this implication only the value of the highest category with at least one verifiable indicator is drawn on as the degree of influencing a tender.

$$CatNorm_n = \left(\frac{x_i - Min(x)}{Max(x) - Min(x)} \right) > 0 \Rightarrow \left(\frac{x_i - Min(x)}{Max(x) - Min(x)} \right) + Cat \quad (2)$$

$$n=1,\dots,4; i=1,\dots,n; Cat=1,\dots,4$$

The following model (cf. Figure 49) once more clarifies the basic idea of the measurement procedure. The entire scale is set up as four categories and implies a valuation range between zero and one. The starting point resp. the zero point is a product-neutral tender, the specifications of which do not contain any vendor specifics, resp. which cannot be verified (results range >1.00-2.00). Since this is already category I the value between zero and one is added by one. These represent the first category and above all have the purpose of clarification. This also occurs for categories II to IV. Starting from the zero point the deviation, meaning the difference to the expected value, the result of which is systemized in three additional categories, is calculated. Category II shows a minimal narrowing of the competition by naming indicators in the results range of >2.00 to 3.00. Category III (results range >3.00-4.00) displays a significant narrowing of the competition by distinctly combining indicators, among others, whereas category IV (results range >4.00) contains definite statements of vendors or products as well as descriptions of USPs. As a general rule, the closer the value gets to .99, the more often the respective indicators are met and the more distinctly the respective category is verifiable in the tender.

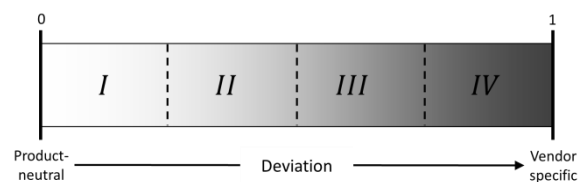


Figure 49: Model to Measure the Degree of Influence on a Tender [source: own representation]

The following gives the example of the results of two tenders. The left measurement model reflects specifications with a minimal narrowing of the competition. Within this category, with a value of .93 there is a strong occurrence of

indications, represented by verifiable indicators. The right model shows a vendor-specific tender with an influencing degree of 4.78.

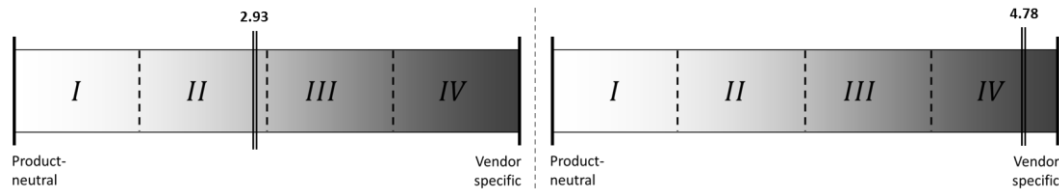


Figure 50: Sample Measurement of the Influence on a Tender [source: own representation]

On the one hand, the standardization of the values of all tenders within a category has the purpose of comparability, as well as ensuring relative proportionality. This bypasses the problem that an absolute number of indicators would otherwise represent the maximum point value. This could not be applied to a learning system. The standardizing approach however also has a disadvantage. Tenders with an exceptionally high number of indicators compared to other documents distort the picture. The problem of outliers is however explicitly desired in this context, as it represents the distortion of the relative deviation between the respective frequencies of the mentioning of an indicator. Figure 51 shows a histogram for each category listing the percentaged frequency of the scoring value for the category.

Therefore, there are many tenders in category I with the same number of verifiable requirements or functionalities (60%). Since mainly basic characteristics were described, the distribution is hardly surprising. It was only possible to verify no, or only small numbers of indicators with as little as 3%, which is why these could not be assigned to the category. Category II has a similar outcome, whereas the maximum occurrence is less extensive (35%). Precisely, this means that the bandwidth of described requirements varies heavily within specifications. A vertically mirrored image with mainly specialized requirements is displayed in category III. The low scoring value in category III (33%) and category IV (67%) can already be ascribed to the distribution of tenders according to their degree of influencing displayed in Figure 52.

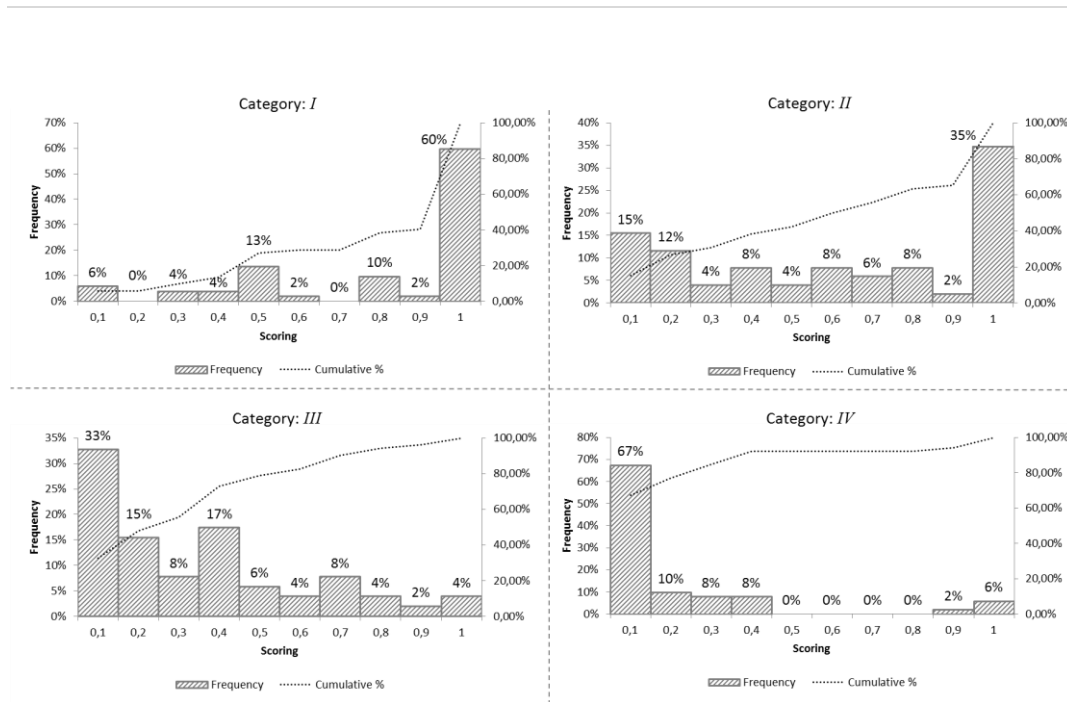


Figure 51: Histogram of Detected Features and Requirements per Category of all Tenders [source: own representation]

The last chart (cf. Figure 52) in the model development for measuring the degree of influence displays the distribution of all tenders to the four defined categories. Therefore, only 2% are formulated in a vendor-neutral way and do not include any requirements or functionalities that could prevent a competitor from replying to the tender. A minimum narrowing of the competition was evidenced for 12%. As an example, the demand for a German-speaking support service was identified as an effective way to exclude startups. However, the requirement of a synchronous mirror cannot be guaranteed by every vendor product today. A significant narrowing of the competition was identified for about half of the specifications (48%). As an example, popular requirements include the combination of a storage system with the possibility of archiving, the functionality of deduplicating and compression of the data or automatic tiering. It can also be pointed out that a large part of the specifications in this category features a strong linking of functionalities. 71% define more than three indicators from this category and narrow the competition so strongly that usually no more than two vendors are able to bid. Furthermore, 38% of the documents were assigned to category IV. Primarily,

these are extensions of existing systems or new acquisitions, which are however subject to a vendor-specific dependency on the residual infrastructure. As an example, this may include the replication of branch offices in the headquarters, whereas it is assumed that only the main system was tendered.

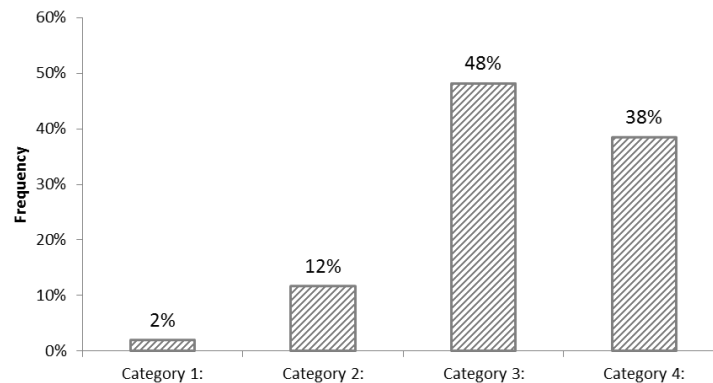


Figure 52: Distribution of all Tenders per Category of Influence [source: own representation]

3.2.4.4 Assessment of the Potential Influence of Opinion Leaders

The demonstration of (1) identifying opinion leaders' potential influence on public tenders (cf. Table 17, page 139) can be derived from the models that have already been developed and presented. As a reminder: Models 3.2.4.1 and 3.2.4.2 refer their assessment to the entire historical dataset, and model 3.2.4.3 to a specific specification for tenders. The criterion for success when it comes to assessing the influence is of a general nature depending on the objectives, which is why, if possible, a statement should be made as to whether the potential influence of opinion leaders is assumed to be low, moderate or high. For this purpose, the following approach combines the already existing models and applies them to an individual specification for tenders (cf. Figure 53). This specification may not be part of the historical data. The aim is to offer a quick picture of the tender, as announced in the overriding model in *chapter 2.5*.

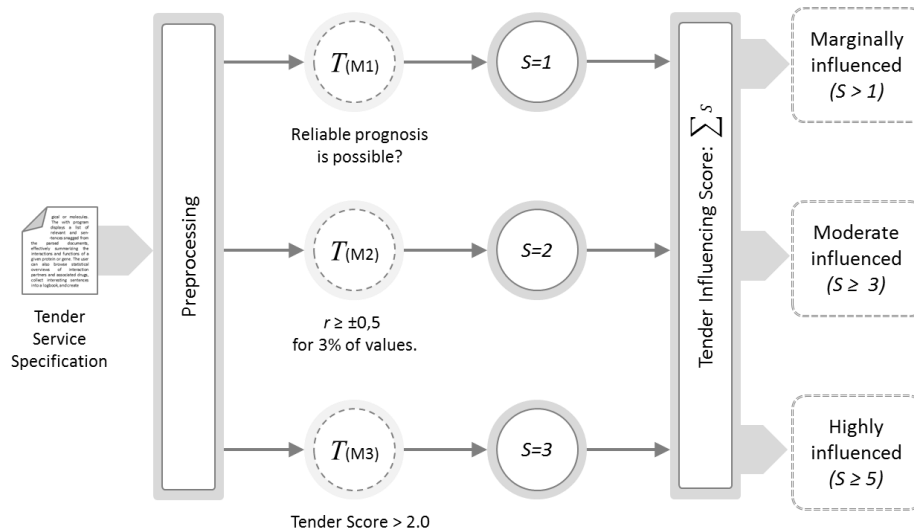


Figure 53: Assessment of the Potential Influence of Opinion Leaders
 [source: own representation]

Verifying the potential influence of an opinion leader in the tender document is based on the sum of the three models and is provided as a scoring value. The specification for tenders is drawn on to check whether a reliable prediction $T(M1)$ by the respective vendor is possible. If it is also possible to evidence a correlation $T(M2)$ and vendor-specific characteristics $T(M3)$, the tender can be classified as “highly influenced”. However, the ability to make a prediction alone does not represent a sufficient indicator for proving the influence, as an assignment to vendors takes place due to the historical data. Many of these datasets are prepopulated with respect to the target variables. Therefore, it is theoretically possible for the system to calculate and correctly predict a great similarity to one or several datasets using the text topics. However, this similarity cannot necessarily be allocated to influencing and could be a coincidence. At least three percent of the values ($n=2,500$) with a high correlation coefficient must be generated for the correlation analysis of the specifications for tenders with the data repository. In this construct the text topics extracted from the existing specification for tenders are correlated with the text topics of the tender repository, which leads to a total of 2,500 correlations. Consequently, the range of values for the score is calculated from the individual models and may lie between zero and six.

3.3 TRANSFERABILITY OF THE MODEL

The setup of the entire third chapter is based on the development of procedures and models for verifying the influence of opinion leaders in the “storage” system. The results showed that the methods are working. The following part will deal with the question of in how far the models can be transferred to other industries. The transferability to new datasets has already been discussed on the basis of the common model accuracy. In general, the applicability to other industries can be subdivided into two categories: technical and domain-specific transferability.

Domain-specific Transferability

First and foremost, the requirements of domain-specific transferability refer to the aspects characterizing an industry and differentiating it from other comparable, but also non-comparable industries. The models developed in this dissertation are based on the assumption that the industry distinguishes itself by means of a high innovative capacity with short product lifecycles and low market entry barriers (cf. Table 15, page 118). The high innovative capacity is characterized by disruptive technologies or business models, among others. Due to the characteristic features referred to, it is consequently possible to make a distinction in the industry by means of different aspects other than the price.

Another requirement includes the existence of opinion leaders resp. the public documentation of vendor-specific (unique selling point) characteristics in the considered industry. The opinion leader can be represented by vendors, suppliers, individuals, etc. As a decisive factor, there must be a considerable number of industry experts with sound domain-specific specialist knowledge available. In addition to the above experts, a group of people is required who knows and understands the industry-specific procedures of procurement. On the customer side, emotional charging of products must also be possible.

If the discussed requirements can be met in the respective industry, the next step features the compiling of necessary domain-specific information and documents. Precisely, this refers to a collection of tenders, including the historical data of the favored entity, documents by market research companies, vendors and partners as well as information from social media sources.

Technical Transferability

The technical transferability of the models to a new industry requires the same process steps as described in the current chapter. The documents must be partitioned, prepared and segmented into terms. The automatic segmentation must be followed by a manual quality control carried out by a person with a domain-specific background. Terms that were sorted out by mistake must be re-included in the selection and the remaining terms must be checked as to their significance. New variables must be identified and extracted by means of clustering and added to a new profiling in the further course. Finally, a completely new industry-specific taxonomy must be created that grasps domain-specific terms, synonyms and contexts.

Once these steps have been completed, the four models can be recalculated. Merely applying the newly collected data to the existing models would not lead to any result, which will consequently result in the determination of a new regression equation or a decision tree, to name a few examples. For the models itself it must be verified in how far the selected parametrization is expedient or whether other weighting algorithms generate a better result, etc. Ultimately, the result of the technical transferability still depends on the scope of the domain-specific specialist knowledge, in addition to a thorough implementation in the applied software products. Only this enables the data minder to extract and correctly interpret the relevant information.

All in all, the following trend can be defined for the transferability of the models. The more congeneric the industry resp. the more similar the characteristic features of the industry, the higher the chances of success for the transferability. This can be easily reconstructed using three examples. Applying the models to the "industry standard server" or "thin clients" system is subject to almost the same principles as the "storage" system. This is hardly surprising, as it is still the IT industry, even if the orientation of the products is a completely different one. As an example, the application of the models to specialized production machines, one of the fields of innovation of German manufacturing systems and plant engineering, also combines several of the described characteristics. A high innovative capacity, low market entry barriers and good possibilities of differentiation are referred to as examples in this respect. For the construction industry, which his-

torically includes a high percentage of service offers, transferring the models is however hardly possible. Neither the characteristic features nor the type of the sold goods and services allow for a real differentiation.

Consequently, the transferability to other areas and industries is generally possible. However, the feasibility must be checked individually for each industry. The effort varies depending on the degree of relationship of the industry to the experimentally applied system.

3.4 CONCLUSION

The key element of the current chapter was to combine the findings from opinion leadership research with the conceptually new approaches of text mining and to develop an analysis of public tenders based on text mining. The models should thereby be experimentally applied in the “storage” system.



*Current research assumes that opinion leadership is one-dimensional.
This could be confirmed.*

For this purpose the market is firstly subdivided according to different criteria for the “storage” system, which reduces the annual volume of formulated tenders of about 2.5 million to 517. This implies a limitation with respect to the relevant procurement law and specific product groups by CPV codes to ensure the above one-dimensionality.

Furthermore, five objectives, including criteria for success and measurement, were designed using the de-facto standard for data mining projects – CRISP-DM: (1) Identifying the potential influence of opinion leaders on public tenders, (2) evaluating the degree of influence on a tender, (3) identifying opinion leaders, (4) extracting vendor-specific functionalities that lead to a narrowing of the competition and (5) predicting the probability of a vendor being awarded the contract for each tender. CRISP-DM supports the entire mining process with best practice recommendations and detailed as well as structured steps for modeling.

Firstly, the development of different models for achieving the goals implies the acquisition and preparation of data. In addition to the actual public tenders, documents from the vendors’ and partners’ marketing communication, but also

information from market research companies and from the area of social media were drawn on. In this way it was possible to compile 12,822 datasets altogether. Within the course of preparing the data resp. a first exploration, it quickly became obvious that the static for the analysis of an entire tender document was so high that a limiting of the text corpus became inevitable. Finally the percentage of signals was increased by carrying out a focused analysis of the specifications for tenders.



Altogether 84 variables were defined with various data mining methods, and 697 indicators were extracted for setting up a taxonomy.

Three procedures were drawn on and benchmarked to implement objective (5): the regression method, the decision tree and the neural network. The application of the procedures is based on a profiling of the variables in order to eliminate duplicates resp. variables without any influence on the target, in this case the predicted vendor. Altogether it was possible to reduce the number of variables from 84 to 9. Regression and the neural network turned out to be the most reliable prediction procedures, as both have the lowest misclassification rate and therefore the highest model accuracy.

The implementation of objective (3) is based on several correlation analyses of all specifications for tenders with the different sources from the data repository. The latter is made up of documents for marketing communication and from market research companies as well as information from social media. The analysis is based on the segmentation of all texts in up to 1,000 single or multiterms using text topic identification. The result of the matrices showed that the specifications reflected information from market research companies the most, followed by documents from marketing communication. Furthermore, blogs and forums from social media only slightly correlated with the specifications for tenders. Using the correlation analysis as a procedure for identifying opinion leaders, different institutions, e.g. vendors and market research companies, were isolated as opinion leaders. Due to the data material, it was not possible to determine individuals.

Objective (2) conditioned the implementation of objective (4). The latter is based on a developed domain-specific taxonomy that checks the specification for tenders to 697 indicators and weighs them accordingly. The level of influence is

calculated from the affiliation with one of the four defined categories that in turn each include a defined number of indicators. As an example, category III allots a specification for tenders for which a significant narrowing of the competition was verified. Category IV refers to the mentioning of distinct vendor-specific product names, among others, whereas category I does not include any vendor specifics.



The analysis of all documents resulted in a distribution of 14% for the first two and 86% for categories III and IV.

The demonstration for objective (1) is oriented on the combination of the three individually developed models and is generated using a scoring value. Accordingly, a minimum requirement was defined for each model, which requires a score to be met. Contrary to the previous models, this assessment is applied to an individual specification for tenders resp. against the entire historical data.

The chapter was concluded with a review of the models on the transferability to other branches, categorized into technical and domain-specific transferability. The latter deals with the characteristic features of an industry as well as the necessary existence of industry experts and opinion leaders. On the other hand, the technical transferability checks the effort and the process steps for the adaptation of the software components. Conclusively, it was determined that transferability is generally possible, but that it however has to be individually verified for each industry and according to the characteristic features.

4 ARE OPINION LEADERS LEADING OPINIONS IN THE CAPITAL GOODS INDUSTRY?

*“Silence is only frightening to people
who are compulsively verbalizing.”*

William S. Burroughs, American novelist

Chapter three displayed the benefits of business analytics techniques in the context of the public tender in an experiment and proved the assumption that the documents were influenced by opinion leaders. The following chapter intends to validate resp. falsify the results of the text mining by means of expert interviews. Furthermore, new findings from the interviews are applied for the improvement of the text mining analysis. The goal of the expert interviews is to uncover the flow of communication and knowledge by triangulating different interest groups, to establish deeper expertise and to identify possible opinion leaders using the method of self-designation. Before the insights from the text mining analysis and the expert interviews are combined in the following chapter, the semi-standardized interviews are evaluated and set in relation using the method of qualitative content analysis by Gläser.

4.1 THE EXPERT INTERVIEW AS METHOD OF VALIDATION AND REFINEMENT

The following subchapters will explain why the method of expert interviews is particularly suited for the validation and refinement of the findings from the text mining analysis. Gläser summarizes this to the point: *“An expert describes the specific role of the interview partner as a source of specialist knowledge on the matters to be explored. Expert interviews are a method to deduce this knowledge”* (Gläser and Laudel, 2010: 12.). Among other things, the role of the expert is defined for this purpose, the goal and the structure of the survey is outlined and finally the quali-

tative content analysis is explained. The expert interview can be assigned to the segment of reconstructing examinations. It has the goal of reconstructing behavior or processes by means of a targeted examination in order to provide justification resp. proof based on the results. Together with the qualitative content analysis these instruments are the backbone of reconstructing examinations as an important tool of knowledge acquisition (Diekmann, 2010: 186 et seq.). Unlike quantitative social research, which intends to establish statistical significance by means of a great number of people, it is possible to conduct expert interviews with only one person. Furthermore, due to the openness of the questions and the explorative character, the expert interview is counted among the qualitative methods of data acquisition and the field of primary research (Bogner, 2009: 7 et seq.). Figure 54 distinguishes the qualitative from the quantitative methods and points out the different explanation strategies.

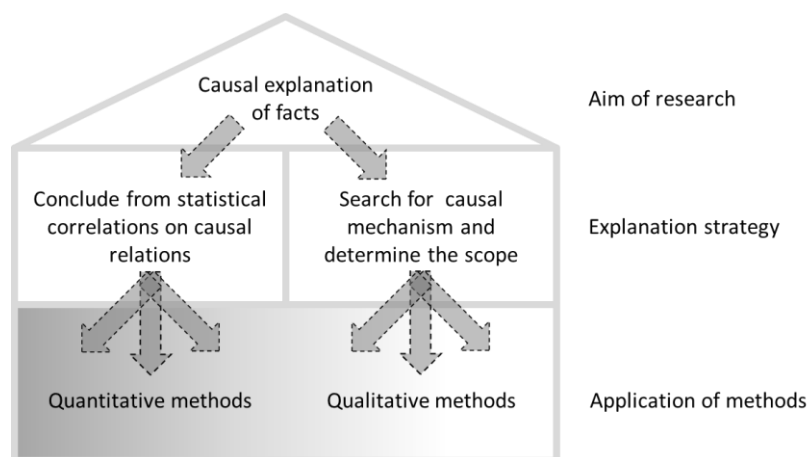


Figure 54: Explanation strategies and application of methods
 [source: own representation based on (Gläser and Laudel, 2010: 28.)]

Kromrey classifies the survey methods by their degree of standardization. He distinguishes between the categories of non-standardized, partially standardized and fully standardized. Each of these characteristics can be obtained orally and in a written form. Therefore, the degree of standardization can be regarded as the main distinguishing feature between the quantitative and the qualitative

methodology. However, as shown by the color grading in Figure 54, it is not always possible to clearly differentiate between the two methods, whereas different types of questioning can be specifically categorized with both approaches. Guided interviews, group interviews and target group surveys are well-known examples of this dual classification (Kromrey, 2006: 336 et seq.).

According to Moser the expert interview can be regarded as a superordinate concept that is furthermore distinguished by two approaches: the qualitative interview and the written survey. Today the latter is used for online surveys in particular, as these are standardized questionnaires that are evaluated according to standardized characteristics. This leads to the fact that the individual participants' contributions are neglected, which is why the survey is regarded as a quantitative approach. Whenever a written survey is applied, the order and the structure of the interview are of crucial importance for the quality of the results. Due to the lack of the possibility of interacting with the interview partner, this is surely not surprising (Moser, 2011: 9 et seq.).

In turn, the qualitative interview can be subdivided into different subcategories that emphasize the particular application scenario. With respect to the first level of the qualitative interview types, Kepper distinguishes between the in-depth interview, the explorative and the focused interview (cf. Figure 55). The in-depth interview is especially suited for ascertaining intuitive behavior, or behavior that is difficult to record, and focuses on the individual (Nieschlag, Dichtl and Hörschgen, 1997: 742.). The focused interview is based on the acquisition of information due to a pre-defined subject. This questioning may be supported by external impulses in the form of images or videos (Kepper, 1996: 52 et seq.). The group discussion is a well-known representative of this type of interview. In literature it is referred to as an effective measure for the development of hypotheses or for ensuring the acceptance of new products (Flick, Kardorff and Keupp, 1995: 58.). Due to the possibility of occurring group dynamics or of holding back on opinions, this type of interview is however less suited for issue-focused extraction of knowledge. The explorative interview, also referred to as expert opinion, is usually carried out verbally, it is non-standardized and it has the aim of asking for issue-focused information. Furthermore, Kepper subdivides this interview scheme into the narrative and the problem-centered interview (Kepper, 1996: 37 et seq.). By using a broadly based opening question, the narrative interview has the

purpose of inspiring the interview partner to talk in order to gain knowledge that might not have been acquired by partial standardization (Flick, Kardorff and Keupp, 1995: 179.). However, due to the very open nature of the interview, there is a risk of previously defined fields of interest being disregarded (Mayring, 2002: 54.). The problem-oriented interview, which also has an explorative character, tries to circumnavigate this issue. Despite the fact that this also is an open interview during which the interviewee has the main share in speaking, the conversation is based on a guideline to ensure that previously defined fields of interest are purposefully referred to. Therefore, this type of interview is partially standardized (Mayring, 2002: 50.). Based on its characteristics and its specific application in this dissertation, the expert interview is classified as a problem-oriented interview (cf. Figure 55).

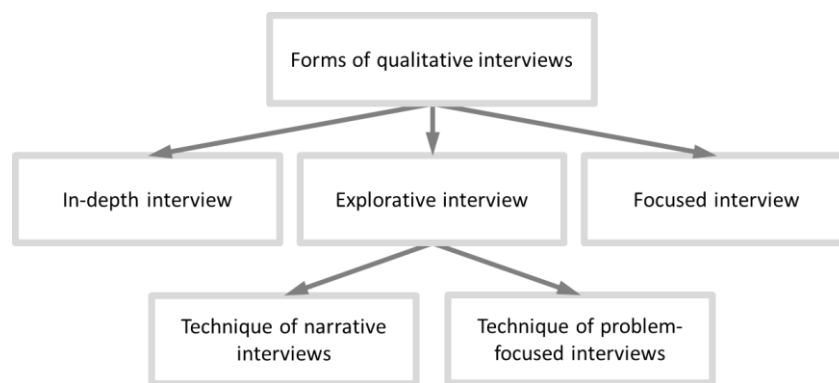


Figure 55: Forms of qualitative interviews [source: own representation based on (Kepper, 1996: 41.)]

As already referred to briefly, the basic idea of the expert interview is to establish an issue-focused conversation with a previously defined expert using interview guidelines, during which he is able to freely reply to openly phrased questions (Hüttner and Schwarting, 2002: 68.). This can be focused on developing new fields of knowledge or on validating resp. falsifying hypotheses (Mayer, 2008: 37.). This method of extracting knowledge is widely used in social sciences. The interview is centered on a merely factual level and is meant to draw up connections within a topic in a constructive conversation. The examination is not

based on the interview partner, his attitudes, emotions or his self-portrayal, as it is often falsely assumed, but on the perception of the examined process regarding the object of interest.

Within the framework of text mining analysis, the goal is therefore to reconstruct the results of the analytical process, i.e. the successful influencing of a tender, by the individuals involved in the overall procurement process. The experts to be questioned are therefore individuals who can make direct or indirect statements on the process resp. who can communicate useful observations. The expert interview is the most suitable method of collecting data in primary research for this research objective. The interviewer thereby receives issue-focused detailed information from the interviewee (Weis and Steinmetz, 2011: 111.). Due to the in-depth character of the analysis and the associated effort, the expert interview is only suited in a few number of cases (Gläser and Laudel, 2010: 37.). However, it provides the opportunity for unearthing special and specific knowledge that would have been concealed with standardized types of questioning.

The problem-oriented interview is applied for validation and refinement of the findings of the text mining analysis. By using an interview guideline attuned to the respective interest group it is ensured that all relevant topics are intensively examined and that new knowledge is acquired. Furthermore, the standardization aims at low-level influencing of the interview partner and the associated high validity of the actual interview.

In addition to the text mining analysis, the expert interview represents a second important empirical method of examination. The specific weaknesses of the computer-assisted text mining analysis are balanced out by the strengths of the expert interview. Combining these independent methods ensures the safeguarding of the results. This is also referred to as triangulation.

4.1.1 Who is an Expert?

Literature provides a great number of different definitions on who can or what can be referred to as an expert. Basically, an expert can be regarded as a person with specialist knowledge and usually long-term experience in a specific field. This means an expert must always be regarded depending on the scholarly

interest and normally has access to the respective topic area that is accepted by society (Bogner, Littig and Menz, 2002).

Meuser and Nagel define the expert status according to the following basic formula:

- responsibility for the draft, implementation and control of a solution, or
- privileged access to groups of people or decision-making processes (Meuser and Nagel, 2002: 441 et seq.).

Both Hitzler as well as Gruber take one step further, stressing the competence an expert has acquired on a defined topic over several years. The authors refer to competence as a special knowledge resp. skillset a person has gained by means of training or experience. Therefore, the expert is able to be particularly capable of acting in a defined subject area resp. he has acquired a particular intelligence of perception (Hitzler, 1994; Gruber and Ziegler, 1996). According to Köhler this competence enables the expert to present a higher level of information in particular, which is reflected in the type and amount of knowledge (Köhler, 1992: 319.). Ultimately, it is the latter characteristic that enables the exceptional position of the expert and that at the same time permits him to exercise his authority in the context of the opinion leader (Drewe, 1974: 162.).

Despite the differences when it comes to the characteristics of expertise, they all share one common thread: experts have long-term experience at their disposal. In this context, the question of which duration of time can be regarded as “long-term” often comes up. Surely it is dependent upon the complexity and the scope of the subject area, which is why there is no general rule. For this reason, in an empirical study from 1993, Ericsson et al. examined several different areas regarding the amount of time it took to achieve the highest performance. Independent of the topic, the authors determined an average duration of about ten years (Ericsson, Krampe and Tesch-Römer, 1993: 363 et seq.). Chase and Simon came to a similar conclusion within the framework of analyzing chess players (Chase and Simon, 1973: 80.). Therefore, today the 10-year rule is often referred to in psychology and social research (Friedrichs, 1990: 207 et seq; Gläser and Laudel, 2010: 11–15.). In sports, this corresponds to the 10,000-hour rule, which is however based on the same principle (Gladwell, 2011: 40.).

The following list summarizes the characteristics that classify a person as an expert:

- A great level of factual competence that is strictly dependent upon the subject area and that is usually not transferable to other fields.
- Long-term training and/or about ten years of experience in the respective subject area.
- Basic skills such as distinct communication skills or a good memory are not of any importance.

The following definition of an expert takes up the above discussion regarding expertise and is intended to distinguish people with an opinion from people with actual experience. When referring to the term “expert” in the further course of this dissertation, he shall be defined as follows:

“An expert is a person with area-specific knowledge, who therefore has access to a higher level of information based on about ten years of experience or training.”

4.1.2 Preparing the Expert Interview



Figure 56: General Process of an Expert Interview [source: own representation based on (Gläser and Laudel, 2010; Diekmann, 2010)]

Before an expert interview can actually be carried out and evaluated, there are a number of important measures for preparation that should be focused on. For this purpose the author will take up the above process (cf. Figure 56) and explain each of the phases in detail in the following.

4.1.2.1 *Phase I: Intensive Research of the Object of Investigation*

Phase I has the purpose of organizing the entire course of the interview including the time and resource estimation, and serves as a basis for drawing up the guided interview (Gläser and Laudel, 2010: 93 et seq.). It is based on intensive research on the topic.

In many cases it is omitted that the aspect that the interviewer is perceived as an equal partner in the conversation is crucial. This implies an intensive involvement in the topic as well as solid preparation in the form of research (specialist literature, status quo in research, Internet, etc.). Therefore, the interviewer, being a competent dialog partner, must acquire the respective technical vocabulary as well as the foundations of the subject area in advance. Without this diligent preparation, there is a risk of the interviewer not being able to ask purposeful queries throughout the interview process, and simply absorbing superficial knowledge which, in case of doubt, could have been learnt from any textbook (Kaufmann, 1999: 53–59.).

4.1.2.2 *Phase II: Identify, Select and Inform the Experts*

During phase II of the expert interview sequence plan experts are identified, selected and finally informed beforehand. Due to the characteristics of a public tender, there are different groups of people that must be considered in the interview. These are referred to as key informants who are well-informed group members of the “storage” system. Furthermore, these individuals represent those in search of opinions as well as opinion leaders. In addition to vendors, reselling partners and independent consultants must also be questioned. The business model of all major vendors in the IT industry is mainly based on an indirect channel of distribution. Therefore, the reselling partners play a key role with respect to direct customer interaction. Regarding a complete triangulation of the information, the customers’ opinion also has to be referred to by all means. They must be able to verify the statements made by the partners, the consultants and the vendors. With all three groups the interview focuses exclusively on the individuals’ knowledge and experience. Individual information such as biographies, status or character is not part of the examination.

The “customer” group was selected based on analyzed tendering procedures during which vendor-specific text modules or those narrowing down the

competition were identified using the text mining analysis. Five representatives of this group were selected in a random sampling. In the further course one of the customers' contact persons was identified that was either part of the storage department or involved in the processes of a tendering procedure for storage. There were no restrictions regarding the industry or the size of the public authority. Based on the interviewees' position, they present a special source of information and do not fall under the definition of the expert (cf. 4.1.1 – *Who is an Expert?*).

The “vendor” group was segmented based on the current market share⁵⁵ in the storage industry to start with. As already referred to in 3.1.1 – *Market Segmentation*, the author confines his selection to the top four vendors on the German market, which share 74.1%⁵⁶ of the open system market. Each of these vendors has a dedicated go-to-market⁵⁷ strategy that is partly grounded in its own vertical⁵⁸ for the federal government, the federal states and communities, and employs a dedicated group of people. 15 of these employees were contacted by telephone or by email and asked to take part in the survey. They were only permitted to participate if they had about ten years of vocational experience or special qualifications for the public sector. Due to the fact that they were employed with a top vendor of the storage industry, it can be assumed that the individuals had obtained a high level of information from internal competition trainings resp. issue-specific trainings.

⁵⁵ IDC publishes detailed market shares on a quarterly basis for all vendors in the “Open System Storage” market (without ESCON/DAS): <http://www.idc.com>

⁵⁶ IDC Storage Tracker 2014/Q4 – Revenue

⁵⁷ A go-to-market strategy (GTM strategy) is an action plan that specifies how a company will reach customers and achieve competitive advantage. The purpose of a GTM strategy is to provide a blueprint for delivering a product or service to the end customer, taking into account factors such as pricing and distribution. R. Srinivasan, “Go-To-Market Strategy,” in *Wiley International Encyclopedia of Marketing*, eds. J. N. Sheth and N. Malhotra (Chichester, U.K: John Wiley & Sons, Ltd, 2010).

⁵⁸ A vertical integrated business model, in this case in the meaning of a vertical sales approach, focuses on a single industry (State Sector). A vertical integrated business model should be considered from two viewpoints: (1) internal benefits (and costs), and (2) effects on competitive posture. Internal benefits affect the probability of the strategy, and strengths in competitive posture enable firms to be more responsive to changes in market needs and less vulnerable to competitors' maneuvers. K. R. Harrigan, “A Framework for Looking at Vertical Integration,” *Journal of Business Strategy* 3, no. 3 (1983).

Ten out of the 15 people from different vendors that had been asked to participate took part in the survey. Four had to be excluded from the group in the preliminary interview, because they neither met the required 10-year rule nor did they have dedicated training/qualifications (cf. Figure 57). Two individuals did not meet the requirement of long-term experience, but they had received specific training in processing public tenders by their employers, which provided them with special issue-specific know-how. Therefore, these individuals were allowed to take part in the survey nevertheless. Regarding the vendors, three different companies with altogether six employees were questioned. These included HP, EMC and NetApp.

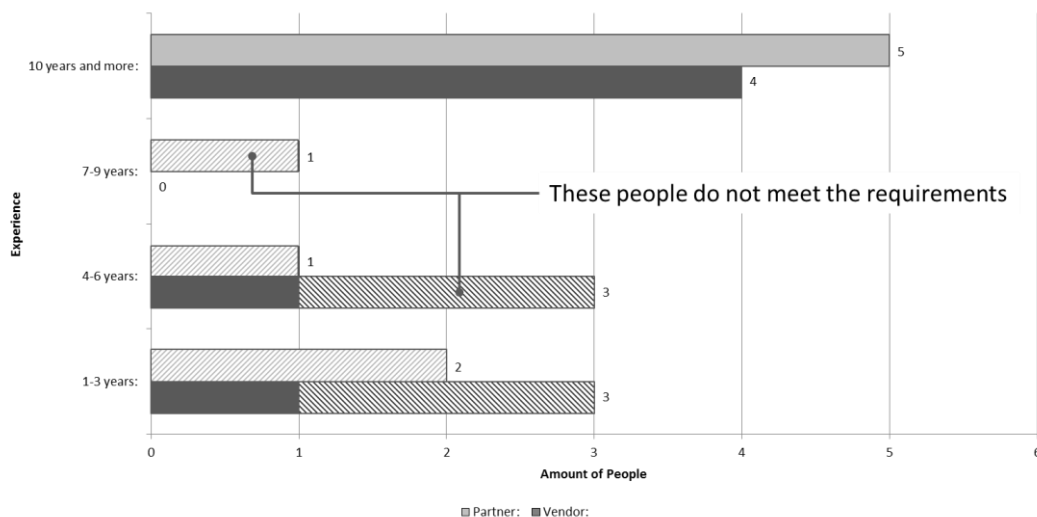


Figure 57: Amount and Distribution of interviewed Experts [source: own representation]

Identifying experts on the partner side is particularly challenging. In 2012 there were about 80,500 specialized dealers for information and communication technology⁵⁹ in Germany with a labor force of more than 924,000. (Statistisches Bundesamt, 2012a). A mere segmentation of the reselling partners (usually system

⁵⁹ According to the Federal Office for Statistics this includes tax-liable companies with sales of more than 17,500 euro and tax payments of more than 1,000 euro a year.

traders) according to their level of turnover⁶⁰ would identify Bechtle, Computacenter, Comparex, etc. as adequate dialog partners. However, an advanced analysis of the partners showed that not every trader had the same profound know-how in the public sector resp. a dedicated go-to-market model. For this reason the list of relevant system traders had to be clearly extended in a first step and re-organized according to their relevance for the public sector. Furthermore, there are independent consultants, to some extent as independent entities of existing reselling partners, who also play a part in the procurement process and which need to be added to the list. If the independent consultants do not belong to a system trader, they assume a special role, because they generate their sales exclusively with consulting services, which is why they are in no conflict of interest whatsoever.

Finally, 15 partners and consultants were also asked to take part in the survey. The 15 companies were selected at random from the compiled list of partners and consultants specialized in the public sector. The specific group of individuals from the system storage area for the public sector was approached in a similar way to the vendors. Out of the nine parties that responded, four did not meet the requirements of an expert, so that five dialog partners were available in the end (cf. Figure 57).

To sum up, the identification and selection of experts leads to three different groups of key informants: customers, vendors and partners/consultants. They are represented by 15 individuals altogether (cf. Table 31, page 211). Before the interviewees were finally questioned, they were instructed on the usage of data and the purpose of the interview in general. This section is of particular importance, as the interviewees cannot be immediately informed about the objective of the survey.

In line with research ethics, the interviewees must be able to take part in a survey voluntarily, there may not be any damages resulting for them, and they are entitled to reconsider their participation based on the information provided for the examination (Gläser and Laudel, 2010: 50.). Furthermore, there are legal obligations regarding the handling of personal data regulated in the Federal Data

⁶⁰ The largest system houses in Germany 2014: <http://www.channelpartner.de/a/die-groessten-systemhaeuser-2014,3043190,4>, accessed May 2015.

Protection Act⁶¹ of the Federal Republic of Germany. The latter stipulates that “the anonymity of the interviewees must be protected” (I, B(5)) (Simitis, 2011). As a consequence, all of the information must be deleted or anonymized in a way that makes it impossible to identify individuals (Metschke and Wellbrock, 2002: 16.). Interviewees may explicitly agree to the publication of the data. However, it is within the researcher’s discretion whether this could result in any kind of damage for the interviewee (Warwick, 1982: 104–110.).

The data on the interviewee’s own behavior or on observed behavior collected within the framework of this dissertation leads the author to the conclusion that the entire interview data must be completely anonymized. To some extent the questions target activities in a legal limbo that may lastingly damage the relationships of employees and employers, but also of vendors and partners or customers. Furthermore, practices entailing consequences involving criminal resp. antitrust law may be uncovered. Also, privacy data such as individual convictions and opinions may come up.

As already implied, it is not possible to directly inform the interviewee about the objective of the survey. In fact, he must be told about the context of the interview on a very abstract level. Providing the interview partner with extensive information would contradict the object of research regarding the determination of influential parties in a tendering procedure. Disclosing the hypothesis would however influence the response behavior of the subjects, which Diener and Crandall already warned about in 1978 (Diener and Crandall, 1978: 44.). For this reason the interviewees were told that the survey was a study for the purpose of recording the search for information as well as the more purposeful provision of information on the part of the storage system vendors.

4.1.2.3 *Phase III: Prepare the Expert Interview*

The third phase is based on developing a guided interview that must be prepared with just as much attention to detail as a structured questionnaire (Mason, 2002: 43.). In the end one specific questionnaire should be provided per group of individuals including the content areas to be recited. Moser refers to the

⁶¹ Federal Data Protection Act from 1977. Latest revision 2009: Published in the electronic Federal Gazette. <http://www.bgbl.de>, accessed March 2015.

so-called “guiding themes” in this respect (Moser, 2011: 90.). The interviewees will be informed that their guiding theme will be procurement and the search of information. Furthermore, a segment of standardized questions will be developed for the vendors and partners representing a self-designation on opinion leader identification.

For the correct classification of the expert interview in the context of the survey methods, the author will refer to the classification of surveys by Weis (Weis and Steinmetz, 2011: 111 et seq.):

Table 29: Dimensions of Surveys [source: own representation based on (Weis and Steinmetz, 2011)]

Expert Interview	
Criterion:	Form:
Type of communication:	Oral questioning
Scope:	Partial survey
Content:	Single-topic survey
Frequency:	Single survey
Selection of the experts to be interviewed:	Random selection
Survey strategy:	Semi-structured
Survey statistics:	Direct interviews
Survey environmen:	Real-life conditions
Method:	Personally

Within the framework of this dissertation the single-topic survey is a reasonable measure for data collection for several reasons. Firstly, it does not take long to conduct and secondly the risk of distraction by other topics is low, since it is restricted to one topic. Furthermore, the single-topic survey enables more questions on the object of investigation, as the interviewee does not have to get ac-

quainted with other topics over and over again. (Weis and Steinmetz, 2011: 111 et seq.)

Normally the surveys are carried out orally and partially structured, i.e. there will be a guided interview. The interviews are conducted face to face or over the telephone. This enables extensive questioning and makes a low refusal rate probable. Furthermore, influencing by third parties is excluded. The interaction with respect to the interviewer's ability to react to queries in a flexible manner is one advantage of this method of data acquisition. This is required by all means in order to identify hidden requirements. Since the maximum duration recommended for oral interviews is 30-45 minutes, the interview should not exceed a maximum amount of 20 questions (Weis and Steinmetz, 2011: 116 et seq.).

The guideline of the expert interview has the purpose of structuring the content and providing the interviewer with an orientation as well as the necessary basic information on how to introduce a specific group of topics. Furthermore, it improves the comparability of replies and ensures that no relevant fields of knowledge are left out. According to Moser, the questionnaire is set up in line with the "funnel principle", i.e. the interview starts with general questions, followed by more precise/detailed questions. According to Bock, if possible, explosive or intimate questions should be asked at the end of the interview (Bock, 1992: 94 et seq.). The type of questioning, i.e. experience/behavior questions, opinion/assessment questions (this usually includes rating on a scale), emotional questions, knowledge questions, questions of meaning, background or biography questions (Moser, 2011: 90.), must also be considered.

The questionnaire can be subdivided into three sections: introductory questions, also referred to as the warm-up phase or icebreaker questions, the main part with the actual subject-specific groups of questions and the conclusion.

The introduction to the questionnaire is characterized by a number of descriptive questions on the demography of the company, on where the expert acquired his expertise in the subject-specific field, on how often the interviewee deals with the topic as well as a question regarding his communication partners and neutrality. The questions should be drafted as open and wide-ranging as possible in order to encourage the dialog partner to talk (Kvale, 2007: 95.). The main part features different types of questions on the interviewee's experience, opinion and state of knowledge. The author uses open questions –to enable the interview-

ee to disclose as much of his knowledge as possible, closed questions as well as follow-up questions. The latter is used for portions of the interview in which specific information or details must be collected on a specific question (Rubin and Rubin, 2012: 203 et seq.). Closed questions have the purpose of obtaining distinct answers (Meuser and Nagel, 2002: 448 et seq.).

The main part is subdivided into three areas:

- 1) Process of creating the tender
 - a. Process
 - b. Persons involved
 - c. Interviewee's role
- 2) Content-design of a tender
 - a. Criteria of the specifications
 - b. Vendor-specific distinguishing features
 - c. Sources of information used
- 3) Identification of opinion leaders using the method of self-designation according to Goldsmith/Flynn⁶²

The three questionnaires distinguish themselves by means of the fact that questions on the respective role in the procurement process were adapted to enable the rebutting or confirmation of statements by the counterpart on the vendor, customer resp. partner side.

The third section of the main part is exclusively intended for partners, independent consultants and vendors, and serves the purpose of identifying opinion leaders. A Likert scale for system storage (cf. 2.1.6.1 – *Self-Designating Method*) was developed in this respect based on Goldsmith, Flynn et al. There is a great number of scales available for the self-designation of opinion leaders, which determine the personality strength according to (Noelle-Neumann, 1984) or the degree of being a market maven according to (Feick and Price, 1987), among others. Unlike this and other approaches, Goldsmith, Flynn et al. concentrate on measuring the influence instead of the interviewee's communication behavior. Moreover, the scholars are among the first to assume that opinion leadership is product-specific and therefore one-dimensional. As a consequence, it is only possible to measure

⁶² This part of the interview is standardized and only used for vendors and partners.

the product-specific influence instead of general opinion leadership (Flynn, Goldsmith and Eastman, 1996: 137 et seq.).

The Likert scale is particularly suited with respect to determining the opinion leader, as it is aimed at recording the personal opinion by means of so-called items. In this context it is also referred to as a person-oriented measurement tool. Each item represents a positive or negative statement regarding which the interviewee expresses his agreement or disagreement on a five-level scale. To ensure that the number of items is balanced, there should be just as many positive as negative statements provided. For the evaluation it is decisive that the distance on the 5-point Likert scale – there are also examples of a 7-point Likert scale – is as equal as possible (Rost, 1996).

A 5-point Likert scale was designed for the self-designation of potential opinion leaders. Partners and independent consultants were supposed to express their personal attitude using five, vendors using eight question items. Those individuals located in the upper quartile for their specific group, vendor vs. partner, are referred to as opinion leaders. This is calculated based on the total score of possible answers with positive or negative values on the scale of -2 to +2, represented by the level of the respective agreement (“Strongly agree” – “Agree” – “Undecided” – “Disagree” – “Strongly disagree”).

Due to the odd number of questions for partners and independent consultants, and the involved imbalance of positive and negative items, the term “seldomly” was included in the third question. The following table shows the items for identifying the opinion leaders based on the Likert scale according to Goldsmith, Flynn et al.

Table 30: Scale for the Identification of Opinion Leader [source: (Flynn, Goldsmith and Eastman, 1996)]

Opinion Leader Identification based on Likert scale
1) To customers my opinion on storage systems is not important for the creation of the tender.
2) When my customers prepare tenders for a storage system, they don't ask me for information on vendor systems.

-
- 3) Customers (seldomly*) approach me to ask for information regarding the selection of a storage system.

 - 4) Partners approach me to ask for information on the selection of a storage system.*

 - 5) Customers often purchase the storage systems I recommended to them.

 - 6) Partners often provide consulting services on the storage systems I recommended to them.*

 - 7) I often influence customers' opinion on storage systems.

 - 8) I often influence partners' opinion on storage systems.*
-

* These are exclusive questions for vendor representatives.

At the end of developing the guided interview the order of questions is determined and so-called guiding questions are included to enable the best possible course of the interview. Icebreaker and transition questions, which were referred to above, are used in this respect. In a last step, the interview is validated by a test run before undergoing a final revision.

The final interview sheets are provided in Appendix A1-A3.

4.1.2.4 Phase IV: Conduct the Expert Interview

Phase IV deals with the collection and preparation of data from the expert interviews. The interviews were conducted in the period from 11/27/2014 to 12/15/2014. 60% were carried out by telephone resp. face to face (40%). Altogether the 15 interviews had a duration of about nine hours, 6.5 hours of which are available as audio material. This corresponds to a rate of 87% of consent for the audio recordings. The interviewees' positions range from General Manager, to Pre-sales Consultant through to Head of Technical Division. Table 31 shows all interview partners including their position in the company as well as the type and duration of the interview.

Minutes of all expert interviews were taken in a two-fold manner according to Meuser for the purpose of a qualitative content analysis carried out subsequent to the interview. In addition to the manually drafted minutes that contained key

information, possible disruptions or particular gestures, minutes were also recorded on tape in order to collect precisely all of the information (Meuser and Nagel, 2002: 455.). However only in so far as the interview partner agreed to the dialog being recorded. In line with Köhler's guideline, the objective of the interview and the overall context were once more presented before the actual interview (Köhler, 1992: 324.). Subsequently, the interviewees' personal data was collected and the guided interview was finally conducted.

Following the actual questioning, the collected material was processed. This included a verification of the texts suited for analysis as well as data processing. The latter included the transcription and digitalization of the manually created minutes as well as a transcript of the tape recordings (cf. A4-A18). The transcript ensures that oral statements are also provided in writing and added to the actual analysis. The transcript was created according to the basic transcription system by Dresing and it was mainly based on the method developed by Kuckartz et al (Dresing and Pehl, 2011; Kuckartz, 2008). Table 31 links the interview with the associated transcript in the appendix.

Date:	Type of Relationship:	Interviewee (Job Role):	Kind of Interview:	Duration (Min):	Recording exists:	Written Minutes:
27.11.2014	Partner	General Manager	Face-to-Face	128:12	No	See Annexes: A15
02.12.2014	Vendor	PreSales Consultant	Face-to-Face	47:11	No	See Annexes: A11
03.12.2014	Vendor	PreSales Consultant	Phone Call	29:14	Yes	See Annexes: A13
03.12.2014	Vendor	PreSales Consultant	Phone Call	28:32	Yes	See Annexes: A9
04.12.2014	Vendor	PreSales Consultant	Phone Call	29:41	Yes	See Annexes: A12
04.12.2014	Partner	PreSales Consultant	Face-to-Face	22:27	Yes	See Annexes: A18
05.12.2014	Vendor	PreSales Consultant	Face-to-Face	28:31	Yes	See Annexes: A10
08.12.2014	Partner	PreSales Consultant	Phone Call	27:53	Yes	See Annexes: A14
08.12.2014	Partner	PreSales Consultant	Face-to-Face	14:28	Yes	See Annexes: A16
11.12.2014	Customer	Administrator	Phone Call	32:54	Yes	See Annexes: A5
11.12.2014	Vendor	Sales Representative	Face-to-Face	48:08	Yes	See Annexes: A8
12.12.2014	Customer	Head of Unit	Phone Call	28:30	Yes	See Annexes: A4
12.12.2014	Customer	Head of the Technical Division	Phone Call	10:17	Yes	See Annexes: A6
15.12.2014	Customer	Administrator	Phone Call	33:57	Yes	See Annexes: A7
15.12.2014	Partner	General Manager	Phone Call	46:14	Yes	See Annexes: A17

Table 31: Overview of the interviewed experts [source: own representation]

4.1.2.5 *Phase V: Scientific Evaluation*

The last phase deals with the evaluation of the interview using the tool of qualitative content analysis to explain complex processes, social phenomena and the construction of meanings (Dresing and Pehl, 2011).

From a historical perspective the method of content analysis was developed from texts due to the evolving of mass media that resulted in a large amount of similar texts. The quantitative content analysis as a precursor of the qualitative content analysis, which is often used today, was developed in the USA in the 1920s. As with all content-analytical procedures, information was thereby taken from the texts, brought into a new format and processed in this format, detached from the original text. The particularity of the quantitative content analysis is based on the fact that it merely analyzes the frequency of previously defined categories, i.e. information is quantified. This method is criticized, because it does not consider varying text modules based on a considerable reduction of complexity.

In the 1980s the German scholar Mayring developed a method based on this deficient understanding of the text that satisfies the complexity of the information, at the same time combining the methodical approach of the quantitative analysis: the qualitative content analysis (Mayring, 2002). The main difference of this approach is that the developed category system is oriented on the material to be analyzed and collated with a sample taken from the material.

In 2009 Gläser based his advancement of the method on Mayring's procedure, which was still too strongly oriented on quantitative content analysis according to Gläser. Although the category system was created and opened up based on the text to be analyzed, it still resulted in a category system that was unchangeable. Since the categories were developed based on a sample of the material, it is not guaranteed that the information contained in the residual material can be classified into the existing categories. Due to the fact that the category system according to Mayring considers frequencies on an ordinal scale, it is not possible to extract complex information in this case, either. This is however provided by the procedure of the qualitative content analysis according to (Gläser and Laudel, 2010).

Table 32: Comparing the qualitative content analyses from Mayring and Gläser [source: own representation]

Mayring (Mayring, 2002)	Gläser (Gläser and Laudel, 2010)
Closed categories (possible characteristics specified)	Open category system (characteristic values not previously specified, changes possible during extraction)
Strong orientation on the quantitative content analysis	Systematic reduction of the original texts
Analyzes frequencies instead of extracting information	Creation of a database that is relevant for answering the research question

The first step of the qualitative content analysis according to Gläser is the application of a search grid on the texts to be analyzed that only extracts the information that serves the purpose of answering the research question. Therefore, the information is separated from the original text at a very early point in time, enabling a systematic limitation to relevant information. Subsequently, the extracted information is classified in the categories based on the search grid. Due to the flexible nature of the category system, it can be constantly adjusted and extended while the information is classified to enable all relevant information to be processed. The characteristic values are thereby described orally, i.e. they are available on a nominal scale. In a next step the extracted raw data is prepared to create a structured basis of information, i.e. it is summarized, checked for redundancies and contradictions, and it is sorted. Lastly, the information is evaluated according to compelling causal mechanisms (Gläser and Laudel, 2010).

The decision in favor of the qualitative content analysis according to Gläser is based on the fact that, in addition to confirming the various hypotheses, the expert interviews are also used to unearth new and therefore unknown knowledge. Motives and arguments as well as backgrounds on how the interview partners arrived at a specific assessment are of particular importance. Furthermore, the goal is also to uncover the interviewees' communication structures that are decisive within the framework of this dissertation. A mere measurement of

the frequency of a previously defined category would miss the point. In this case Gläser is offering the necessary open approach. *Chapter 4.2* deals with the evaluation of the qualitative content analysis.

4.2 AM I AN OPINION LEADER? FINDINGS OF THE EXPERT INTERVIEWS

The category system developed for the qualitative content analysis comprises four main categories that can mainly be derived from the research questions. The first category contains all demographic data on the company and the individual (cf. 4.2.1.1 – *Analysis of the Demographic Data*), whereas category two describes the process of creating the tender. Procurement strategies and the sequence play an important part in this respect (cf. 4.2.1.2 – *Influencing Strategies in the Tender Creation Process*). The third category deals with the content-related influencing of a tender and with the precise tools that are applied (cf. 4.2.1.3 – *Influencing the Content of a Tender*). The required sources of information and their procurement are analyzed in 4.2.1.4 – *Information Sources in the Tendering Process*.

A subchapter deals with the comprehensive analysis of all information and communication structures in the form of a sociogram (also referred to as network analysis or sociometric network) (cf. 4.2.2). To name but one example, it aims at uncovering dependencies of individual opinions on the cohesion of the group, and it is based on the method of empirical social research by Moreno (Moreno, 1967).

Chapter 4.2.3 – *Who are the Opinion Leaders?* deals with the analysis of potential opinion leaders based on self-designation. The evaluation is concluded with recommendations on opinion leader management that translate the significant findings of the interviews in lines of action (cf. 5.4 – *Recommendations for the Opinion Leader Management*).

4.2.1 The Self-perception of an Expert in the Procurement Procedure

The following subchapters deal with the statements made by the three expert groups of vendor, partner/consultant and customer. The compilation of the groups resp. the determination of the expert is described in *chapters 4.1.1 and 4.1.2.2*.

4.2.1.1 Analysis of the Demographic Data

The analysis of the 15 interviewees' demographic data can be subdivided into different areas. Regarding the interviewees' age structure, it becomes obvious that about three quarters are located in the age group of 40-49 years (cf. Figure 58). With respect to the requirements in the context of defining experts for vendors and partners this is a comprehensible distribution (see 10-year rule (cf. 4.1.1–Who is an Expert?). Furthermore, all of the interviewees are male.

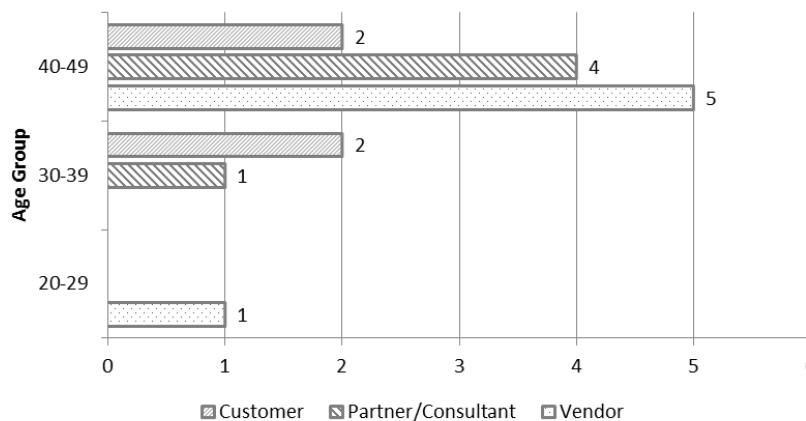


Figure 58: Age Structure of Persons Interviewed [source: own representation]

The interviewees acquired their long-term experience in systems storage as well as in the public sector in different ways. One third of the vendor employees began their career on the customer side, obtaining extensive expertise in the system house⁶³ in the course. The residual 66% were trained directly by one or several vendors. The vendor employees look back at an average of 14 years of experience. More than 80% have ten and more years of practical experience in the relevant area.

⁶³ In this dissertation the terms of system house and partner are used interchangeably. A system house refers to a company that does not only offer software products, but also hardware R. Lackes and M. Siepermann, "Gabler Wirtschaftslexikon: Stichwort: Systemhaus," 2015, <http://wirtschaftslexikon.gabler.de/Archiv/77361/systemhaus-v9.html>, accessed April 2015. Therefore, system houses performing resale for the respective vendors are also referred to as partners.

With an average of 13.5 years the experience of the interviewed partners and consultants is on a similar level. Only the career path considerably distinguishes itself from that of the vendor employees. 100% started out in a system house or a consulting company and have been working in this field until today. Special emphasis lies on the additional qualifications of consultants who are either trained especially in procurement law or who are supported by in-house or external lawyers within the context of major projects, and therefore constantly acquire new know-how.

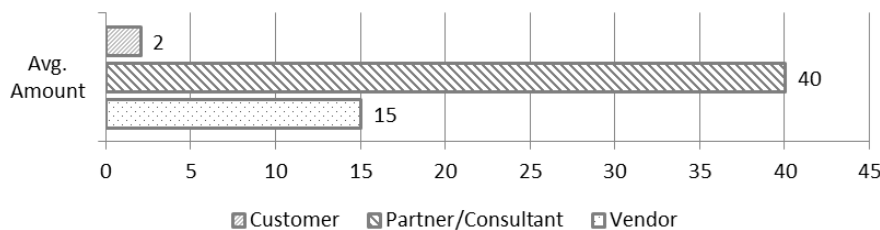


Figure 59: Average Amount of Tender per Annum [source: own representation]

The differences in the average amount of storage tenders processed by vendors and partners per year is particularly significant (cf. Figure 59). The latter reply to two and a half as many tenders compared with the questioned vendors. This is easy to explain, as a large part of the system houses has more than one vendor in its portfolio, and as not every tender is in line with the vendor's commitment of technical support. Furthermore, the low amount processed by the customers is not unusual, either. Normally a "major" purchase decision is made every three to five years, depending on the amortization cycle. Only major customers with a great number of systems of involving various runtimes make one or even more investments per year. The purchase of storage systems in the course of a framework agreement takes on a special role in this respect. After all, 50% of the questioned customers are given this possibility. A framework agreement replaces the necessity of the tender for the procurement of previously defined equipment by selected vendors. The idea is to create a structure for several customers to negotiate a fixed price and discount rate as a larger purchasing community to subsequently satisfy their demand from the shopping cart. Then the customer selects

the system he requires from a specific vendor based on the technical features. Additional tenders or price arrangements are no longer required. Therefore, a vendor's success depends on whether he is included in the respective framework agreement or not. Instead of several smaller tenders, the vendor now has to strive towards one large framework agreement tender and convince the customer to decide in favor of his technology.

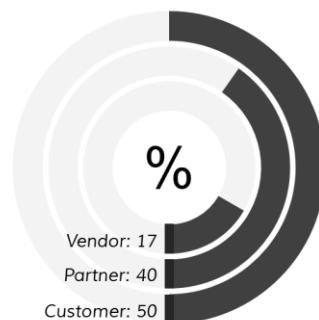


Figure 60: People with Decision-making Authority in the Procurement Process [source: own representation]

Naturally, decision makers assume a key role when it comes to influencing tenders. 50% of the interviewed customers stated that they made decisive decisions on procurements. 40% of the partners and 17% of the vendor have the authority to decide with regard to the economic appeal of the offers. Furthermore, on the vendor side 83% stated that they were considerably involved in a successful procurement with technical design decisions.

The partners' business model with respect to tender consulting is based on two different approaches. Either the accompanying or consulting services for the tender are purchased actively, similar to traditional consulting companies, or the support is initially provided for free within the framework of the business transaction. In the first case the consulting company is excluded from the subsequently published tender to avoid any possible manipulation or conflict of interest. Therefore, the key focus of the consulting services strongly varies between system houses and full-scale consultants. The latter focuses less on a specific tender, but addresses comprehensive topics such as contract management, negotiating of

managed service or consulting on sourcing contracts. Mostly, in the course of this consulting process, several tenders are drafted, which are then sent out to the system houses or vendors. However, the tendering of storage plays a decisive part in this construct, as it usually represents the largest individual item in the entire sourcing process. As confirmed by one of the questioned consulting companies, a total volume of nine-figure outsourcing deals is no rare occurrence.

In the second case the system house supports the creation of the tender for free within the framework of the existing business relationship. The consulting services are mostly financed via the purchase of the components. In principle, this is always the case if the customer has already selected a preferred partner and if vendor benchmarking is advised.

Therefore, in the context of the influencing of tenders, the question arises in how far partners and consultants really are neutral resp. fulfil their consulting services without any preference for a vendor. 100% of the reselling partners stated that although they positioned themselves as neutral regarding possible vendors when communicating with customers, there were in fact preferences, which were also actively directed to some extent, e.g. by the company management or the brand manager. Quote: “[...] *Of course we always try to provide vendor-neutral consulting services. We have three vendors in our portfolio: NetApp, IBM and EMC, and the consulting will be in this area*”.⁶⁴ If, in addition, the customer already states a preferred vendor in the initial talks, neutral consulting is usually not possible. This applies equally to consultants as well as system houses, even though the consultants’ business model is based on neutrality. Quote: “[...] *I hold a fiercely neutral position, because once I stop being neutral and this becomes public knowledge, my business is over. [...] Although I really have to say that the customer has to go along with it. If the customer comes and says: ‘We need a [manufacturer XY], we don’t want anything else,’ my neutrality is a thing of the past, because the customer is always right, he needs this system [...]. I simply tell him that actually this should be handled neutrally and in a certain way, according to the rules, and then we get on with reality*”.⁶⁵

⁶⁴ A 16: Partner Expert Interview: P₃

⁶⁵ A 17: Partner Expert Interview: P₄

4.2.1.2 *Influencing Strategies in the Tender Creation Process*

The process of creating a tender involves a great number of individuals, companies and materials. This subchapter reconstructs the overall procurement process based on the conducted interviews and outlines the roles of the stakeholder group in a first step. Subsequently, the strategies for influencing the creation of the tender are presented and evaluated.

From the customer's point of view the procurement process starts with the determination of the need (cf. Figure 65, page 239). This feature is always provided by the specialist departments or from the respective public agencies (e.g. application operation) who also define the gross requirements and the needed contingents regarding a possible new system. Usually the head of department checks beforehand whether additional resources are available to the public agencies, whether there are any existing alternatives in the public authorities or whether there is even a system available in the warehouse. If this isn't the case, the various demands are compiled in a requirement profile and crosschecked with the different vendors. Usually an efficiency analysis is carried out with respect to a new acquisition, an extension or the option of a buyback. Quote: "[...] *If I have storage systems by [vendor XY], it would be nice if I could also purchase storages by [vendor XY].*"⁶⁶ Subsequently, the actual tender is written up and the purchaser resp. the purchasing department steps in. After expiry of all deadlines they decide who is awarded the contract, before the specialist department is notified. From a customer's perspective, it is not unusual for the overall process to take several months. Quote: "[...] *This is a very complex topic. [...] If all goes well, [...] it only takes three months. If it goes badly, [...] it takes a little more than a year. Of course this depends on [...] whether it is sufficient to publish a Germany-wide tender or whether it has to be published throughout Europe. [...].*"⁶⁷ The long procurement routes – compared with regular business transactions – force the heads of department and the purchasers to apply creative purchasing politics in order to bypass bottlenecks. However, this conflicts with the principles of European procurement law (cf. 2.3.4 – *Key Principles of the European Procurement Law*). Quote: "[...] *I'm not allowed to buy ahead. Sometimes this is very, very inconvenient. Therefore, you always have to purchase bit by*

⁶⁶ A 6: Customer Expert Interview: C₃

⁶⁷ A 7: Customer Expert Interview: C₄

*bit, a little more every time, as a cushion. To make sure you don't find yourself in these kinds of situations at all. You have to apply a few tricks. And you need to know how to use these tricks. It can't come to be known, so you didn't hear it from me."*⁶⁸

As already pointed out, the actual tender is at first created by the head of department based on key data of the specialist department and the public agencies. At the same time, both the specialist department and the public agencies represent an important feedback channel resp. they serve as quality control for the finally written up tender. They are supposed to verify the main problem of whether the requirements have been sufficiently described in the tender document. The head of department then also tries to control the need of the specialist departments to enable purposeful procurement, and to make sure that, in case of doubt, not every provider gets a chance. Quote: *"If I have to carry out an open tender, I'm able to explain what I need exactly in the best possible way, [...] because I don't want to satisfy the market with everything, [...] I want to get what I need. Not only what I'm offered, but what I actually need."*⁶⁹ Subsequently, the purchasers or the purchasing department, which ultimately ensure conformity with the law, are involved.

Summing up the different circumstances and the associated quotes by the customers, three key statements can be extracted:

- Lengthy procurement routes inspire the involved persons to optimize the process by procuring established systems in order to cut short selection procedures of several months.
- The goal is to keep the circle of providers as small as possible by detailed descriptions preferably to receive what meets the requirements and is desired.
- Well-established vendors with existing systems have an advantage.

The reconstruction of the customer's procurement process is now followed by the evaluation of the interviews conducted with the vendors, partners and consultants. When regarding the same procurement process from the perspective of the partner, the procedure and the associated commitment are distinguished in many ways. As a reminder: For vendors, partners as well as consultants it is essential to be included in the process of creating the tender and not having to wait

⁶⁸ A 7: Customer Expert Interview: C₄

⁶⁹ A 4: Customer Expert Interview: C₁

until they can react to the published tender. Quote: *“As a general rule: If you didn’t know about the tender beforehand, forget about it!”*⁷⁰

As shown in Figure 65 (page 239), it is decisive that the suppliers also know about the need on the market at an early point in time, after the need has been determined by the customer. 100% of the partners and consultants stated that they were notified of scheduled projects because of existing customer relationships. Recommendations for new customers by existing customers also played an important part. 40% performed active customer acquisition by telephone, by lead management as well as by reference campaigns. Only 40% of the interviewees used tendering portals that present the last step of the process and therefore no possibility of influencing. Furthermore, one consultant stated that they did not reply to tenders or try to influence tenders, but initiated and therefore completely controlled them.

In the early phase of the process the partners’ consulting services comprise recording the actual situation, the requirements as well as the desired concept. This is followed by the composition of a gross concept, mostly based on the vendors included in the portfolio, followed by the elaborate concept and the presentation of initial configurations. At this point the partner tries to position the vendor’s added value with respect to his own (cf. 4.2.1.3 – *Influencing the Content of a Tender*). Quote: *“[...] Analysis of the actual situation, desired concept, gross concept and then defining a direction.”*⁷¹ The influencing of the customer towards certain vendors was also confirmed by another interview partner. Quote: *“[...] As an example, if a customer says that in theory he would have to publish a Europe-wide tender in a particular situation, you should look for criteria to limit the selection of possible vendors together.”*⁷²

In the procurement process the role of the partners must be clearly distinguished from that of the consultants. Some partners refer to themselves as experts on a specific topic, for which they can provide the customer with extensive consulting services thanks to their know-how. Among others, this includes analyzing the quality of a vendor’s range of services, i.e. whether the vendor’s products real-

⁷⁰ A 8: Vendor Expert Interview: V₁

⁷¹ A 14: Partner Expert Interview: P₁

⁷² A 18: Partner Expert Interview: P₅

ly meet the requirements, supporting the customer by providing text modules or even pre-formulating the tender (cf. 4.1.2.3). Others try “*not to let it get to a tender, if possible*”.⁷³ In some cases full-scale consultants⁷⁴ are involved with the customer up to two years before the actual tender to discuss initial topics. In addition to strategy consulting, this may include a gross estimate of requirements through to the assumption of the entire agreement or possible outsourcing efforts. The main aspect is always to ensure the conformity of the tender, which is why the overall procurement process will often be accompanied by the respective consulting company.

In major outsourcing deals however, a completely different topic becomes important. In these cases technology and pricing are strictly separated. The technology is thereby of little or no importance. The consultant yet tries to create a certain transparency of the technology and the pricing in order to select the best possible provider over the overall period (e.g. five years incl. growth). A low acquisition price can quickly tilt in a negative direction if the capacities over time are high.

The approach chosen by most consultants can be displayed by the summarized description provided by one of the interviewees. After commissioning the consultant a gross concept is created at a later point during the procurement process, which already includes initial solutions by various vendors as well as a quantity structure for satisfying the fundamental requirements. This is followed by the elaborate concept in which the consultant creates specific parts lists for the required systems, which he has counterchecked e.g. for completeness and interoperability by the vendors. If the customer agrees to the suggestions, the consultant creates the tender including the specifications. For this purpose all vendor-specific features or names are neutralized. What remains is a functional description of the desired characteristics. Finally, the customer publishes the specifications and distributes them to the key players.

⁷³ A 17: Partner Expert Interview: P₄

⁷⁴ Full-scale consultant: Individuals/companies that don't actively resell software or hardware by specific vendors and exclusively offer their consulting services instead.

The process outlined by the consultant is supposed to lead to a neutral tender, it however gives a vivid description of how vendor-specific features are systematically used as a basis for the specifications. Although the type of process referred to above observes the prohibition of discrimination with regard to the use of patents, brands, etc., the preliminary limitation of the circle of bidders can be regarded as a clear breach of the requirement for competition. Finally, the tender is written up so that it can be interpreted as narrowing down the competition, since, in case of doubt, only specific functionalities are described. Quote: *“When it comes to PCs [...] with standard equipment, the customer doesn’t care which logo is on the front. But in the storage area they are really hooked on [vendor XY]. I would say eight out of ten enter the process with the requirement of wanting [manufacturer XY].”*⁷⁵ Proving the consultant’s deliberateness is however seen as problematic. In line with the correct course of action, the consultant would have to exclusively outline the customer’s actual requirements instead of providing a comprehensive description of the functionalities of several vendor products. However, this would lead to the need to evaluate a great number of bidders, from startup companies, to niche providers through to the top players.

Furthermore, the statement that specific parts lists for the required systems are created and counterchecked by the vendors e.g. regarding completeness and interoperability leads to the assumption that there is a preference towards certain vendors. Otherwise the consultant would have to be in touch with several dozens of companies, which is doubtful (cf. 4.2.2 –*Who influences whom? The Sociometric Network*).

The diversity of bidders referred to above is not desired by many customers for various reasons. Surely, migration and training effort as well as necessary process-related adaptations are only three of the reasons (Fraunhofer-Institut für Offene Kommunikationssysteme FOKUS, 2015). In this context it is hardly surprising that customers provide the deployed consultants with direct instructions on the procurement of a vendor product. Quote: *“If there is someone like the local administration in XXX saying: ‘We need [vendor XY], nothing else,’ then we deviate from the standard by performing a technical and legal analysis from creating the elaborate concept. This means I have to technically determine that only one device by [vendor XY]*

⁷⁵ A 17: Partner Expert Interview: P₄

*meets the customer's demands in this case; all others aren't able to. [...] This is what I put in writing from a technical perspective. The lawyer provides a legal consideration from his side, saying that it is also feasible from a legal perspective, because it was decided by the Higher Regional Court XY and so on, and then they publish a tender specifically for [vendor XY]. The tender really states 'tender for a [vendor XY], we need a [product vendor], model XY, vendor number, quantity'."*⁷⁶ Despite the fact that a tender is indeed published in the previously stated case, it is only addressed to the desired vendor's relevant system houses. Other vendors are excluded from the circle of bidders from the beginning. Quote: *"We are not providing any options for a new vendor, we are specifically creating a tender for [vendor XY] devices. We also clearly state that we are not accepting offers that don't include what we are looking for. [...] Although we have to put our reasoning in writing, we are not required to make this reasoning available to the participants of the tender. [...] We refer to it in two sentences, stating it was due to a profitability assessment [...]."*⁷⁷ This constellation is also confirmed by several vendors who are looking for possibilities to exclude their competitors from the beginning together with the customer, or who are actively asked for help by the customer. Quote: *"[...] I don't like to say 'influencing'. Of course we try to keep all other [vendors] away and to create a tender [...] with the customer to make sure that [vendor XY] comes out in the end. [...] There are some who create tenders where there is no chance of influencing anything. [...] Some ask you what they should do to get you."*⁷⁸

The vendors see their role as considerably more closely meshed and naturally focus on their own portfolio including a presentation of the added value and a consideration of the competition. Before a customer writes out the specifications, a large part of vendors tries to present their own portfolio, the technologies and the unique selling points (USPs). The further course of the procurement process includes a technical qualification, initial suggestions for configurations, possible reference visits and/or demonstrations of the technology (TechDemo) as well as a gross calculation of the costs including solutions tailored to the customer. At this point it is not unusual to exchange templates for tenders or text modules (cf. Figure 65, page 239). If it is not possible to support the procurement process, the vendors are generally convinced that the tender will probably be lost. Quote:

⁷⁶ A 17: Partner Expert Interview: P₄

⁷⁷ Ibid.

⁷⁸ A 12: Vendor Expert Interview: V₅

“Otherwise the actual rule is: ‘Once you or your partner know about the tender from the publication in the respective panel: forget about it. You usually don’t stand a chance’.”⁷⁹

The following table compares examples of statements by partners and vendors on the procurement process. The different tasks and the interaction between the two interest groups are distinguished in particular.

Table 33: The Tender Process from the Partner's and Vendor's Point of View [source: own representation]

Procurement Process	
Vendor:	Partner/Consulting Company:
	0. Strategy- and Tender Consulting, Outsourcing, etc.
1. Presentation of the Vendor at the Customer: Technology, USPs, Added Value; Initial Requirements Definition	1. Recording the Current Situation; Initial Requirements Definition; Rough Sizing / etc.
2. Customer defines final Requirements	
3. Development of the Solution with Final Configuration	3. Development of a Draft Concept: Solution Approaches; Determination of the Methods
4. Cost Calculation of the Final Solution (Suits Customers Budget?) 4a. Demonstration of Technology 4b. Reference Visit	4. Detailed Design: Create Part List; Check through Vendor; Get Customers Permission
5. Forwarding of Text Modules and Tender Templates; Tendering Support	5. Creation of a (neutral) Performance Specification; Support with Text Modules and Phrases; Search for Exclusion Criteria to

⁷⁹ A 8: Vendor Expert Interview: V1

Limit Vendors

6. Customer Formulates and Publishes the Tender

7. Vendor and Partner Respond to the Tender Document

The following part deals with influencing strategies in the creation of tenders. Here, too, different approaches by partners and vendors come into play. The influencing role of the consultant becomes particularly obvious in the context of so-called USPs. Quote: *“If there is a USP and there is only one vendor to achieve it, I will tender directly to [vendor XY]. Then there is no neutral tender, I don’t tiptoe around this aspect [...]. I will immediately write that this is a [product vendor]. End of discussion. [...] And the reason why this is the fact is clearly defined in the explanation in the files, but none of the providers gets to see it.”*⁸⁰

The process described takes the same line as the previous example with the objective of limiting the circle of bidders. However, in this case the path towards the tender is not even taken. The subject matter is documented on the customer side for the event of a possible audit at a later point in time. In this context it is surely problematic that no competition at all takes place between the vendors or system houses. Special attention must therefore be paid to the aspect of price fixing. Another approach is to tender the USP of a specific vendor among at least three system houses. This fulfills at least the requirement of competition. The positioning of a USP, in connection with the consequences described, is therefore tempting for vendors. Many vendors already support the customer with respective text modules in the phase of creating the tender. Quote: *“In most cases [...] they approach us and say: ‘Yes, USP.’ Then we extract a few points, tell them and let them know that we are done. [...] We give them a few texts, but actually writing part of the tender, [...] this could be seen as criminal.”*⁸¹

According to the partner interview, the profitability of an offer within a tender enables further possibilities of favoring the preferred bidder. Quote: *“The price also is a criterion. The vendor with the lowest price gets full points. Or maybe 5,000 points. Those who are 10% more expensive, lose 10% of points. This means they only get*

⁸⁰ A 17: Partner Expert Interview: P₄

⁸¹ A 13: Vendor Expert Interview: V₆

4,500 points.”⁸² The weighting by means of a point system is an effective measure to benchmark the offers of various providers against each other. This procedure is preferred in combination with the requirement of training measures, data immigration or the inevitable replacement of a secondary system, to name a few examples. Quote: *“We have some more tricks up our sleeve. There also is a possibility of creating a specific tender for profitability reasons. As an example, this is what I do: I have an [administration] that has always been using [vendor XY] servers. [...] And they always explain that their control software only works with [vendor XY] devices and the employees, which implies 40 people after all, are trained on [vendor XY]. This means they would have to be retrained if other companies were integrated. So we calculate how much training on [vendor XY] servers [...] would cost. Of course we don’t suggest a low price, but a very high price, and then we get a number where we say: ‘Oh, for that money we can almost buy an entire server hardware system’. This is why, for profitability reasons, I recommended buying [vendor XY] over and over again. [...] It’s also used by [vendor XY], because they give them the server training for free each time.”*⁸³ Therefore, trainings, migrations or secondary systems have such a strong effect on the cost calculation that a competitive offer by other vendors is made impossible. This procedure is also confirmed by the vendor. Quote: *“[...] What you sometimes also read in major tenders where they want you off, [...] someone says that you could go ahead and name a lower price, but you would have to pay the training fees and so on. [...] Training and data migration are your problems. Please add those to your price.”*⁸⁴

According to vendor experts two additional related approaches are to create artificial market entrance barriers and to split the procurement of an overall system into two smaller procurements. The latter procedure is aimed at achieving a value beneath the EC threshold to avoid a Europe-wide tender. Quote: *“[...] That we come in with less than €200,000, this is the European threshold for the awarding of contracts. This is what many are afraid of, because they know that above €200,000, with European law, people will be looking more closely, and maybe there will also be others taking a look, [...] that’s unpleasant.”*⁸⁵ As an example, a splitting can be accomplished as follows. Quote: *“[...] They simply place half a year in between. It’s the same*

⁸² A 17: Partner Expert Interview: P₄

⁸³ Ibid.

⁸⁴ A 8: Vendor Expert Interview: V₁

⁸⁵ Ibid.

at [customer XY]: *Actually they wanted a backup-to-disc machine, but since that's not possible no matter which tricks are used, they will now buy it three to four months later [...].*⁸⁶ This enables the possibility of free-handed awarding specific to the product resp. with three system houses in order to meet the requirement of competition. Splitting a tender is prohibited by law, but it is also hard to prove. This becomes especially obvious regarding the creation of the market entry barriers. This is based on two separate procurements with the justification of different purposes of use. Quote: *"[...] You buy the backup machine now, spend about €30,000, and then you buy the primary machine three to four months later, and of course we'll point out that they have to be compatible. Replication, etc. Of course there will be a market entry barrier. [...] That you can say in your tender the competition would have to replace the other system, but it still has to be the best in terms of profitability. Of course these are tricks that we are happy to apply."*⁸⁷

Finally, the following describes two business management tricks from the pool of the vendors: emergency procurement on the one hand and acquisition based on the exceptional case of a particularly low-priced procurement option on the other. The first case once again aims at avoiding a tender and can be applied in situations of short-term shortages that endanger the business. This must be initiated by the customer and there must be sufficient internal documentation in case there is a subsequent audit. This constellation is however seldomly applied in everyday business due to the high documentation effort. The second case also tries to avoid a tender by providing the customer with an especially profitable offer at the due date. This strategy is normally not applied in the public sector, since the customer has to assume that he will also be able to find a similarly low price in the future. If, however, it is possible to convince the customer that this is a one-time opportunity, procurement outside of the tender is also possible in this case. Quote: *"[...] We now have a new price list. It's 15% more expensive. As from November. [...] There is a paragraph X [...] and if you can explain that there is an exceptionally low-priced or a unique opportunity [...] and [...] that our offer ends on 12/31, because that's when the new price list takes effect and is 15% more expensive, [...] he can put his stamp on it."*⁸⁸ Once more, this requires sufficient internal documentation

⁸⁶ A 8: Vendor Expert Interview: V₁

⁸⁷ Ibid.

⁸⁸ Ibid.

and it only seldomly comes into effect. According to the vendor both cases are located in a legal gray zone.

4.2.1.3 Influencing the Content of a Tender

In addition to the influencing strategies in the process of creating the tender, there are also other approaches to exclude competitors via the design of the content of the specifications. The current subchapter deals with this procedure with reference to the conducted interviews. *Chapter 4.2.2 (Who influences whom? The Sociometric Network)* provides an intensive analysis of the individuals influencing a tender.

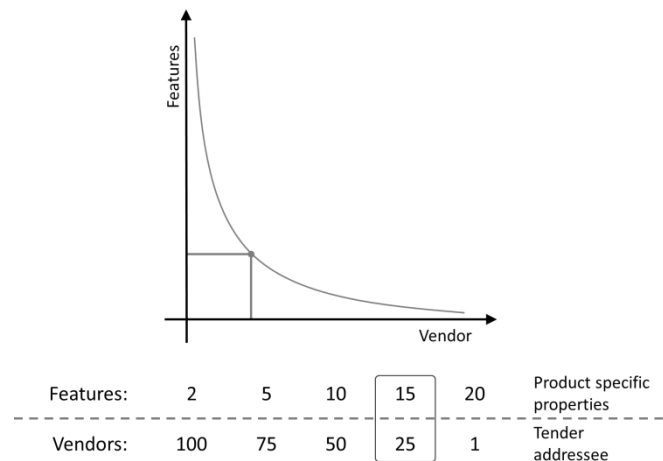


Figure 61: The Use of Tenders as Customer Sourcing Strategy
[source: own representation]

The strategy of avoiding a tender based on the required use of one vendor's USP has already been referred to in the previous chapter. However, this approach does not always lead to success resp. it is often not desired. Instead many customers prefer to apply the tender as a tool for a purposeful sourcing strategy. This means that they limit the providers by means of the technological functionalities described in the specifications (cf. Figure 61).

According to the vendor and partner experts' prevailing opinion, two observations can be made in this respect: Firstly, the customer intentionally describes the USP of a specific vendor or secondly, he creates an artificial USP. The

first approach is chosen if the customer is forced to tender for reasons of external constraints, but still has a clear preference. Quote: *“Of course there are also those who say they want a product-neutral tender. Naturally, this is the most complicated case. [...] Then you already have to start tweaking the specifications. I mean, you need to add all of the goodies if possible, [...] all of the USPs [...].”*⁸⁹ Artificial USPs can be understood as a vendor’s functionalities that would not limit the competition by themselves. By stating a specific combination, the competitor is however not able to position his product or to offer a comparable and adequate price. Quote: *“[...] Whether the customer needs it or not. Offering everything there is in software as an option. [...] Because [vendor XY] says he [then] needs a separate budget. Then you simply kick him out via the price, saying that the list of requirements is so long that even if they wanted to and they were able to fulfil it, even if they offered an amazing price, [...] it would be an enormous package for them to put together.”*⁹⁰ Furthermore, partners and vendors try to get the customers to use exclusion criteria with respect to meeting specific functionalities. Quote: *“[Usually] the customer defines the technical possibilities as a criterion for his subsequent technological infrastructure development and makes these parts of the tender.”*⁹¹ It is most vendors’ strategy to not only integrate their own strengths into the specifications as an evaluated criterion, but directly as a so-called A-criterion. Quote: *“[Definition] as an A-criterion [...]. This means including everything and talking with the customer if possible.”*⁹² However, the A-criteria are not used without risk, as it is not always possible to describe the technical feasibility and the associated requirements in a proper way. For this reason, in addition to a few exclusion criteria, a point system for evaluating the technology is also often applied, which is considerably less critical. Quote: *“This means that each criterion stated within has been provided with points. There is a large Excel file that I use to check whether the criteria have been met – yes or no. And for ‘no’ they don’t get any points. If it was an exclusion criterion, it’s also kicked out immediately.”*⁹³

The second approach applies if the customer strives for a lower number of bidders who all meet the criteria and who are among the established vendors. In

⁸⁹ A 8: Vendor Expert Interview: V₁

⁹⁰ Ibid.

⁹¹ A 11: Vendor Expert Interview: V₄

⁹² A 8: Vendor Expert Interview: V₁

⁹³ A 17: Partner Expert Interview: P₄

the open competition the vendor offering the lowest price succeeds. Achieving this goal is however not possible simply by describing a USP. Therefore, many tenders try to describe two to three vendor products with a skillful combination of individual functionalities, in this way limiting the competition. Quote: “[...] *The whole topic of technical functionalities is the biggest lever that we have.*”⁹⁴ Besides extensive knowledge of the domain, this approach requires a great level of technical understanding and market know-how. There are not many people who are able to provide this. Quote: “[...] *You really have to sit down with the [pre-sales consultant] and say: ‘Let’s change the specifications to get this result if possible.’*”⁹⁵

Another strategy that has already been referred to in short several times is to extend an existing system. This move is used especially by vendors and is based on the idea of purchasing components to add to an existing system. Quote: “[...] *I have a system and I have three shelves, or for or five, that I wish to buy now [...]. Therefore no other vendor is able to offer them now. So we only published the tender to make sure that the customer is able to get the best possible price within the competitive environment.*”⁹⁶ Therefore, the competition only takes place on the level of the system houses and naturally excludes other vendors, which is logical and reasonable. However, many vendors go one step further and extend this procurement strategy together with the customer. Quote: “[...] *[An] extension of the existing system, although they actually don’t need the old [product vendor], because they bought a backup system, but from a legal perspective this is an extension of the existing system.*”⁹⁷ As remarked by the partner, this is a flawless procedure from a legal perspective. Some vendors of horizontally scalable systems (so-called scale-out systems) try to take advantage of this gap. Since every new system can be included into the network of the old systems, acting as a cluster, it is regarded as an extension of the existing system from a legal perspective. Quote: “[...] *The topic of extensions once came up at [customer XY] [...]. [...] I have a system which I believe would massively benefit [vendor XY] with [scale-out product]. [...] Surely. It’s legitimate, too.*”⁹⁸

⁹⁴ A 8: Vendor Expert Interview: V₁

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ A 17: Partner Expert Interview: P₄

⁹⁸ A 8: Vendor Expert Interview: V₁

The description of a business concept also enables the creation of specifications that narrow down the competition. In this case the customers are urged to provide an ample description of the interaction in the infrastructure, in addition to the desired system. Similar to the approach of fixing the price for necessary trainings, the competitor is supposed to bear the additional costs, e.g. for the business concept regarding the integration of the application or the backup. Among others, this could mean the replacement of an additional system or expense with respect to the adjustment of the process.

In many cases the description of non-functional requirements will be applied, which is intended to make the market entry particularly difficult for startup companies. This includes all aspects that mostly American companies that don't have a lot of local presence struggle with. Quote: *"A classic example for [startup XY] is to request certain certification levels. The number of qualified personnel, certified staff, the size of the company or matters such as German-speaking support, documentation in German or certain additional services such as [...] a quarterly check or on-site [...]."*⁹⁹ This is underlined by the next quote: *"[...] I want a German-speaking helpdesk: 24x7. I need certified employees to be on-site to accomplish the tasks. I want vendor support [...]"*¹⁰⁰ In consequence, each description of these non-functional requirements in a tender is a measure to narrow down the market, even though it is legally founded.

With respect to the extracted influencing strategies it becomes obvious that many approaches are only possible if the vendor, the partner and the customer work hand in hand. Especially inexperienced customers or customers who want to apply new technologies require detailed information from their contact persons. And of course these are ever so pleased to provide this information. Quote: *"If the [customers] want us to, of course we help them with the specifications. So that they virtually have a template to copy and paste [...] the tender texts."*¹⁰¹ In addition to the vendors, the same also applies to the partners. Quote: *"Pre-formulating the tender. [...] This means supporting them with text modules and drafts."*¹⁰² In this context the question of which criteria really are important for a customer when it comes to

⁹⁹ A 18: Partner Expert Interview: P₅

¹⁰⁰ A 8: Vendor Expert Interview: V₁

¹⁰¹ Ibid.

¹⁰² A 14: Partner Expert Interview: P₁

designing the content of a tender arises. This problem as well as the analysis of the sources of information will be referred to in the following subchapter.

4.2.1.4 Information Sources in the Tendering Process

A great amount of information, which is not always freely accessible in as much detail as required, is necessary for the process of creating the tender and for designing the content. Therefore, special importance is placed on the field of information procurement and evaluation.

Information acquisition:

For this purpose customers are questioned on their information sources in the phase of creating the tender, or more precisely, which sources vendors believed customers used to acquire information. Furthermore, the partners were asked about which sources they used for their consulting services regarding the content-design of a tender.

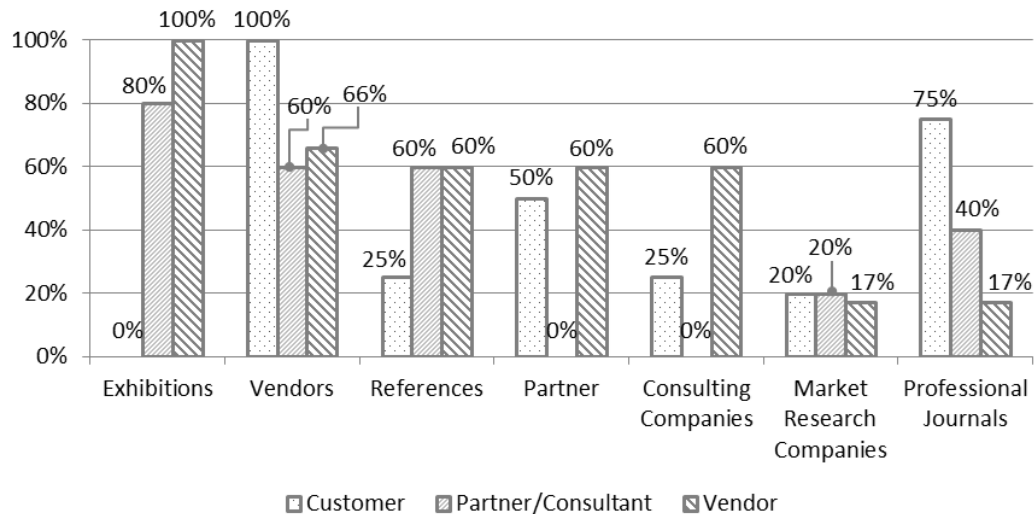


Figure 62: What do you think are the Information Sources of Customers prior a Tender? [source: own representation]

Figure 62 charts the replies to the question and compares customers, partners and vendors directly. According to the customers they didn't visit any trade

fairs or conferences. The individuals however stated that the respective specialist departments were in charge of the matter. Therefore, in most cases the interviewees relied on the excerpt of their own specialists due to their position in the company, i.e. head of department, etc. (cf. Figure 67 in 4.2.2 – *Who influences whom? The Sociometric Network*). In-house trade fairs or rather vendor events play an important part for partners and consultants especially, because these give them the possibility to receive specialist knowledge first hand from direct communication.

With respect to the question of external, non-neutral sources of information, 100% of the customers and 60% of the partners referred to the vendor. However, only two thirds of the vendors believed that they were also a source of information for the customers in preparation of a tender. Customers as well as partners preferred the direct exchange of information, but technical reports¹⁰³ were also welcome. Quote: *“We also asked vendors directly to support us in creating the tender. Not via a RFI, but with the technical analysis prior to the tender.”*¹⁰⁴ A quarter of the customers and 60% of the partners used references to acquire information on products and vendors. Quote: *“[The exchange is] very active. We also have different connections where the federal government or the federal state get together or where key players in IT come together to exchange their experiences.”*¹⁰⁵ In addition, 50% of the customers used their partner network for acquiring information. Market research companies such as Gartner or ICD play a subordinate role (20%) for customers, unlike relevant specialist magazines (75%). The latter are also used for acquiring information by 40% of the partners. However, only 17% of the vendors believed that this information source was relevant for customers. About half of all customers furthermore used the Internet, e.g. vendor websites, online news services or occasionally information from social networks. Consultants, being external, neutral entities, were only engaged by 25% of the interviewees. A quarter of the questioned individuals could however imagine that they would.

Furthermore, in the course of analyzing the procurement of information, the frequency of vendor requests from partners and customers on the design of a vendor is an interesting aspect. The requests to the respective individuals vary

¹⁰³ A technical report is a document that describes a solution or a process for a given product or a technical problem.

¹⁰⁴ A 16: Partner Expert Interview: P₃

¹⁰⁵ A 6: Customer Expert Interview: C₃

from no contact request to up to 60 requests per year. The requests are about information “of a technical nature, sizing questions, capacities, performance, assurance of features”¹⁰⁶, but also questions on the procurement process, the creation of pseudo-neutral tenders, price indications or recommendations of partners.

Evaluation of information:

After acquiring information, another important step in the process of creating the tender and designing the content is how this information is evaluated. For this purpose, customers, partners and vendors were questioned on which criteria they believed to be most important. The vendors were also asked to state which were the most important criteria for their customers in their opinion and how they set themselves apart from the competition.

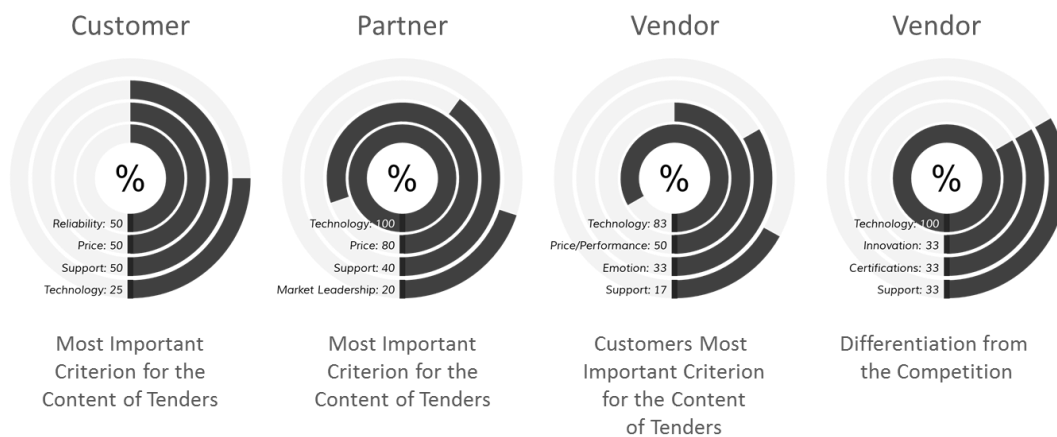


Figure 63: Interview – Most Important Criterion for the Content of Tenders [source: own representation]

Figure 63 displays the results of these questions in four charts. 50% of the interviewed customers believed the high reliability of the system they purchased to be important. Furthermore, the acquisition price and the supportability are equally important to them. The underlying technology only is a decisive criterion for a quarter of the interviewees. This statement stands in a harsh contrast with

¹⁰⁶ A 11: Vendor Expert Interview: V4

the partners' and the vendors' replies. Both rate the technology as the most important feature for designing the content of a tender. In addition, market leadership (20%) and emotion (33%) were important aspects to them. However, 80% of the partners and 50% of the vendors saw price sensibility as an important criterion. The heavy focus on the technology from the vendors' point of view is hardly surprising, as it is regarded as a distinguishing feature for the competition. The company's own power of innovation (33%) as well as employee certification (33%) and support (33%) were also stated as important.

In addition to considering the frequency of a stated criterion, it is worthwhile to take a closer look at the details of some of the customers' replies. They give some indication of the statement and the motives behind it. When analyzing the criterion of support, many customers strive for the possibility of being quickly provided with well-trained personnel at an adequate price by service providers. Naturally, this implies a certain market share of the applied vendor product. Quote: *"[...] I employ operating personnel, and this operating personnel has certain skills and a certain fundamental training [...]. [Product XY] is a standard on the market, so it is easy to purchase support on the market. Of course these kinds of things are crucial. If I get an exotic product for which there are only three specialists in Germany who can help, [...] it's critical, but if I don't have anyone I can get on the market for a price that I can actually afford to secure the operations of [customer XY], it doesn't help me if they say that this thing will never break down."*¹⁰⁷ A system's lifecycle and the associated support lifecycle are additional aspects in the context of supportability. An extension exceeding the normal scale gives many customers a greater radius of operation in times of tight budgets. Quote: *"[...] That this isn't a storage where I know beforehand [...] [it only has a] short lifecycle. Then you can be sure that there will be problems after a short period of time. [...] The fact that you can simply extend the support lifecycle, often by two to three years, to make sure the device will survive a little longer in your company."*¹⁰⁸

The motives for evaluating the criterion of price fixing are also interesting. Some customers see this aspect pragmatically. Quote: *"[...] As an example, the price is not interesting at all, because the money is either there or it isn't."*¹⁰⁹. Therefore, they

¹⁰⁷ A 4: Customer Expert Interview: C₁

¹⁰⁸ A 7: Customer Expert Interview: C₄

¹⁰⁹ Ibid.

act accordingly. Quote: “[...] A Europe-wide tender [...] states [...] that the most profitable offer will win. Since I studied economics and business administration, I see the aspect of profitability a little differently than the purchasers who make the decision in the end, but I believe that in most cases the cheapest solution wins. [...] It doesn’t have to be the most profitable [...]. Therefore, I always make sure that I decide on the basis of performance parameters – that it isn’t always the very cheapest, but that it really also meets the requirements.”¹¹⁰.

The discord, or rather the subjective perception of important criteria is reflected in many of the interview partners’ detailed statements. As an example, one vendor stated: “[...] The feeling of security [...] or this feeling of safety and comfort that is maybe even more important to them [...]”¹¹¹ than commercial customers. Some of the partners also highlighted the required “basis of trust”¹¹², whereas another individual unemotionally pointed out the price and performance.

Many customers focus on the direct interaction with partners and vendors, which is a source of information for them at the same time. This was also confirmed in the context of how the customers ensured that they considered new technological developments in their IT, i.e. the IT remained the state-of-the-art. Figure 64 presents the top three answers. In addition to regular further education, customers relied on the vendors’ higher level of information, rather than on their own research. Regular technology workshops, proof-of-concepts and classical pre-sales events are carried out, which is confirmed by 100% of the interviewed vendors. Quote: “By presenting the technologies to the customer. [...] The challenge is that the customer has to exactly remember the added values by means of which we are distinguished. [...] This is actually possible by means of constant penetration, close customer contact, a targeted presentation of certain added values”¹¹³ The system houses and consultants see this point in a more differentiated way and only position new technologies if it’s possible to obtain advantages. As an example, 100% of the full-scale consultants stated that new technology was only relevant if they had a considerable impact on the costs in the overall project. Disruptive technology must

¹¹⁰ A 7: Customer Expert Interview: C₄

¹¹¹ A 8: Vendor Expert Interview: V₁

¹¹² A 14: Partner Expert Interview: P₁

¹¹³ A 9: Vendor Expert Interview: V₂

therefore be able to clearly lower the price/GB¹¹⁴. Quote: “[...] By determining beforehand during the technical analysis that this method is a massive advantage for the administration and should therefore be applied by all means. [...] And so they provide this method with a great amount of points.”¹¹⁵ The partners see their task in the framework of their classical consultancy service with the focus on securing the future. Quote: “If you, being a consultant, have a certain confidence base with a customer and take the opportunity to introduce him to the added value. [...] So ultimately this is a process of initiation and you have to see that in five years he will need to acquire new equipment. You don’t simply appear three months before, you are constantly creating this awareness.”¹¹⁶

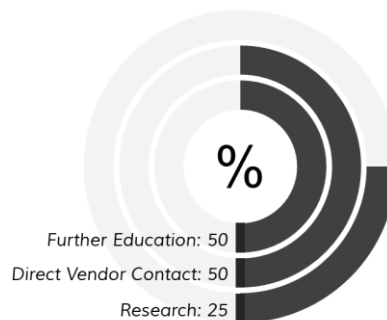


Figure 64: How do you take new Technologies into Account of a Tender [source: own representation]

A published tender is always also a new basis of information for the different vendors’ own account intelligence. This even applies if it is already obvious that the vendor can’t offer. Quote: “[...] You make a note: don’t know the customer yet, he has [vendor XY], he is tendering a [product XY] extension. Of course you don’t have to make a bid. But at least you obtained some information on the competition by implication. That’s also legitimate. And it’s done all the time.”¹¹⁷

¹¹⁴ Describes the cost per stored Gigabyte on a storage system.

¹¹⁵ A 17: Partner Expert Interview: P₄

¹¹⁶ A 14: Partner Expert Interview: P₁

¹¹⁷ A 8: Vendor Expert Interview: V₁

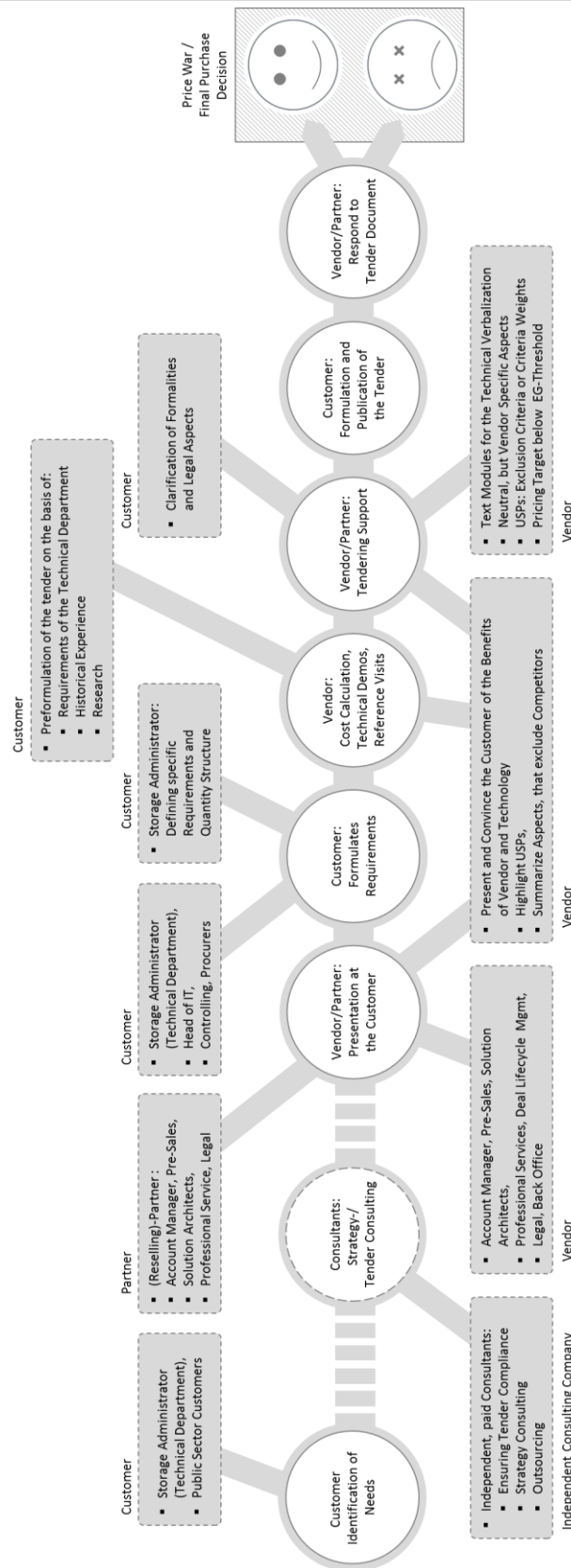


Figure 65: Reconstructed Tender Process based on Expert Interviews [source: own representation]

4.2.2 Who influences whom? The Sociometric Network

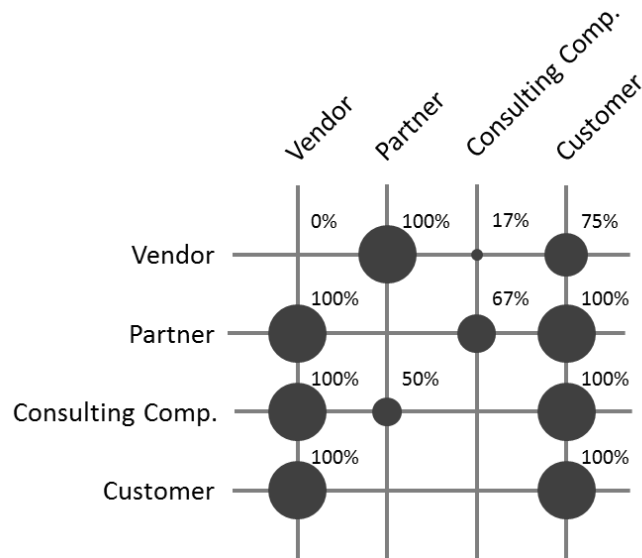


Figure 66: Communication Matrix of the Stakeholder
[source: own representation]

In the network of capital goods procurement there are numerous communicative relationships between the various interest groups. Figure 66 displays this communication based on the relationships uncovered in the interviews. Therefore, there is no, not even informal contact, between the vendors who are directly competing. However, all of the employees (100%) stated that they were actively exchanging information with one or several partners. In the context of joint preparing of tenders this exchange is described as very intensive, and as rather rare outside of these projects. Furthermore, 17% stated that they were in occasional contact with consulting companies. Interestingly, only three quarters of the vendors said that they were in direct contact with customers. This can however be explained by the companies' indirect business model (cf. 4.1.2.2).

The fact that 100% of the partners stated that they were in close contact with the vendors is hardly surprising. This almost always includes economic aspects, and in the context of larger tenders also technical support in the form of architectural decisions or answering individual aspects from the specifications. The close cooperation between vendors and partners in the context of the procurement pro-

cess is remarkable. Due to the major vendors' indirect business models, there are two approaches for initiating business. In the first case, the customer makes his purchase requisition via the partner who registers the project and receives exclusive advantages (e.g. the most competitive offer among all project registrations). In the second approach the vendor determines the customer's need himself, he however requires a partner for the processing. This partner is either selected on the customer's request or at the vendor's discretion. Quote: "[...] We create a tender by requesting three offers. Give me three (partners), I'll contact them [...]. That gives us a completed configuration, for which they need to name a price, and the most profitable will be awarded the contract."¹¹⁸

Furthermore, two thirds of the partners cooperated with consulting companies in order to fill gaps in their own portfolio or know-how in a reasonable manner. The partners are also always in direct contact with the customers.

The interviews with the full-scale consultants revealed a close relationship with the various vendors. These are mostly based on the request for information regarding products and services within the framework of preparing or reworking the tender as well as discussions on technological trends. Furthermore, there are relationships with partners who operate as service providers and as reselling partners in many cases.

100% of the customers stated that they were in direct contact with the vendors and that they acquired information on the latest technological developments as well as new products from them on a regular basis. The choice of the vendor thereby depended upon the topic. Furthermore, 100% of the customers also stated that they were in touch with customers of the same or a similar industry. 50% of the customers seek this exchange on a regular basis, 25% more sporadically.

Correlating the results of the communication matrix with the statements of the interest groups from the interviews enables a graphic presentation in the shape of a sociogram (cf. Figure 67). The sociogram gives some indication of the influencing forces between the individuals that has been uncovered. Furthermore, it becomes obvious that the influencing within the customers' hierarchies takes a distinct path. In this way the specialist department is able to exercise its influence on the IT manager. The latter usually does not override the opinion resp. the rec-

¹¹⁸ A 8: Vendor Expert Interview: V1

ommendation of the specialist department. In the ideal case the IT manager works hand in hand with the purchaser. Ultimately, this means that the purchaser does not make any decisions against the preference of the IT manager for economic reasons. However, this is not always the case, in particular regarding procurements in complex structures of public authorities.

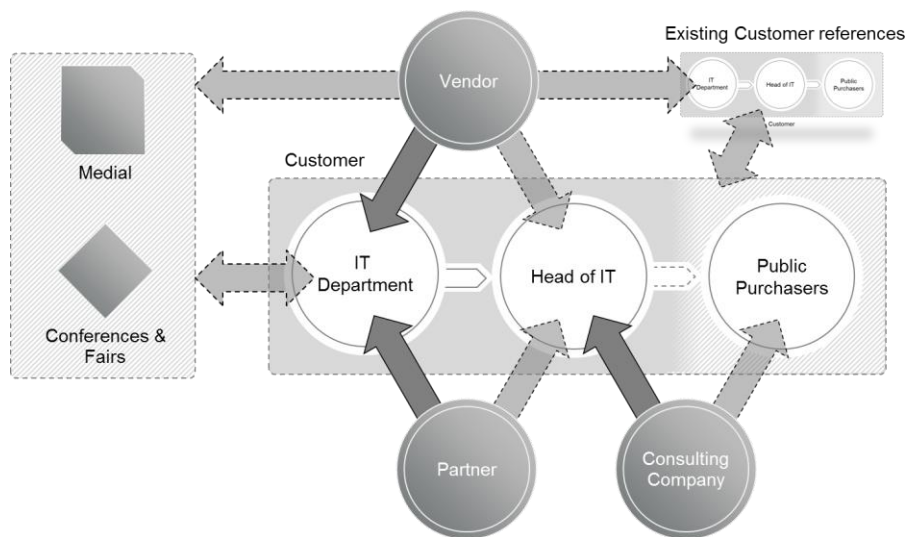


Figure 67: Who influences whom? The Sociometric Network [source: own representation]

In many cases the partners have very good access to the specialist department, where they are partly anchored by means of service orders or business support services. The same also applies to the vendors. Both partners and vendors give regular presentations for the purpose of technology updates, they are the first points of contact in the case of problems and they support the specialist departments with new projects. Therefore, they are already able to exert or constantly increase their influence in the customer's planning phase.

The partner's and the vendor's influence on the IT manager is usually less distinct. This is displayed by a semi-transparent arrow in the sociogram. On this management level the vendor's and the partner's influence is limited to discussing the long-term orientation of the customer's IT and to giving new impulses. However, there is no definite influencing of tenders at this point. The topic of creating a tender and designing the content has already been discussed in subchap-

ters 4.2.1.2 and 4.2.1.3, which also referred to the subordinate role of the IT manager in the specific process.

Consulting companies on the other hand have a very good relationship with the IT manager and also support the purchaser or act as an externally deployed purchaser in some cases. Although consultants more rarely have an active influence on the specifications, the consulting companies however take on a key position due to their superior role in the procurement process. Their influence usually balances out that of the partners and vendors. Quote: *“I have also already experienced that public authorities [...] let themselves be talked into any kind of innovation by vendors [...]. With many of them such an exchange on this kind of level really drives a lot of things.”*¹¹⁹ The close relationship with the IT manager can be explained by the fact that consulting companies are integrated into the procurement process at an early point in time. In most cases the latter also assumes responsibility for engaging the consultants. Furthermore, the companies determine the strategic orientation of the IT and therefore have a great impact.

In addition to the relationships with the specialist departments and the IT manager, the vendors also orchestrate a great number of communication platforms. The four major competitors all advertise with customer references partially in specifically setup programs or at least on their websites. Their aim is to connect satisfied existing customers with potential customers. As an example, this includes reference visits, telephone calls or joint press releases. The customers also stated that they were interested in this exchange in the interviews, which underlines the effectiveness of the reference programs. Conferences, trade fairs, specialist magazines and studies, among others, are another important source of information for customers. In many cases this information is actively controlled by the vendor. For this reason it is not uncommon that the vendor orders independent studies or journalistic articles in specialist magazines, to name two examples.

The following section deals with the interviewees' influence on tenders. For this purpose the various statements made by customers, partners and vendors are once more triangulated.

¹¹⁹ A 14: Partner Expert Interview: P1

At first, the questioned customers were asked to evaluate their own influence in addition to naming persons who had extensive consulting influence on the tender. 75% of the interviewees rated their own influence to be the highest and referred to themselves as the pivotal point for the content as well as the design of the framework parameters. They stated that they were assisted by the specialist departments, the public agencies, the legal department as well as consultants. 25% were convinced that only the specialist departments were able to influence the specifications.

The partners believed that their project team, the sales department and the architects on the customer side were able to influence the administrators and users with partially existing preferences, which enabled indirect access to the tender. On the other hand, they were of the opinion that vendors only had little impact, and they stated that they even tried to avoid contact with the vendors in the consulting phase of a tender. Quote: “[...] *To make sure that the vendor does not receive any information on the fact that we are getting involved or will be getting involved in a tender. Because I also had bad experiences with vendors knowing who created the tender, then you also try to exert influence again.*”¹²⁰ Both the partners and the consultants believed their own project teams and the on-site technicians to play an important part in the process. In most cases they have exclusive knowledge on the various vendors’ existing systems as well as on scheduled projects, which already makes them able to exert influence in the phase of creating a tender. Quote: “[...] *His technician is on-site every week or every two weeks, therefore he is aware of everything. Of course he will exert influence.*”¹²¹

Referring to the question of who had the most influence on a tender on the customer side, the partners’ opinions differed widely. The replies range from the IT manager, to the specialist department through to the purchaser. The full-scale consultants expressed confidence and saw themselves as having the most impact. This is understandable in so far as, in many cases, they are commissioned and involved for exactly this reason. Quote: “*Of course the existing supplier wants to sell what he is able to deliver. He doesn’t think outside the box and say: ‘Why don’t you take product XY, it’s great. I don’t have it in my portfolio, but it’s much better than what I*

¹²⁰ A 18: Partner Expert Interview: P₅

¹²¹ A 17: Partner Expert Interview: P₄

have.’ And I have the advantage that I [...] have about 60-65 customers [...] where everything is applied at random, from the very small to the very large. And I can really also say: ‘It’s no problem, just call [customer XY], they have a system by that vendor. Ask them how it is.’ In this way I connect the users directly. And it always happens. They really call and talk to them. And what they tell them is decisive.”¹²² In the course of outsourcing the consultants’ influence can be estimated to be even higher. For many customer contacts it is the first time that they are part of an outsourcing deal, and therefore they have to rely even more on the respective consulting.

Similar to the partners, the vendors’ opinions on which individuals had the biggest influence on tenders on the customer side are widely differed. Here the replies range from the general trusted advisor, the person the customer has built up the most trust with, to the consultants and partners through to the department or even the competitor. The great distrust of system houses due to or despite the close cooperation is remarkable. 100% of the questioned vendors stated that their partners did not provide neutral consultation and that they therefore applied their influence in a very volatile way. Quote: “[...] The system houses either have [vendor XY] or [vendor XY] as a partner, and therefore they aren’t neutral.”¹²³. The most common assumptions with respect to non-neutral consulting refer to the probability of closure, to revenue and the margin (cf. Figure 68).

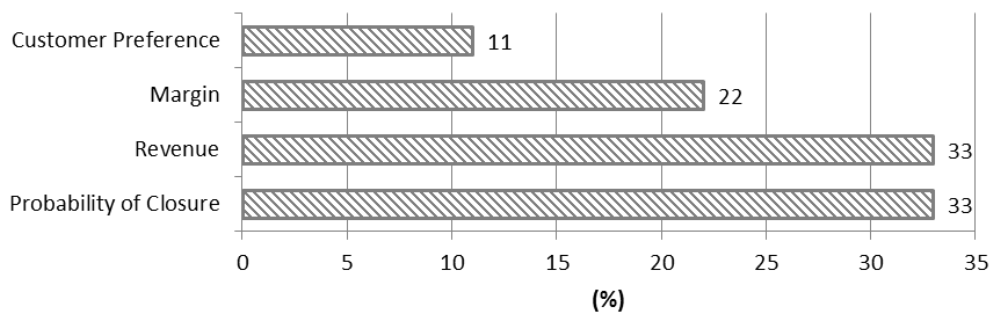


Figure 68: Vendor Expert Interview – Influencing Factors on Neutral Consulting
 [source: own representation]

¹²² A 17: Partner Expert Interview: P₄

¹²³ A 5: Customer Expert Interview: C₂

On the other hand, 40% of the partners had the feeling that they have already been actively influenced by vendors before. Quote: *“The vendor always tries to influence the tender. Some vendors send you templates for tenders. And I’m advised to include certain information by all means.”*¹²⁴

4.2.3 Who are the Opinion Leaders?

The previous section has shown that different interest groups knowingly or unknowingly influenced (or wanted to influence) tenders. Not all of these individuals necessarily have to be opinion leaders. Therefore, a self-identification of opinion leaders was carried out within the framework of the expert interviews based on the instrument of self-designation according to Goldsmith et al. (cf. 2.1.6 – *Methods of Opinion Leader Identification*). For this purpose a questionnaire including seven items was developed that worked with a 5-point Likert scale (cf. Table 30 in 4.1.2.3 – *Phase III: Prepare the Expert Interview*).

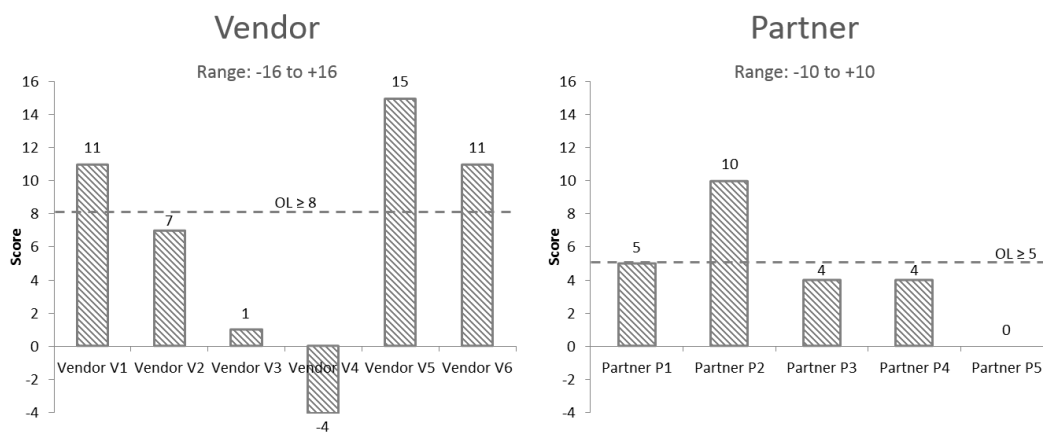


Figure 69: Individuals Opinion Leader Score [source: own representation]

The following analysis of the replies was created by means of forming a total score. Figure 69 shows the results of the vendors and partners in a direct comparison. Individuals with a value of at least eight were identified as opinion leaders in the questioning of the vendors. This corresponds to the upper quartile. The

¹²⁴ A 17: Partner Expert Interview: P₄

scale comprising 33 points ranges from -16 to +16. Due to the lower number of questions the scale for the partners comprises 21 points in a range from -10 to +10. In this case an individual with at least five points was identified as opinion leader. This also corresponds to the upper quartile.

As shown in the chart, a total of five opinion leaders was identified. In this context, the large range in which the vendors are located regarding their self-designation on opinion leadership is interesting. They range from a negative (-4) to a high value of +15. The negative manifestation can be interpreted with the conviction that the business partners were hardly influenced by their own opinion or action. The highest measured value (+15) points to distinct confidence and trust in their own power of persuasion.

One of the questioned partners who even achieved the maximum number of points (+10) displayed a similarly high manifestation. The other partners saw themselves on an average level of opinion leadership, which can be attributed to their profession in most cases.

All in all, 50% of the vendors and 40% of the partners referred to themselves as opinion leaders for their customers (cf. Figure 70).



Figure 70: Self-Designated Opinion Leader [source: own representation]

The moderate value of (only) 50% on the vendor side is remarkable, as new technologies are made public exclusively via the vendors on the market. In a first step, the vendor employees have to create a demand and utilize their particular position and their higher level of information. Since the questionnaire is based on the provisions of Flynn et al. and is therefore proven to be one-dimensional – resulting in product-specific opinion leadership – the expected manifestation of the vendors as opinion leaders was located in the upper third.

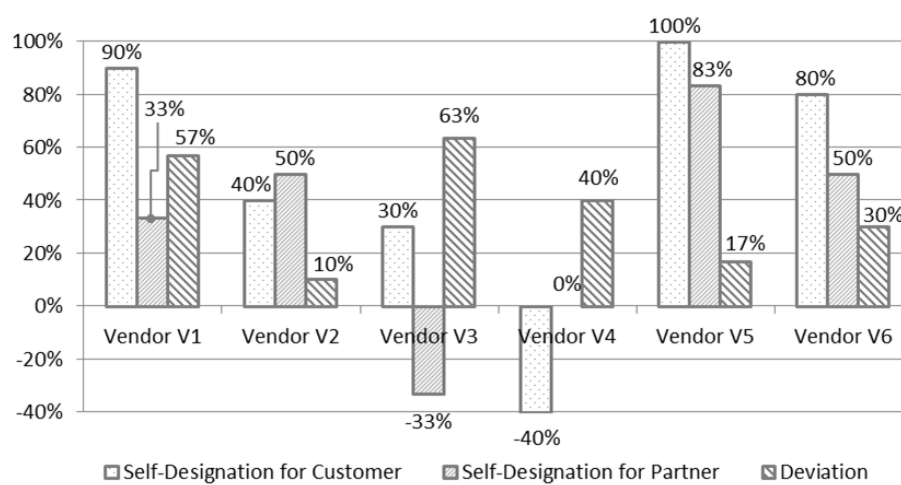


Figure 71: Vendor Opinion Leader Score from Self-Designation for Customer and Partner [source: own representation]

An additional differentiation between opinion leadership with respect to the customer and the partner on the vendor side is reasonable, as there are different communication and cooperation level in place between the business partners (cf. 4.2.2 – *Who influences whom? The Sociometric Network*). As a consequence, this enables them to gain 50% opinion leadership on the partners (cf. Figure 70). The questioned individuals are involved in various depths of the respective projects on the end customer or partner side. Consequently, some of the vendor employees assessed their influence on the partners to be higher than the influence on their customers. Therefore, it is not surprising that the opinion leadership among end customers varies from the opinion leadership among partners. Figure 71 shows the opinion leader score, displayed as a percentage of the maximum value for customers as well as partners from the point of view of

the interviewees on the vendor side. Attention should be paid to the fact that the maximum values were calculated based on separate questions¹²⁵.

According to the bar chart all vendors, except for vendor V₂, estimated their influence on end customers to be higher than that on partners. To some extent, the divergence shows considerable differences of up to 63% in evaluating the influence on customers and partners.

As already referred to in chapter 2.1.6.1, the method of self-designation bears the risk of misjudgment by the interviewees. For this reason this subchapter must be regarded as an additional evaluation for the content-related analysis of the interview as well as the findings of the text mining analysis. From an isolated perspective the opinion leader score however substantiated that the questioned vendors as well as partners are absolutely aware of their role in the process of opinion making, satisfying it with active influencing.

4.3 CONCLUSION

This chapter dealt with the key question of whether opinion leaders actually had an influence on tenders in the capital goods industry and whether this can be uncovered using the tool of the expert interview. For this purpose a compact introduction on the choice of an appropriate interview method was selected in a first step, followed by a definition of which individuals can be called on as experts. In addition to a high degree of topic-specific factual competence, experts are distinguished by long-term training or experience, and hence a higher level of information. The 10-years rule can be referred to as a rule of thumb.



*An expert needs at least 10 years of experience or a long-term training.
An expert generally has a higher level of topic-specific information.*

The preparation and conducting of expert interviews was based on a 5-phase model which first of all implies an intensive analysis of the object of research. Subsequently, a number of experts was identified, selected and asked to

¹²⁵ Three questions referring to opinion leadership with partners (maximum value: 6).
Five questions referring to opinion leadership with customers (maximum value: 10).
All questions according to the questionnaire in Table 30 in 4.1.2.3.

take part in the survey. This request was answered by 15 persons from the three interest groups of vendors, partners and customers. Phase three comprised the development of the actual questionnaire, which is subdivided into three sections. In addition to the process of creating a tender, it deals with the aspects of designing the contents of specifications as well as the method of self-designation on the identification of opinion leaders. The questionnaire was applied in phases four and five, followed by the collection and transcription of altogether nine hours of interview material, which was then evaluated using the qualitative content analysis according to Mayring.

By analyzing the interview the holistic tendering process was reconstructed in a first step and the role of the different interest groups was displayed. Furthermore, various strategies regarding the influencing of tenders were uncovered. These approaches were differentiated according to the process of creating a tender and designing its content.



Avoiding a tender and limiting the number of bidders at an early point in time can be regarded as the most important strategies in procurement.

Tendering to one specific vendor based on a profitability check and by creating artificial market entry barriers is an effective measure of influencing.

The description of business concepts or artificial USP is referred to as the most important means in the content-design of specifications. In this respect the influencing of a tender is very strongly focused on the discrimination of the competition, e.g. by applying exclusion criteria.

In addition to the actual strategy of influencing, the acquisition and evaluation of information by the interest groups also is an important aspect. Different sources of information were identified and assessed for customers and partners. The special role of the vendor supporting the customer with templates and text modules in the procurement process needs to be highlighted, among others. Customers, partners and vendors evaluate criteria based on contrary significance, which underlines the importance of a close business relationship.

The value of the interest groups' personal relationships in the various areas of the customer's business is referred to in a sociogram. It displays the network of relationships as well as who is able to assert which kind of influence within the

framework of the procurement. The specialist department takes over a key role in the course of the analysis. This group of people must be regarded and considered separately for major projects that include external consultants.

Finally, the opinion leadership was evaluated based on the method of self-designation. Five opinion leaders were identified in this respect. Compared with the partners' employees, vendors more often referred to themselves as opinion leaders. Furthermore, the vendors more often regarded themselves as opinion leaders with end customers than compared with partners.



50% of the vendor employees identify themselves as Opinion Leader.

40% of the partner employees identify themselves as Opinion Leader.

All in all, the vendors' employees therefore assume a key role in the context of opinion leadership in the capital goods industry.

5 FUTURE RELEVANCE OF OPINION LEADER IN THE PUBLIC PROCUREMENT LAW

*“Information is the oil of the 21st century,
and analytics is the combustion engine”*

Peter Sondergaard, Gartner Analyst

While the third chapter referred to the experimental application of business analytics procedures to the “storage” system and several expert interviews were conducted in the fourth chapter, the statements derived from which were subsequently analyzed using qualitative content analysis, the current chapter finalizes the research for the dissertation by triangulating the most important findings. For this purpose the first subchapter compares the different strategies for influencing a tender based on text mining as well as the expert interviews. Subsequently, the objective of the dissertation is met by providing an overview of the applied research, and recommendations are made. The chapter concludes with the consideration of a possible future exploratory focus and the final summary.

5.1 FINDINGS OF THE EXPERT INTERVIEWS IN THE CONTEXT OF THE BUSINESS ANALYTICS RESULTS

One of the main aspects of this dissertation is the identification of opinion leaders resp. of individuals or institutions able to influence a tender. Once this influence is verified in a document, the question of the influencer arises. Consequently, the identification of the opinion leader must always be preceded by an analysis of the influencing strategy.

To this effect, two main strategies for assessing the opinion leaders’ influence on public tenders were applied for the dissertation: The classic approach of interviewing experts regarding their experiences and observations on the one hand, and the conceptually new approach of business analytics procedures for

analyzing unstructured data from various sources on the other hand. By triangulating the results from both approaches, it becomes obvious where the limitations of computer-assisted analysis lie. Table 34 lists the different strategies for influencing a tender in the left column. These are observed approaches or those applied by the interviewed experts themselves. The two right columns stand for computer-assisted text mining procedures. They are subdivided into generally detectable influence and influence that has actually been proven.

Table 34: Comparison of Observed vs. Text Mining Identified Influencing Strategies
[source: own representation]

Influencing Strategy in the Tendering Process			
Observed influence through experts		Detectable	Proven
		influence by means of text mining	
Tender service specification	Use of vendor specific USPs	Yes	Yes
	Use of artificial USPs	Yes	Yes
	Description of operational concept	Yes	Yes
	Extension of an existing system	Yes	Yes
	Use of exclusion criteria	Yes	Yes (1)
	Use of Weighting / Scoring system	Yes	Yes (2)
	Need for trainings	Yes	Yes (3)
	Dependencies to existing Environment	Yes	Yes (5)
Use of non-functional req.	Need for German support	Yes	Yes
	Need for German technical documentation	Yes	Yes (3)
	Use of lots	Yes (4)	No
	Costs of Migration need to be paid	Yes	No

Procurement law	Hardship procurement	No	No
	Breakdown of procurement into pieces (below EG Threshold)	No	No
	Breakdown of procurement with dependencies to existing systems	Yes	No
	Exceptional case of sourcing with particularly favorable conditions	No	No
	Dedicated tender with bill of material for the reason of economic efficiency	Yes	Yes (5)
	Do not tender	No	No

With regard to the industry experts, 18 different strategies of influencing could be identified altogether. About 78% are detectable in general and 61% were actually proven using the text mining approach. The strategies revolving around the specification for tenders were all verified and quantified.

Five particularities that should be taken into consideration when interpreting the results must be pointed out in the table (marked by numbering).

(1) Exclusion criteria are a proven tool for excluding competitors from the direct competition by combining specific functionalities. The extensive use of this approach was confirmed by text mining as well as by the experts. Today, there still is a limitation regarding the introduced procedures of text mining, the cessation of which would once more increase the explosiveness of using exclusion criteria. Currently, it is only possible to check the simple use of obligatory and optional criteria. If, in the future, it was possible to analyze which criteria led to exclusion if they were not met, this would add considerably more weight to the variables and enable far more detailed insights into the influencing by opinion leaders.

The same limitation applies if a (2) scoring procedure or a weighting of functionalities is drawn on. Today, it is not (yet) possible to correlate and therefore fully interpret these procedures. Again, only the application of these tool is evaluated.

Furthermore, the use of (4) lots has the exact opposite effect of narrowing the competition. In this scenario all-encompassing procurement is subdivided into partial areas in order to create more competition per lot. Otherwise individual manufacturers would not be able to make an offer due to their portfolio. In order to analyze using the text mining procedure, the text corpus must be limited to the respective lot. However, the information that lots were used may get lost in the process. In this context it must be ensured that the respective information is available in the text corpus resp. that it is added manually. Consequently, lots generally have a pro-competitive effect.

By increasing the range of the analysis of the tender to also include the influence with regard to general procurement, it was possible to identify six interesting strategies from the expert interviews. For the majority these are strategies that are either not meant to lead to a Europe-wide tender or that can simply not be verified in the documents. The tool of emergency procurement or splitting a procurement above into two procurements below the threshold of the European Community are two examples.

Applying a (5) dedicated tender for a parts list for reasons of economic feasibility or for technical reasons also is a popular method for limiting the competition. Technically, the parts list is easy to detect, which makes it verifiable. The aspect of economic feasibility is not that easily grasped, as it is usually based on weighting or the allocation of points. It is impossible to provide an exact analysis for such a weighting. As a reminder: It is prohibited to state specific products or procedures, or brands, patents, types or the like, in specifications for tenders. A specification that states particular features narrows the competition. However, a specific tender is admissible if it is justified by the subject of the order. If this is not the case, it is still admissible if it was impossible to understand and exactly describe the subject of the order without it. In this case the tender must be provided with an addendum of equality. For this reason it has to be verified beforehand whether a “specific” tender is provided. This is the case if a specific product is predetermined. As an example, tenders that precisely define the technical features, keeping the bidder from any fallback possibilities, are not considered product-neutral. Therefore, it must be determined that the use of a particular product from the subject of the order is justified. Such a justification must result from objective criteria, e.g. the technical requirements for the application of the service.

Furthermore, the question of why a competitor's product is not considered must be substantiated and documented. Therefore, a "specific" tender is justified, among others, if the problem of interception points can be avoided. If, however, additional adjustment by the client becomes necessary, a "specific" tender is not justified (cf. II.7 of the comment on § 8 EC/VOL/A "Product-neutral tender").

The requirement of a (3) German-speaking support as well as German documentation keeps upcoming startups with previously low internationalization at bay. The analysis shows that this requirement is used far less often than predicated by the experts. However, and this is a limitation of the current analysis procedure, different requirements are already defined in the EVB-IT system contract (EVB-IT = complimentary contract terms for the procurement of IT services). Consequently, if there is a requirement of an EVB-IT compliant tender, different aspects must be met, even if these are not specifically stated in the tender document. As an example, this includes the requirement of German documentation according to the general terms and conditions of EVB-IT system supply sect. 5.2 documentation: *"Unless otherwise agreed, the respective documentation must be [...] supplied and assigned in the German language in a printable or printed form. The use of common English technical terms is admissible."* (Bundesministerium des Innern (BMI), 2015: 7.) Due to the anchoring of these kinds of requirements, the variables found in the EVB-IT system contract should not be considered when assessing the influencing of a tender. An objective assessment of the documents is no longer guaranteed due to the lack of comparability of these variables in the documents. Currently, this only applies to documentation in German. An additional review of the reference to the EVB-IT system contract would be necessary to solve this problem.

The text mining approach included five main objectives for which models were developed and applied. Up to this point the key question was in how far it was possible to validate the experts' observations using text mining. In the following, the aim is to examine whether the experts would in turn be capable of validating the results of the text mining analysis. For this purpose Table 35 lists the five text mining objectives on the left and the assessment in how far experts would be capable of arriving at a similarly reliable evaluation on the right.

Table 35: Text Mining Objectives Assessable through Experts? [source: own representation]

Measurement of Influence by Text Mining	
Objective	Reliably assessable through experts
Uncovering the potential influence of opinion leaders on the public tender	Yes
Evaluating the degree of influencing a tender	Partly
Identifying opinion leaders	Yes, with limitations
Extracting vendor-specific functionalities that lead to a narrowing of the competition	Partly
Predicting the probability for each tender that a vendor is awarded the contract	No

The extraction of vendor-specific functionalities can generally be accomplished by experts with a high domain-specific knowledge. However, in the course of the computer-assisted analysis the definition of 697 indicators shows how extensive a manual evaluation can become. The mere number, but also the correct evaluation of the degree to which the competition is limited makes it difficult to derive a high-grade, extensive analysis. Furthermore, the questioned experts stated that they usually had a good overview of the market, however they were not in possession of detailed technical, competition-related information on each vendor. Against this background, it can be assumed that the experts only have limited capabilities of evaluating a specification for tenders.

In addition to the unimpaired evaluation of the specification for tenders, predicting the probability of being awarded a contract is based on extensive historical data that is drawn on for the purpose of comparison, among others. At first, 84 variables were extracted for the prediction by means of data and text mining. Finally, they were reduced to nine, whereas four were automatically created due to textual particularities. The actual prediction was then made using a regression equation. Without doubt, very experienced experts are able to evaluate

tendencies of a tender, however they will fall back behind the complex data-based analysis with respect to the rate of success and the lack of historical comparison.

The evaluation of the degree to which a tender is influenced was derived by means of a self-developed taxonomy using the 697 defined indicators. The combination of different indicators, the correct weighting and the risk of personal misjudgment particularly make a manual but equal analysis more difficult. As with the extraction of vendor-specific functionalities, experts can only have a certain extent of information on the competition. In practice, it is the combination of functionality that leads to a severe narrowing of the competition and can only be uncovered by intensive research resp. by experienced experts. This procedure was referred to as a very effective strategy in several interviews. In this case, it can be assumed that experts will also fall behind the possibilities of computer-assisted analysis.

Uncovering the potential influence by opinion leaders on public tenders is doubtlessly among the objectives that an expert can achieve on the same level as computer-assisted analysis. According to information provided by the experts themselves, they rely on their experiences and “gut feeling”, while the system relies on measurable facts.

One of the main approaches of this dissertation, the identification of opinion leaders, is predicated on a widely based correlation of different sources, made available and prepared by the procedures of data and text mining.

Traditionally, research literature provides different approaches for identification, including the procedure of self-designation used within the framework of the expert interviews. The accusation of a lack of objectivity is regarded as the biggest disadvantage of self-designation. In actual fact this weakness was also detected within the course of evaluating the interviewees’ self-designation. Compared with this traditional method the conceptually new approach of data and text mining was supposed to balance out this weakness and provide factually objective identification. It was basically possible to prove the functionality of the procedure, however the identification of opinion leaders based on text mining also turned out to be a challenge. This is due to the collected data, which needs to be regarded in a differentiated way. The data provided by the market research companies and the vendors fulfilled its purpose and enabled a verification of respective information in the specifications for tenders, and therefore also for the

influencing entities. On the other hand, the identification of individual opinion leaders based on the data from blogs and forums turned out to be unsuccessful. The data neither had the necessary density of information nor the relevance to produce clear results.

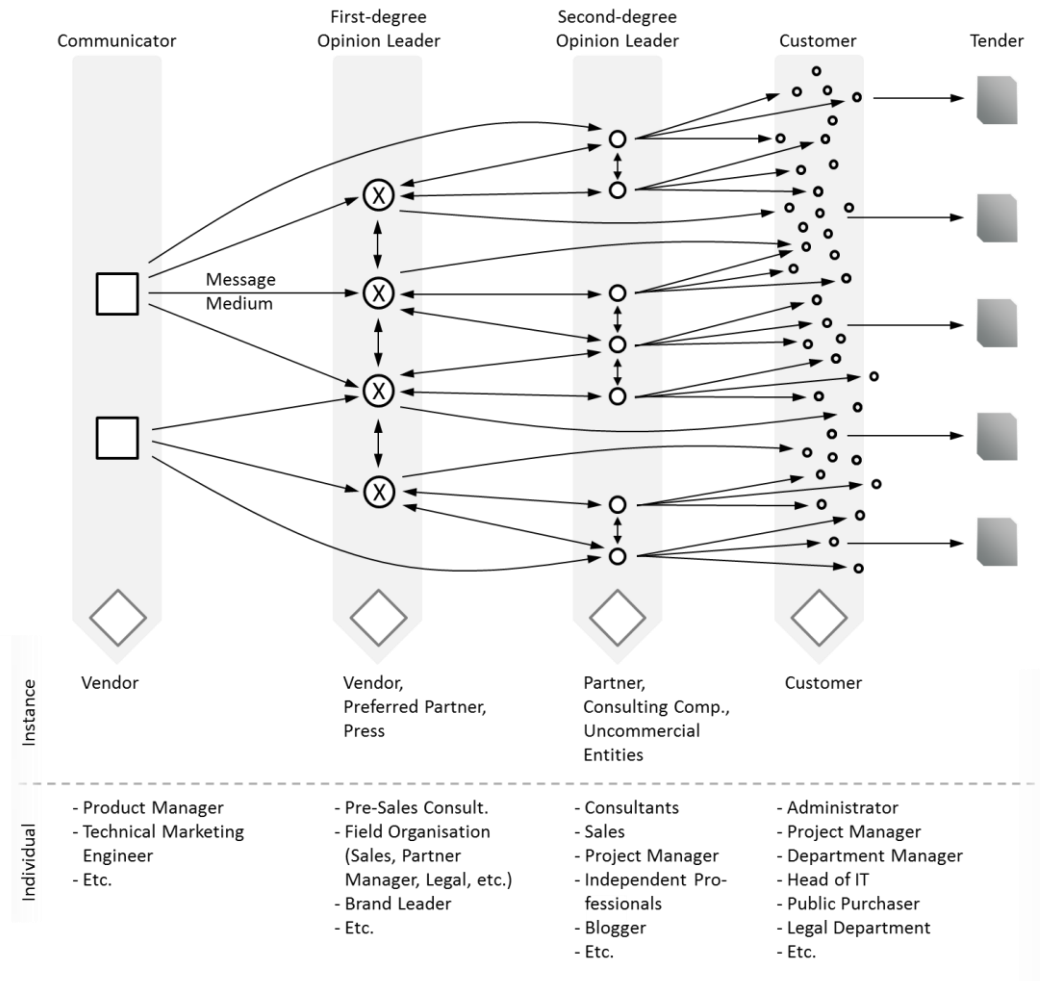


Figure 72: Companies and Individuals as Opinion Leader in the Multi-step Flow of Communication Model [source: own representation]

Transferring the results of the different fields of research from expert interviews, business analytics and public tenders to the multi-step flow of communication model, there are a number of findings resulting in the context of opinion

leadership. Figure 72 displays the flow of information between the different key players (communicator, first-degree opinion leader, etc.), including an allocation of the respective entity (vendor, partner, press, etc.) and the associated individuals. The chart shows that only opinion leaders could or can be identified as representatives of a superordinate entity using the applied business analytics procedure. Furthermore, it was not possible to identify independent individuals with the approach, i.e. the only true opinion leaders according to the definition of the term. However, in view of the overall construct of the influencing of a public tender with partially complex buying centers, the question of how much influence an individual blogger can actually assert arises. After all, the capital goods industry is subject to other principles than the consumer market in which purchase decisions take place with little involvement.

It must be explicitly pointed out that only opinion leaders who document their opinion in the form of texts can be identified. Based on the statements from the interviews it must be assumed that the client is considerably influenced by the vendor's, the partner's and the consultant's expert in the course of direct interaction. This influencing mostly takes place within the context of presentations, consultation talks or a not documented confidential conversation. The significance of this kind of an interaction has already been discussed in this dissertation based on a study by Gartner with respect to the influence on decisions (cf. Figure 2, page 17). Individual evidence – in this case artificial USPs – lead to the conclusion that vendors, partners and consultants, if possible, provide clients with text elements and templates, among others, in addition to asserting direct influence on a specification for tenders with a purposeful sensitization. It was possible to verify this procedure within the framework of the dissertation and to ascribe it to the favored entity, e.g. the vendor.

All in all, it can be concluded that the experts' experiences and observations can largely be evidenced and quantified by computer-assisted analysis.

5.2 RESEARCH OVERVIEW, OBJECTIVES AND LIMITATIONS

The examination carried out within the framework of this dissertation shed light on the current state of research on opinion leadership and business analytics.

Following an in-depth analysis of the topics, both fields were adopted in the context of public tenders in the capital goods industry. For this purpose a higher-level model was developed to apply the different business analytics procedures to the “storage” system in an experiment, and the main research question was answered.

Business analytics, more precisely the procedures of meta data mining and text mining, were selected, as they offer a number of interesting aspects compared to statistical procedures regarding the validation of assumptions. Unlike the traditional approach that develops models based on a formulated hypothesis before verifying them with statistical tools, mining generates hypotheses from the application of different procedures. Subsequently statistical methods are used to validate the results (Klingspor and Michels, 2003). The goal is to gain non-trivial insight that could not have been anticipated (Bodendorf, 2006). The previously formulated hypothesis is counterchecked against the entirety of the collected data.

The central research question was meant to fill the identified academic void – the quantification of an opinion leader’s success in the capital goods industry – and highlight derived research objectives (cf. 1.2 – *Research Question*). The most important of these objectives were:

- Which are the factors influencing the drawing up of public tenders?
- Which are the existing strategies for influencing public tenders? Which are successful? Which can be empirically proven?
- How can business analytics techniques be used to develop a forecasting model to determine the probability of success for a public tender?
- How can opinion leaders be identified in the capital goods industry? What is the difference to market leaders?
- How can opinion leaders be purposefully deployed in the capital goods industry?

The subsequent examinations were made and the following goals achieved in order to answer the research question and the derived research objectives:

- Review of literature and the latest scientific findings in the field of opinion leadership with a focus on the identification and management of opinion leaders.
- Review of literature and the latest scientific findings on the procedures of business analytics resp. on the driving factors of unstructured data. Detailed examination of the text mining process, the analytical procedures as well as the general process model on data and text mining – CRISP-DM.
- Literature review on European procurement law with a focus on public tenders. Analysis of the various legal requirements and regulations for an open and transparent competition. Evaluation of the characteristics of a public tender in the context of the IT industry.
- Development of a model based on text mining for analyzing public tenders in the capital goods industry. The model includes the identification of opinion leaders, a domain-specific ontology for the identification of vendor-specific features, the prediction of the probability of a contract being awarded as well as a quantification of the degree of influence.
- Development of a questionnaire as a basis of various expert interviews as a preliminary step for the triangulation of the findings from the text mining procedure and the results of the interview. Structured knowledge extraction from the interviews by means of qualitative content analysis according to Mayring. Deriving of a sociometric network.
- Triangulation and critical discussion of the findings from the experiment as well as the expert interviews. Drafting of recommended action regarding opinion leader management and influenced tenders.

Different findings on the significance and the influence of opinion leaders in the context of public tenders were established within the framework of this dissertation. These findings represent the answers to the main research question and have already been discussed in the previous subchapter.

In summary, it can be confirmed that opinion leaders have a considerable influence on the design of a public tender. There are only few documents that are actually vendor-neutral. 86% of the examined specifications for tenders displayed a severe narrowing of the competition or vendor-specific characteristics. The opinion leader's overriding goal in the public sector is to purposefully provide the opinion seeker with information to ensure that he is able to formulate his tender in a way that narrows the competition the most. This finding supports the key role of opinion leader in the diffusion process already described by Dressler (Dressler and Telle, 2009). An opinion leader's success is measured by the transparent object of procurement, the public tender. This is only possible, as according to Flynn et al., opinion leadership is always product-specific and one-dimensional (Flynn, Goldsmith and Eastman, 1996). Therefore, the product-specific influence is measured, even though this is a complex affair, as Brown mentioned (Brown and Hayes, 2008). In this examination the identification of opinion leaders is based on the specific flow of communication, i.e. written information between the entities of the opinion leader and the opinion-seeking public bodies. The performed studies of this dissertation can confirm the statement of Flynn et al.

The motive for why authorities formulated vendor-specific public tenders resp. tenders narrowing the competition at all is a significant insight gained from the expert interviews. The infrastructure is usually renewed and hence tendered within a cycle of three to five years. If an actual product-neutral tender is conducted according to the provisions of procurement law, the provider with the most economic offer is awarded the contract. As a consequence, there could be a change of vendor within the infrastructure of the public authorities on a regular basis, which would have far-reaching implications for the system administrators, among others. As an example, this may include the expenses for data migration or trainings, but especially the considerable additional costs for the adjustment of operational procedures such as the backup concept or the operation of certain applications such as SAP. Against this background, the authority, with its mostly

limited resources regarding both employees and financial means, has a specific interest in avoiding additional expenses for the conversion of operational processes. According to the experts it is therefore hardly surprising that employees of the public bodies to some extent actively ask for features that narrow the market and receive the respective text elements from the vendors. Computer-assisted analysis is not capable of capturing this motive, only the consequences. The informal communication, as an important and trustworthy source, has already been discussed by (Flynn, Goldsmith and Eastman, 1996; Berkman and Gilson, 1986; Homans, 1961).

The dissertation made an important contribution to the research on opinion leadership by combining conceptually new approaches of business analytics with the traditional procedures of opinion leader research and by giving proof of the possibilities using the example of public procurement. This did not only verify the existence of opinion leaders in the capital goods industry and the fact that it is possible to identify them using the procedures of business analytics, the dissertation also uncovered their strategies and, for the very first time, quantified their influence. In particular the last aspect represents a new dimension for the research on opinion leadership. Up to today the examinations mainly focused on the functions, motives and the character traits of opinion leaders and less on their influential success. Although research has been conducted to some extent in the consumer goods industry, e.g. the success of Hollywood blockbusters based on reviews by opinion leaders, it has not been possible to substantiate this kind of correlation for the capital goods industry. This has now been accomplished for the very first time using business analytics procedures on the transparent object of public procurement, i.e. the tender.

Furthermore, the dissertation introduced another procedure of opinion leader identification – the analysis based on text mining – to quantify the influence and the success of opinion leaders. The newly designed and applied procedure distinguishes itself from the traditional approaches due to the fact that it enables the bypassing of critical disadvantages and the evaluation of the results generated by an opinion leader. As an example, according to Rogers (Rogers and Cartano, 1962), knowledge of the entire system, including the communication structures, is assumed when questioning key informants. According to Jansen

(Jansen, 2006), the social network analysis attempts to identify opinion leaders based on their communication relationships. Furthermore, several authors, including Fisher, Smith and Welser (Fisher, Smith and Welser, 2006), Ortiz-Arroyo (Ortiz-Arroyo, 2010), Abdel-Ghany (Abdel-Ghany, M. M. M., 2012), Bozdogan and Akbilgic (Bozdogan and Akbilgic, 2013) and Ropicki and Larkin (Ropicki and Larkin, 2014), are still discussing which methods of centrality identify opinion leaders in a reliable way today. The sociometric method also has disadvantages, as it assumes a questioning of the entire system, which is not feasible in practice in most cases. Identification of opinion leaders based on text mining can be used to bypass these aspects, as the entire system does not need to be considered and an analysis of the communication system is not relevant. Solely the content of the texts is decisive, as described by Xu, Zhang and Li (Xu, Zhang and Li, 2011) in their further development of the traditional SNA approach. Retracing the communication resp. the successful placement of messages by opinion leaders has the purpose of identification. Both fields of research, opinion leadership and opinion leader identification, are decisive for commercial providers of capital goods as well as for the public sector and for scientific research.

With regard to scientific research, this provides an insight into the approaches and strategies of opinion leaders as well as a differentiation between successful and less successful influencers, in addition to the identification of motives. The direct link between the approach and the success of an opinion leader is of particular interest. Among others, it enables conclusions on the characteristic features of successful opinion leaders and, consequently, an informative basis for the identification and management of these individuals.

Commercial providers have a similar interest in this research. Based on the knowledge regarding successful opinion leaders it is possible to control public tenders in advance by providing specific information and asserting influence on entities that would otherwise not be accessible. Furthermore, recommendations for action can be derived with regard to tenders that have already been influenced, for a more efficient application of resources (cf. 5.3 – *Recommendations and Consequences of Influenced Tender*). Also, a decision can be made as to whether dealing with a tender would actually make sense in view of the prospect of success.

Based on the findings, authorities resp. general public bodies may have their procurement reviewed in terms of the legal conformity. Therefore, the analysis of influenced tenders enables an innovative approach for the procurement office. The latter should have a particular interest in this kind of review.

Despite the extensive analysis this dissertation is subject to a number of restrictions that are discussed in the following.

The identification of opinion leaders is based on the analysis of defined communication channels such as blogs, reviews by market research companies or product information by vendors. The triangulation with the expert interviews has already pointed to the fact that there is also a considerable amount of informal communication between the various interest groups. This is partly based on the provision of text elements or the access to particular material by the vendors or partners. Access to that kind of information is usually not possible or desired. Therefore, an analysis across communication channels is not possible and the examination is limited to written information provided in the German language.

Another limitation of the conducted research lies in the pre-selection of the text corpus of a tender. This was necessary in order to increase the quality of the analysis resp. to reduce the static of non-relevant information. Due to this restriction, it cannot be excluded that important information outside of the specifications for tenders, e.g. that has an impact on the probability of being awarded the contract, is ignored.

To continue, the process of data acquisition regarding the tenders turned out to be complicated, as the public bodies were not all willing to cooperate. Even though it was possible to compile a relevant amount of documents, it could not be assured that this constituted a representative sample of the entirety.

5.3 RECOMMENDATIONS AND CONSEQUENCES OF INFLUENCED TENDER

		Tender / RFP		
		Neutral	Narrowing Competition	Vendor-specific
Customer Preference	Competitor	✕	↘	↓
	Neutral	●	✕	✕
	Own Company	✕	↗	↑

Figure 73: Recommendation for Action for Influenced Tender [source: Own representation]

The influencing of tenders was referred to intensively in the last chapters. A model for quantifying this influence was developed in the third chapter (cf. Figure 49, page 183). The following now deals with the consequences arising from the knowledge of the active influencing of a tender. Hence, Figure 73 introduces a simple model for detecting the respective options for action in a 3x3 matrix.

In a first step the matrix represents operative fields that allocate potential prospects of success of a tender. Subsequently, a prioritization is derived in order to put the effort and expenses of answering a request in perspective with the probability of being awarded a contract. The fields also enable a basis for determining the optimal pricing strategy and the control of resources in promising areas. Interpreting the model, the customer preference is arranged on the Y-axis, while, in a second step, the evaluation of the analysis of the tender selects one of the nine fields.

The symbols in the nine fields, pointing arrows, crosses and the circle, represent recommendations for action that are discussed in the following. For a better understanding, the crosses represent the areas of the analysis that cannot be put into practice, to name but one example. In this way the analysis is not able to detect a vendor-specific tender without the associated vendor's existing client

preference. The pointing arrows represent an indicator of the prospect of success for the own company.

If the systematized meta data and text analysis identifies characteristics of a document as uniquely vendor-specific, and if the tender can be assigned to the own company, which can be derived by a prevailing client preference or the opinion leader identification approach, the probability of an order is high. Price negotiations should be approached in a moderate manner, while customer satisfaction and retention should be continuously examined and furthered. In a similar situation, if the tender resp. the client preference points out to a competition, the probability of a contract largely decreases. If the requirements and the possible exclusion criteria still allow for an offer, an aggressive pricing strategy must be selected. The client's general competitive situation, his influencers and background should be examined. Furthermore, general customer relations management and acquiring the client's trust should be focused on.

With regards to tenders narrowing the competition in which the own company or the competitors are preferred, the probability of a contract can be regarded as insignificantly positive resp. negative. To ensure the customer potential and the defense of competitive offers, a market-driven pricing strategy is recommended. For neutral tenders for which no preference can be derived, which is symbolized by the circle, it makes sense to take a closer look at the criteria for awarding a contract. The analysis has shown that this kind of neutral document is largely made out via the price. Since electronic bidding platforms are no rare occurrence, tenders should be replied to without greater effort.

5.4 RECOMMENDATIONS FOR THE OPINION LEADER MANAGEMENT

The opinion leader analysis of the storage industry identified three groups of opinion leaders. The vendors themselves, independent consultants, brought in from the customer side to provide an objective opinion, and the reselling partners as a third group, who cooperate directly with vendors and clients. This subchapter deals with the vendor's options for taking advantage of this knowledge about opinion leaders. It presents options for action showing how to use one's own position as an opinion leader and how to share in the consultants' and partners' influence. Each group can be regarded individually.

5.4.1 Vendor Internal

According to the content analysis of the expert interviews, not all of a vendor's employees were aware of their role as opinion leaders and they underestimated their influence. In order to fully exhaust the account managers' and pre-sales consultants' potential, they should be sensitized regarding their significance for the tendering process. This can be accomplished by means of internal training sessions. However, the content of this training should not only focus on their own role in tenders, but provide concrete help as to how this role can be used in the best way. As an example, knowledge on how to bypass a public tender should be addressed, and in case a tender cannot be prevented, how the relevant specifications for tenders can be influenced. This includes a possible weighting of criteria, which can oust competitors, as well as product-neutral argumentation. The next section will deal with this aspect in more detail.

The expert interview revealed the significance of predefined text elements for formulating tenders. These enable the client to insert desired features into the tender in a product-neutral way without them being perceived as a limitation of the competition and their neutrality being doubted. However, the status quo of dealing with these text elements still has a potential for improvement. If required, any technical consultant involved in a tender individually develops these text elements for his clients for the respective product. Since the same products are sold across Germany, it is possible that several independent text elements are prepared and passed on to the clients for the same product in the course of time. A more efficient approach would be to establish a central platform for exchanging the elements. In this way a key technology, which a neutral description was provided for once, could be used for additional tenders without additional effort. This platform should be accessible for all of the vendor's account managers and pre-sales consultants in Germany as well as for partners and customers. In this way they would not have to take the detour of approaching the vendor, and possible obstacles would be removed.

Regular national best case forums for the public sphere could be used as an additional platform for exchange. This is where sales employees and pre-sales consultants could trade their experiences with public tenders to benefit from the learning effects. In addition to success stories, recommendations and other scenar-

ios could also be shared in these forums for users to profit on a trans-regional level.

The fact that there is only a small number of clients supporting the acceptance of reference customers is one of the particularities of the public sector. This means companies are not allowed to actively advertise that a particular authority, office, etc. is using a specific vendor product. A shadow database, in which sales employees can see which products are operated by which public client, would be one possibility of indirectly using the existing clients as a reference. During the tender process the potential clients could then be asked whether they were in contact with the not to be referenced client and whether an exchange of experiences would be possible.

In order to make effective use of the influence as an opinion leader it is important to get in touch with the client at an early point in time. The earlier a vendor has identified a potential demand, the bigger his advantage over his competitors. One of the possibilities for a vendor to use within his company is the so-called automatic lead management approach that would notify him if any of the systems installed with his clients became outdated. This enables him to establish contact at an early point in time to position himself before the customer's demand becomes acute, to be one step ahead of his competitors. This is an optimal way to make use of the opinion leader role.

5.4.2 Vendor to Client

The vendor has possibilities of positioning himself as a reliable partner and opinion leader with existing clients for the long run. Among others, this particular aftersales management includes regularly following up on the customer satisfaction with regard to the product as well as service and consultation, a professional and fast-reacting complaint management and regular meetings to discuss the current situation. These are especially important, as the client does not only get the chance to offer extensive feedback in the case of a complaint. Rather, he can contribute his experiences, problems and above all also future projects. These meetings are meant to strengthen and further develop the business relationship.

Sending relevant information such as professional articles and customer magazines can also be a way to stay in touch with the client. These token gestures

confirm that the client has made the right vendor choice and they can strengthen the relationship by regular contact. The same effect can be achieved by editorial integration in specialist magazines or other relevant specialized media.

Furthermore, satisfied existing clients can also be used as an argument for winning over potential clients. A listing as a reference customer, including a description of the solution, the volume of clients, etc., increases the vendor's credibility and reduces the client's uncertainty regarding the vendor.

5.4.3 Vendor to Independent Consultant

In order to benefit from the influence of independent consultants, it is important for the vendor to take the consultant seriously and strengthen his role as an objective expert. This includes providing him with exclusive information at an early point in time in order to support him in his expert function with an advance in knowledge. This can be accomplished with different techniques. First of all, the exclusive advance in knowledge can be acquired by sneak peek events during which the consultants gain access to previously unpublished information. This may include the launch of new products or other strategic topics.

In addition to the advance in knowledge by new information, it must also be ensured that the consultants are well-versed in existing technologies. Free trainings can convey insights that are particularly important to them, e.g. how to transform the technical functionalities of the products into a price advantage for the client and how these can be neutrally described in tenders.

Especially developed communication tools can be implemented to particularly value the consultants and to underline their exclusivity. The consultants are always in direct contact with the sales or presales department. However, they should still have the possibility of gaining relevant information without any detours and excessive effort. An exclusive telephone number for consultants could provide direct access to the sales or presales department. This would enable them to find quick and non-bureaucratic solutions for their requests, e.g. technical clarification.

Furthermore, consultants should also gain access to the neutral text elements which have already been mentioned in the previous chapter. This would help them to support their clients with the tender without having to take the de-

tour via the vendor, which may question their alleged objectivity. In addition to text elements, these information hubs may also contain other specific, centralized information for the consultants.

5.4.4 Vendor to Reselling Partner

Just like the vendor, the partner must also be confident in dealing with public clients and he must know the specific challenges and requirements as well as the applicable guidelines and laws that are essential for him and his tender. In order to ensure all of this, partner trainings can be organized along the lines of a certification. In addition to the particularities of public clients, the partners should also be informed about possibilities of avoiding tenders or of creating specifications for tenders. As a result, the partner will be certified as a “public expert” by the vendor. This documentation of his potential of skills is a competitive advantage over other partners, either for the selection of partners by a client or by the vendor.

The centralized, neutral text elements should also be made available to the reselling partners. They provide the partner with assistance regarding how to support his client in the dedicated tender, while still maintaining neutrality.

Neutrality is especially important, as it increases the partner’s creditability in the eyes of potential clients. In order to win over partners for products and solutions, they must be convinced of their performance. In this case, the actual application of the product proves considerably more effective than theoretical information. As an example, text devices can be provided to strategically valuable partners for the purpose of use and demonstration. In this way they become acquainted with the products and they can demonstrate them to their clients without being dependent upon the vendor.

The approach of automatic lead management was described in the subchapter on the vendors’ internal options of action. By notifying the vendor of soon-to-be outdated systems at existing clients, the vendor is able to contact the client at an early point in time and to position himself accordingly. However, this is only possible with the vendor’s own clients, as he only has access to these clients’ relevant system data. In this context, one solution would be to use partners to gain access to information on aging external systems, and therefore new business op-

tions. Partners gain valuable insights into their clients' system landscapes, as they work with different vendors and they are on-site at the clients' premises. The potential cooperation between partners and vendors could be based on a "finder's fee" which the partner receives as soon as he informs the vendor of an upcoming technical refresh of his clients' system. The vendor can use this knowledge to his advantage and get in touch with the client at an early point in time, before the latter is influenced by the competition.

5.4.5 Recommendation for Action – Opinion Leader Management

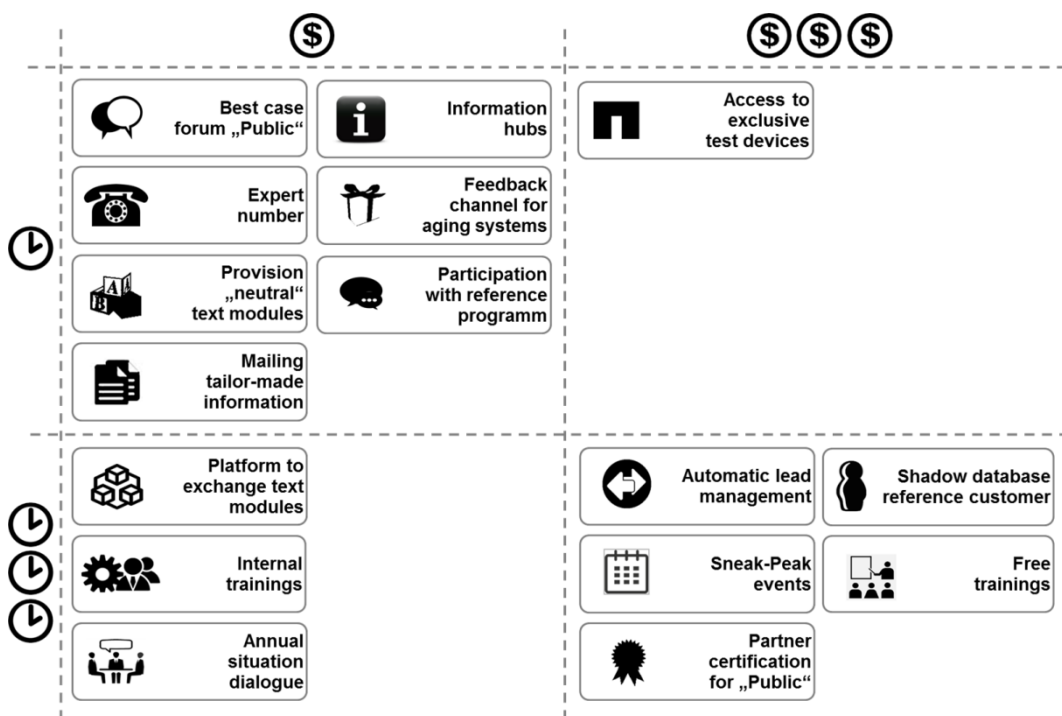


Figure 74: Recommendation for Action: Time vs. Budget [source: own representation]

The previous subchapters displayed different options for action regarding opinion leadership management for each interest group. Figure 74 classifies the various actions according to their time- and budget-related exposure. Consequently, the upper left quadrant shows options that can be realized within a very short time and at low cost. Special attention should be paid to establishing an

“expert number” for independent consultants, but also to the provision of customized information. The central provision of text elements is a considerable progress. This can be accomplished by the consultants or, more efficiently, via a platform, which however entails more time exposure regarding the collecting, preparation and distribution of the text (bottom left quadrant). The bottom right quadrant displays options for action, the implementation of which does not only require planning and therefore time exposure, but also investments, e.g. in organizational setup, technical systems or events.

Each of the compiled options for action aims not only at providing opinion leaders with better information on products and services, but also with information that enables them to act as the decisive resource in the procurement process. In the end, opinion leaders are meant to assert positive influence with their knowledge and skills. In this context positive means “in the respective vendor’s sense”.

5.5 FUTURE DIRECTIONS

The research conducted on the topics of opinion leadership in combination with the procedures of business analytics using the example of the capital goods industry has not only generated numerous new insights, it also uncovered a number of interesting possibilities for future research to improve the current analysis. Both aspects of potential endeavors are referred to more closely in the following.

A considerable part of this dissertation deals with the analysis of procurement law resp. the examination as to how opinion leaders use the regulations in their favor and how they are able to bypass them to some extent. As an example, this refers to the subdivision of a contract into several smaller orders to reduce the order value to below the EC threshold. At the beginning of 2015 the Federal Ministry for Economic Affairs and Energy defined the “Key points on the reform of procurement law” (Bundesministerium für Wirtschaft und Energie, 2015). With this reform the federal government intends to put three EU guidelines on the awarding of public contracts and concessions into effect by April 2016. The aim is to make public tenders faster, less bureaucratic and, above all, less complicated.

In the further course the goal is to strengthen the public body's authority and capacity to act to make it easier to consider social and ecological aspects, among others. In particular, the electronic award of contracts is supposed to be spotlighted.

The realignment resp. further development of the procurement law also requires a re-examination as to in how far the adjustments effect the opinion leaders' strategies. From their perspective this can be a positive development, as the potential influence asserted by the opinion leaders is reinforced due to the less bureaucratic approach. However, it may also have negative consequences, e.g. if the strengthening of the electronic award of contracts continues to weaken the content design of a specification for tenders. In any case, a precise analysis of the effects in at least two phases is required – a direct examination after the introduction and a long-term study resp. a re-examination after three or more years to investigate how the reform has impacted the market and the opinion leaders.

In addition to a reform of the procurement law, an in-depth analysis regarding the question of in how far a tender that has been influenced is actually always influenced by an opinion leader is also recommended. This problem arises against the background of uncovering a potential vendor preference that has grown over the years and a deep level of know-how on the existing system. In this connection the vendor-specific tender could have developed from the entity's own specialist department without external opinion leaders having asserted additional influence. For this reason it would be especially interesting to segment tenders that brought about a change of vendor from the existing to a new system. Does the content design of a specification for tenders differ with respect to specifications that did not require a change of vendor? Hypothetically, it should be possible to identify, however this remains to be verified.

Furthermore, additional research on the topic of opinion leaders would be desirable, in particular the examination of the traits of character of successful compared to less successful opinion leaders. This analysis could in turn lead to an improvement of the procedures to identify opinion leaders. Within the framework of this dissertation opinion leaders were identified as part of an entity (vendor, consultant, etc.). In a next step, the aim is to also identify opinion leaders within an entity. The self-designation as an opinion leader in the context of the

expert interviews has already shown that not every individual with a higher level of information also uses it for the purpose of opinion leadership. Within the scope of further examinations it would be desirable to separate this group of people.

In addition to the improvement of the procedures for identifying opinion leaders, an analysis across communication channels is among the biggest challenges of opinion leadership research. Which channel is most influential? Which channel is perceived to be the strongest in the capital goods industry? Is it possible to quantify the influence for each channel? These are only a few questions that could be drawn on in continuous academic endeavors. Furthermore, dealing with opinion leaders and addressing them in the capital goods industry also requires additional research.

The next step for improving the procedures for analyzing tender documents introduced in this dissertation would be the capability of analyzing texts in multiple languages. The most influential news sites, blogs as well as numerous informative forums and vendor documents are in English and could not be processed. Therefore, the setup of a multilingual procedure could extend the range of results.

Furthermore, the value of the applied procedure considerably depends on the scope and the quality of the developed taxonomy. The more specifically the indicators of the different vendors are considered, the more adequate the derived statements. The taxonomy currently features the four key players in the German storage industry, who share about 75 percent of the market. In particular universities and research institutions are subject to special requirements and should be considered specifically in the taxonomy. Currently, this is not yet the case.

The reliability and prediction accuracy of the developed analysis, in particular the evaluation of the probability of being awarded a contract, is improved with each document added to the repository. Therefore, enlarging the document basis is desirable, as is the combination of the various analyses to form a workflow and therefore an analytics platform for tenders in the capital goods industry.

A final field of research that is becoming more and more important within the framework of business analytics refers to the questions of ethical principle

and therefore the potential fields of conflict for modern possibilities of analysis. In this context there should be examinations as to who is able to weigh up the opportunities and risks of in how far new technologies, a possible treasure trove of data, but also data protection can be accommodated – and how this can be accomplished. According to which criteria is such an evaluation carried out? Can any analysis that is possible today also be ethically justified?

5.6 CONCLUSIONS

The objective of the dissertation is to analyze tenders with the techniques of business analytics in order to uncover characteristics narrowing the competition in the specification for tenders resp. documents in which the requirement for competition was bypassed. Consequently, this has an impact on the probability of a provider being awarded a contract and at the same time discloses the motivation for actively influencing a tender. Among others, this verifies the assumption that a large part of public tenders has already been influenced by opinion leaders before they are published. It is not only possible to provide evidence of this influence with business analytics techniques, the assertion of influence also enables the identification of the opinion leaders involved. Modern business analytics procedures provide for an extensive analysis of the tender documents and at the same time a prediction of the probability of being awarded a contract. Therefore, the main research question referred to the findings on opinion leaders to be acquired regarding their significance and influence in the context of the public tender using business analytics techniques.



The assumption could be verified, that a large part of public tenders has already been influenced by opinion leaders before they are published.

Public tenders are of particular interest, as the public sector is one of the biggest demanders on the German market with an annual volume of about 496 billion euro. The IT sector alone scheduled expenses in the amount of 20.9 billion euro for 2014. For this reason the economic interest driving the influencing of a tender should not be underestimated. Parts of the examination have already been published in papers by the author of this dissertation.

The line of argument is based on a segment of capital goods that is associated with significant cognitive control and characterized by an influencing approach that differs from the patterns of the mass market. Within these segments the identification was focused on the complex capital goods of information technology. This segment is shaped by a number of characteristic features, including great innovational strength, short product lifecycles, disruptive technologies, low market entry barriers and insufficient market transparency, among others. These characteristics make it possible for experts with domain-specific know-how to establish an inverse connection between the product-specific features and the number of possible vendor addressees.



As a consequence, the opinion leader is able to control measures narrowing the competition by purposefully influencing the specification for tenders.

As already pointed out, the opinion leader assumes a key role in the entire examination, as his higher level of information places him in the center of the process of influencing of tender. His relay and multiplier function as well as extensive knowledge enable him to assert cognitive and emotional influence and to assume a key position in the process of discussion and evaluation. Especially the topic-specific multiplier function for product and brand messages is of particular interest for companies. Another role of the opinion leader, which is significant in particular for this dissertation, is the influencing function, e.g. to eliminate behavioral and decision-making insecurities. This is to be verified using the business analytics procedures.



Opinion leader, as multiplier with extensive domain-specific knowledge, play a key role in the diffusion of information.

Within the framework of the examination a higher-level process model was developed to answer the research question experimentally applied to the “storage” system. The purpose was to achieve five derived objectives by applying business analytics procedures. The first objective was to identify opinion leaders. This was successfully achieved by means of a correlation analysis using the text mining approach on different sources of information. The second and third goals involved extracting vendor-specific functionalities that lead to a narrowing of the

competition and therefore an evaluation of the level of influence asserted on a tender. Using an especially developed domain-specific taxonomy based on 697 extracted indicators, it was possible to transfer 495 tenders to a model for displaying the degree of influencing. 86% of all analyzed documents showed a significant narrowing of the competition or clearly vendor-specific characteristics. Only 14% of the tenders were actually neutral resp. only displayed a minor narrowing of the competition. The fourth objective involved the prediction of the probability for each tender that a vendor is rewarded the contract. The tools of regression, the decision tree and the neural network were applied in the course. The most reliable predictions based on the misclassification rate were achieved by the neural network and by the regression approach, which correctly predicted the vendor who was awarded the contract for 100% of the examined documents. Furthermore, the final goal – the general disclosure of the influence on a tender asserted by opinion leaders – was achieved by using a scoring model and also relied on the procedures of the previously stated objectives.



86% of all analyzed documents reveal traces of influence. This influence could be backtracked to the corresponding opinion leader.

15 expert interviews were conducted with vendors, partners and customers in order to triangulate and validate the findings from the applied business analytics procedures. Subsequently, the more than nine hours of audio material were interpreted using the method of qualitative content analysis. The interview focused on the content design of a tender as well as the actual process, the information search as well as questions regarding the experts' self-designation. Thanks to the correlation of the entire material, it was possible to create an all-encompassing reconstruction of the procurement process, while shedding light on different strategies of influencing a tender. An early limitation of the number of bidders, e.g. by providing a description of an operational concept, and creating artificial USPs are the most prominent examples of active influencing. Furthermore, it was possible to design a sociometric network that displays the influencing communication channels and protagonists in detail. Half of the questioned vendor employees and 40% of the experts employed by the partner referred to themselves as opinion leaders with the skills and access to influence a tender.

By triangulating the findings from the expert interviews it was possible to confirm the detected patterns in the tender documents using the procedure of business analytics. Moreover, the interviews revealed additional influencing strategies that could not be evaluated in the context of text mining, but which should be considered as part of the influencing.



Business Analytic methods are able to identify opinion leader, measure the degree of influence and predict the probability of an acceptance of a bid

As a conclusion, in consideration of all aspects referred to in this dissertation, it is possible to identify influence asserted by vendors in many public tenders, in addition to the fact that this exercise of influence can be traced back to the opinion leader. This opinion leader may be an individual person, but also an entity, meaning the vendor, a system house or an independent consultant. In any case the identification of the opinion leader, or knowing about the act of influencing, offers a number of interesting consequential courses of action. These include opinion leader management and the purposeful application of resources resp. an adjusted pricing strategy when replying to a tender. The next page shows an infographic about the most important aspects of this dissertation (Figure 75).

Even after decades of research the interest in the topic of opinion leadership continues and is experiencing an upswing in the times of increasing digitalization, greater market transparency and markets growing together. The dissertation has shown in how far new technologies offer new perspectives to opinion leadership research.

“Nobody should think they didn’t have any influence.”

Henry George (1839 - 1897),

U.S. economist

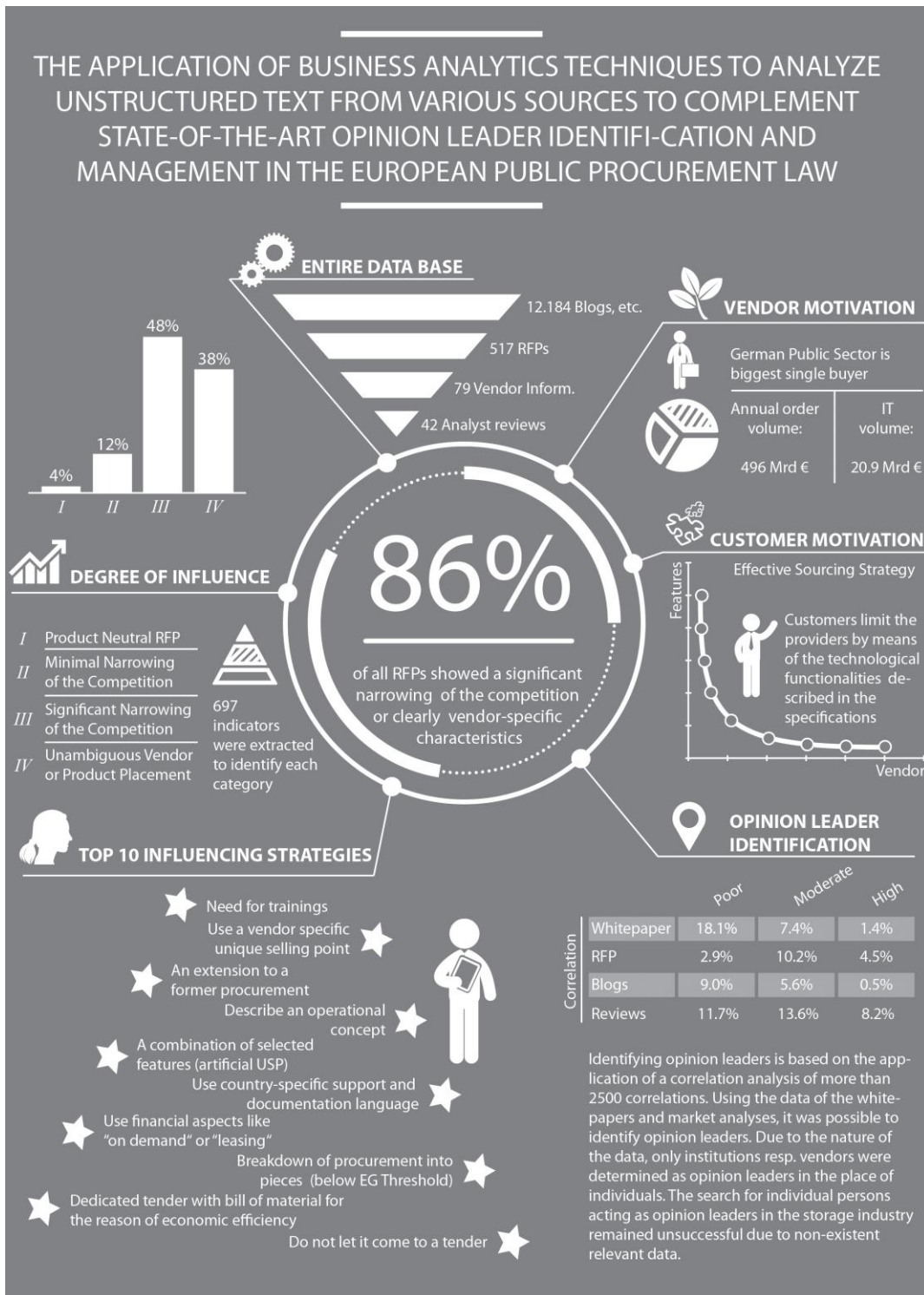


Figure 75: Big Picture of the Dissertation [source: own representation]

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A 1: Interview Guide: Customer

Performed on xx.xx.xx (xx:xxh – xx:xxh)
Interviewer: Stefan Ebener
Interviewee: xxx
Kind of interview: Face-to-Face / Phone Call
Interview language: German

Zum Einstieg ein paar Fragen zur **Demographie Ihres Unternehmens und Ihrer Person:**

- 1) Welche Position bzw. Stellung haben Sie im Unternehmen?
- 2) Wie groß beziffern Sie Ihre jährlichen Ausgaben für Beschaffungen in der IT?
- 3) Wie viele Ausschreibungen werden ca. jährlich aus der IT heraus geschrieben?
 - a. Davon ca. Storage-Ausschreibungen?
- 4) Stehen Sie in engem Kontakt zu anderen Unternehmen bzgl. IT-Themen?

Denken Sie an den **Zeitraum vor der Ausschreibung** Ihres letzten Storage Systems...

- 5) Skizzieren Sie bitte den Ablauf der Beschaffung von der Feststellung des Bedarfs, über die Erstellung der Ausschreibung bis zur finalen Entscheidung.
- 6) Welche Personen sind beteiligt? Buying Center skizzieren

Denken Sie nun bitte an die **konkrete Erstellung** einer Öffentlichen Ausschreibung...

Zunächst ein paar allgemeine Fragen dazu:

- 7) Welche Person initiiert in der Regel eine Ausschreibung in Ihrem Hause? Gibt diese Person bereits konkrete Vorgaben vor?
- 8) Welche Personen arbeiten die Ausschreibungen aus und formulieren diese?

- 9) Welche Personen nehmen beratenden Einfluss auf die Ausschreibungserstellung / wem vertrauen Sie besonders? Wer hat den größten Einfluss?
- 10) Wie würden Sie selbst Ihren Einfluss auf eine Ausschreibung beschreiben?

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

- 11) Welche Kriterien spielen in Ihrem Unternehmen eine wichtige Rolle?
 - a. Standort des Herstellers, Betreuung, Technische Funktionalitäten, Preis, Innovation, Zuverlässigkeit, etc.
- 12) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen? State-of-the-Art zu bleiben?
- 13) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?
 - a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige
 - b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):
 - i. Wie wurde / wird Kontakt zu Partnern/Beratern hergestellt?
 - ii. Wurde jemals ein Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
 - iii. Glauben Sie, dass Sie Ihre Partner in der Vergangenheit immer neutral beraten haben? Falls nein, in welche Richtung beraten?
 - c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
 - i. Welcher Art: Direkt / Indirekt
 - ii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.B. durch RFI?
 - iii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?

- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, dass ein Hersteller versucht eine Ausschreibung zu beeinflussen?
- d. Messen und Tagungen: aktiv, passiv
- e. Intern: Buying Center

A 2: Interview Guide: Vendor

Performed on xx.xx.xx (xx:xxh – xx:xxh)
Interviewer: Stefan Ebener
Interviewee: xxx
Kind of interview: Face-to-Face
Interview language: German

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

- 1) Welche Position bzw. Stellung haben Sie im Unternehmen?
- 2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?
- 3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?
 - a. Davon ca. Storage-Ausschreibungen?
- 4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?
 - a. Wenn ja: Welche?

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.
- 6) Welche Personen waren daran beteiligt?
- 7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?
 - a. Wenn Partner: Welche?
 - b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?
 - c. Wie häufig sind Sie generell über Partner eingebunden?

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

- 8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

- 9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?
- 10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

- 11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?
 - a. Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.
- 12) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?
 - a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.
- 13) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?
- 14) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?
 - a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige
 - b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):
 - i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?
 - ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
 - c. Messen und Tagungen: aktiv, passiv
 - d. Intern: Buying Center
- 15) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

- e. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)
- f. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 16) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 17) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 18) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 19) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 20) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

21) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

22) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

23) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

A 3: Interview Guide: Partner

Performed on xx.xx.xx (xx:xxh – xx:xxh)
Interviewer: Stefan Ebener
Interviewee: xxx
Kind of interview: Face-to-Face
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur **Demographie Ihres Unternehmens und Ihrer Person**:

- 1) Welche Position bzw. Stellung haben Sie im Unternehmen?
- 2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?
- 3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?
 - a. Davon ca. Storage-Ausschreibungen?
- 4) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?
- 5) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?
- 6) Bezeichnen Sie sich selbst als „neutraler Berater“?
- 7) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?
 - a. Falls ja, von wem?
 - b. Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

- 8) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?
- 9) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.
- 10) Welche Personen waren daran beteiligt? (Selling Center)

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

- 11) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?
- 12) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)
- 13) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

- 14) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?
 - a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.
- 15) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?
- 16) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?
 - a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige
 - b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):
 - i. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
 - c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
 - i. Welcher Art: Direkt / Indirekt
 - ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
 - iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?

- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?
- d. Messen und Tagungen: aktiv, passiv
- e. Intern: Buying Center
- 17) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 18) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 19) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 20) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher nicht zu	me nicht zu

- 21) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher	me nicht

nicht zu zu

22) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stim	Stim	Teils	Stim	Stim
me zu	me eher zu	/ Teils	me eher	me nicht
			nicht zu	zu

A 4: Customer Expert Interview: C₁

Performed on 12.12.14 (09:31h – 10:00h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone Call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Referatsleiter

2) Wie groß beziffern Sie Ihre jährlichen Ausgaben für Beschaffungen in der IT?

A: Also das ist etwas schwierig, weil ich so lange in dem Geschäft ja noch nicht bin. Ich mach das jetzt eineinhalb Jahre und hab vielleicht so zweieinhalb Millionen ausgegeben.

I: Ok. Ja das ist ja schon eine gute Summe in den eineinhalb Jahren.

A: Ich kann nix dafür, ich werd einfach immer im richtigen Moment ansagen, ja komm wenn keiner macht, dann kümmer ich mich drum.

I: Ja gut, wahrscheinlich ist Ihnen der ein oder andere sehr dankbar für, oder?

A: Ja, ja, wahrscheinlich.

3) Wie viele Ausschreibungen werden ca. jährlich aus der IT heraus geschrieben?

A: Also da, da ich das ziemlich auf mich konzentriert hab, also EU-Ausschreibungen oder Ausschreibungen? Also Beschaffungen, sagen wir mal manche Beschaffungen gehen ja ohne EU-Ausschreibungen...

I: Genau

A: ...ich hab jetzt die dritte oder vierte EU-Ausschreibung gemacht und das geht auch über diese „eineinhalb Jahre“

a. Davon ca. Storage-Ausschreibungen?

I: Das sind dann aber nicht alles Storage Ausschreibungen gewesen oder?

A: In dem Fall war das schon, so dass das alles Storage Ausschreibungen waren

I: ok.

4) Stehen Sie in engem Kontakt zu anderen Unternehmen bzgl. IT-Themen?

I: Also tauschen Sie sich irgendwie regelmäßig aus mit anderen Firmen?

A: Je nach Bedarf. Also ich persönlich nur, wenn ich einzelne Themenschwerpunkte hab, versuch ich nur diese Themenschwerpunkte am Markt, mit Unterstützung des Marktes für mich transparent zu machen.

I: Wenn Sie sagen mit Hilfe des Marktes, meinen Sie dann mit anderen Kunden, die sagen wir mal bekannt sind?

A: Sowohl als auch. Also wenn Sie jetzt als XXX hören wollen, ob wir auch mit XXX reden, dann sag ich ja.

I: ... Ja davon geh ich doch aus. Ne mir gings jetzt wirklich um andere Kunden sozusagen.

A: Ja, also wir sind sehr immer daran interessiert wie andere XXX ticken, wir machen mit XXX Verbund, wir machen mit der XXX Ab-/Rücksprachen. Wir sind immer sehr interessiert, wie andere Lösungen, wo und wie andere Lösungen gefunden wurden.

I: Naja ok, wunderbar genau.

Denken Sie an den **Zeitraum vor der Ausschreibung** Ihres letzten Storage Systems...

5) Skizzieren Sie bitte den Ablauf der Beschaffung von der Feststellung des Bedarfs, über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Also ja die Findung, das liegt immer daran, wenn ich, also in der Regel lass ich mir von den Herstellern Lösungsansätze erarbeiten und dann versuch ich in meiner Hierarchie einen roten Faden legen zu lassen. Hierarchie bzw. den Leuten die hinten den Betrieb machen, was ich eher so planungsmäßig da rein. Ich zähle nicht zu den Fachleuten an dieser Stelle. Ich bin so einer, der ein bisschen von oben drauf schießt. Und natürlich auch nicht dumm ist und sich da nicht alles erzählen lässt und auch immer wieder dazulernt. Aber so den tieferen Einblick hab ich an der Stelle nicht immer. Das heißt, ich lass mir Lösungsan-

sätze von den Herstellern machen und spreche die mit unseren Kollegen aus dem Betrieb ab, kläre die ab, wie das strategisch, ob es Strategien gibt und ob da in die richtige Richtung geht, weil ich ja dann doch um Volumen spreche, wo man schon überlegen sollte, ob das der richtige Weg ist. Das klär ich ab, dann komm ich irgendwann dazu, dass ich entweder, also das liegt dann wieder am Beschaffungsziel sag ich mal. Wenn ich eine offene Ausschreibung machen muss, dann kann ich so gut wie möglich erklären, was ich denn da genau brauche, ohne da irgendjemanden zu nahe zu treten, weil ich schon großes Interesse dran hab, nicht den Markt mit allem zu befriedigen, also den Markt über alles unendlich richtig gemacht zu haben sondern dass ich auch das kriege, was ich brauche. Nicht nur das was man mir anbietet, sondern auch das was ich brauche. Das heißt, da versuch ich, einen gesunden Mittelweg zu gehen, der mir meinen Arbeitsplatz trotzdem sichert. Also das heißt ich werde da einen Teufel tun, mich zwischen die Stühle zu stellen.

I: Ja, ja. Das kann ich gut verstehen.

A: Das heißt mit allen notwendigen rechtlichen Randbedingungen und auch Konsequenzen. Und ja dann läuft das Dingen und irgendwann kommt das und dann sitze ich hier mit der Peitsche im XXX und kuck, dass wir da durchkommen und alle beteiligten Bereiche dann auch brav die Zeiten einhalten und wir zu einer Installation kommen. Das ist was Sie meinten mit Ablauf?

6) Welche Personen sind beteiligt? Buying Center skizzieren

I: Ja, genau. Das trifft das wunderbar. Ich hab zwei kleine Rückfragen. Zum einen haben Sie gerade gesagt, wer sind denn die beteiligten Personen? Sie haben ja gerade schon die Fachabteilung genannt.

A: Die Fachabteilung, das ist da Rechenzentrum. Die sind diejenigen, die den Storage, oder die Server zusammen betreiben und dann gibt's noch die Kundenseite, die die Anforderung gestellt hat, also die die den Speicher eigentlich nutzen wollen, das ist unser Anwendungsbetrieb und dann noch ne Einheit aus unserer Abteilung, und dann natürlich mein Chef, der Chef vom Rechenzentrum, unser Abteilungsleiter, die ich dann frage. Pass auf, ich hab das und das vor, das kostet aber einen Batzen Geld und so sehen die Alternativen aus. Ich würde das vorschlagen. Und sagen mir die, ja da sind Sie auf dem richtigen Weg oder nein, das haben wir noch nicht verstanden, da muss noch was dazu.

I: Ok, wunderbar. Das heißt Sie stehen halt oben drüber und kucken, ob sich das alles in den richtigen Bahnen sich bewegt, aber die konkreten Anforderungen bevor Sie sich mit dem Hersteller sprechen, die kommen wirklich aus der Fachabteilung?

A: Ja.

I: Und da, die sagen Ihnen auch: Hören Sie mal, der Speicher wird jetzt langsam knapp, wir müssen da nochmal nachlegen?

A: Ja normalerweise sollte es so sein, dass der Betrieb das für sich selber feststellt und der Betrieb auch die normalen standardmäßigen betrieblichen Anpassungen auch selber organisiert. Das Problem ist nur, dass unsere Betriebe in der Regel, sobald das ein gewisses Maß sprengt, und wir in eine Ausschreibung oder in eine EU-Ausschreibung kommen, dass die dann einfach nicht mehr die Ressourcen haben. Die haben weder die Menschen, die sich damit beschäftigen wollen, haben noch die Ressourcen, das neben dem Betrieb zu tun. Und da muss Sie jemand unterstützen und das bin in dem Fall eben ich gewesen, weil ich im falschen Moment ja gesagt hab.

Denken Sie nun bitte an die **konkrete Erstellung** einer Öffentlichen Ausschreibung...

Zunächst ein paar allgemeine Fragen dazu:

- 7) Welche Person initiiert in der Regel eine Ausschreibung in Ihrem Hause?
Gibt diese Person bereits konkrete Vorgaben vor?

I: Ok. Das heißt also die Ausschreibung initiieren tun eigentlich Sie? Wenn ich das jetzt richtig verstanden hab.

A: Naja, also die Kollegen aus dem Betrieb, die wissen was sie brauchen und wie sich was entwickelt. Die beobachten diese Sachen und die haben entsprechende Forderungen bzw. Anforderungen. Und wenn Sie sagen, ich brauch hier nochmal einen... drauf, oder der Controller ist nix mehr, den müssen wir neu haben oder so, dann geht das bis zu einem gewissen Maß mit nem etwas geringeren formalen Aufwand und das können die ableisten und das tun die auch. Die kümmern sich auch um die Wartungsverträge und all diese Sachen. Aber in dem Moment, wo ein größere Paket angefasst werden muss, und wo wir die Kostengrenze im Grunde genommen erreichen, wo der Verwaltungsrat was zu sagen muss und so, ich weiß nicht wer alles bei uns, dann fängt der formale Aufwand an, so groß zu werden, dass sie sich Unterstützung bei unserem Bereich „zentrale Infrastrukturprojekte“ so heißen wir jetzt, hier Unterstützung suchen und wir versuchen denen da dann ein Stückchen abzunehmen, und wenn das Projekt abgeschlossen ist, dann wieder in deren Betrieb zurück zu spulen.

I: Ok, wunderbar. Das hab ich verstanden.

A: Was wir hier natürlich versuchen ist auch strategisch so ein bisschen den Überblick zu behalten. Weil wir wollen und werden hier in dieser Gruppe, die wir ja sind. Wir sollen die Finger in alle Gruppen der IT Services kriegen, das heißt die ganzen Anwendungen, der Webbereiche und der Arbeitsplatzservice – und das soll hier so ein bisschen zusammenlaufen und die Projekte die da im Einzelnen so Ideen und Richtungen die da sind, sollen wir so ein bisschen zusammenführen, dass nicht zwei an der gleichen Baustelle arbeiten um an Ende stellen wir fest, dass das gleiche Thema beim Verwaltungsrat war und da können die überhaupt nicht drüber lachen. Und da gibt's dann eben auch zum Teil einfach so ein bisschen, ich will das jetzt nicht Kontrolle nennen, ich möchte das Organisation nennen. So ein bisschen, dass man die Dinge bündelt, dass man mit den Menschen spricht und sagt, hörmal sprecht ihr nicht eigentlich über das gleiche und können wir da nicht in irgendeiner Form Synergieeffekte für den XXX finden. Also so was soll hier passieren und wir werden dann entsprechend auch über die „Kunden“ zum Teil strategische Überlegungen vorbereitet, die natürlich ein Betrieb letztlich mittragen und entscheiden muss.

I: Ok, klar. So die Synergieeffekte, das war mir, das spukte mir so auch im Kopf herum, weil das natürlich genau das Thema ist. Da kann man vielleicht gleich mehrere Sachen zusammennehmen und hat dann auch einen längeren Hebel um Druck auf den Hersteller auszuüben.

8) Welche Personen arbeiten die Ausschreibungen aus und formulieren diese?

I: Genau. In der Erstellung der Ausschreibung, noch eine Rückfrage dazu. Ist es dann so, dass die Fachabteilungen Ihnen hilft bei der Formulierung des Leistungsverzeichnisses beispielsweise? Oder ist das wirklich in Ihrer Hand noch.

A: Das mach ich. Aber ich lass die noch querlesen, da spricht man schon mit den Menschen und ich hol mir die richtigen Leute ran, die da was wissen müssen, aber normalerweise hol ich mir die Eck-werte, also die Anforderungen, das Profil, wo ich was genau braucht ihr und wie genau sieht das aus und hab ihr an alles gedacht, stell meine entsprechenden Fragen, fang an das zu formulieren und hol mir aber dann im Grunde genommen das ok von den Fachleuten, dass ich da nicht abgeglitten bin.

9) Welche Personen nehmen beratenden Einfluss auf die Ausschreibungserstellung / wem vertrauen Sie besonders? Wer hat den größten Einfluss?

A: A: Inhaltlich?

I: Ja genau, inhaltlich auf die Gestaltung der Ausschreibung

A: Das ist ganz klar unser Einkauf. Die... verwaltet den für mich und Storage. Die ... mit der arbeite ich schon sehr nah dran und da hängt dann auch Rechtsabteilung, bzw. der Rechtsbereich im zentralen Einkauf, der mir dann auch hier und da Dinge vorgibt, die ich mit ihm zu diskutieren hab, wo ich sag, wenn euch das wichtig ist, dann mach ich das natürlich. Für mich braucht man das nicht, wie auch immer. Solche Situationen gibt es eben. Man hat dann unterschiedliche Blickwinkel und manchmal ist es nicht ganz einfach denen einfach verständlich zu machen, warum man das so machen möchte, wie man das machen möchte. Weil da so die technisch Brille dahinter steht oder das taktische Geschick, wie möchte ich so was aufbauen und mit welchem Ziel. Und da müssen wir uns häufig ein bisschen annähern, aber inhaltlich bin ich eigentlich – es gibt ja immer verschiedene Kapitel in der EU-Ausschreibung – und wir machen eigentlich das Leistungsverzeichnis und das Kapitel 5 und 6, ich weiß nicht genau. Es sind zwei Kapitel, die wir als Fachabteilung im Grunde genommen allein verantworten und dann gibt's eben verschiedene rechtliche Eckwerte, wo wir aus ner „Vorlage“ entscheiden können wie wir genau das ganze verstehen.

10) Wie würden Sie selbst Ihren Einfluss auf eine Ausschreibung beschreiben?

A: I: Ah ok. Also wenn wir jetzt mal einen Strich drunter ziehen, sind Sie eigentlich derjenige, der den größten Einfluss auf die Ausschreibung selbst hat?

A: Ja. Also die die ich gemacht hat, hat mir keiner reingeredet.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Welche Kriterien spielen in Ihrem Unternehmen eine wichtige Rolle?

- a. Standort des Herstellers, Betreuung, Technische Funktionalitäten, Preis, Innovation, Zuverlässigkeit, etc.

A: Also, ich weiß jetzt nicht, ob wenn ich da jetzt was sage ob ich den XXX vertret oder ob meinen persönlichen Bauch. Wenn ich eine Entscheidung vorbereite, gibt es für mich schon ganz bestimmte Dinge, die wichtig sind. Das ist natürlich zu einen, dass ich ein vom Volumen abhängig, also sagen wir mal wenn ich Material kaufe für 1 Million und ich weiß genau, dass ich diese Million erst zahlen werde, da kommt erst die Hardware und dann kommt dieses, und dann dauert es schnell mal 2-3 Monate bis derjenige auch wirklich sein Geld kriegt, weil das eben bei uns oder wie auch immer die Regeln sind. Dann achte

ich schon darauf, dass ich von vornherein dafür Sorge, dass die Anbieter so eingeschränkt sind, dass ich annähernd aufgrund der Kriterien, die ich vorgegeben habe, sicherstellen kann dass der Mensch oder diese Firma daran nicht kaputt gehen wird. Also dass sie solvent sind sozusagen. Dass sie ertragen können, dass wenn sie drei Monate später das Geld bekommen, werden die nicht am Stock gehen danach. Das ist es jetzt, was mir wichtig ist, eben sicherzustellen, dass daran keiner kaputt geht, nur weil wir im Haus vielleicht zu langsam sind, zu bezahlen, weil irgendwo noch eine Kleinigkeit nachgeliefert werden muss und wir die letzten 30 oder 50 % erst dann bezahlen oder solche Dinge. Das ist mir wichtig. Also der Anbieter muss gewisse Standfestigkeit haben. Das kann natürlich immer unterschiedlich sein, je nach Volumen wo wir drüber reden. Das Material was wir beschaffen, was sie wahrscheinlich mehr interessiert, das soll aus XXX-Sicht ein standardisiertes Werkzeug sein. Also eins, was keine Sonderlösung ist.

I: Ja, ok. Also würden Sie da, beziehen wir das gerade auf einen Nischenplayer oder ganz allgemein gesprochen?

A: Nee, eigentlich nach Möglichkeit keine, also wie soll ich das jetzt sagen. Ich möchte, also das sind ja immer verschiedene Techniken. Und ich habe hier Betriebspersonal, und dieses Betriebspersonal hat ein gewisses Geschick und eine gewisse Grundausbildung – da können die schon mit umgehen. Da können die mit umgehen, das ist Standard, das ist auf dem Markt, da ist Unterstützung auf dem Markt einzukaufen für, leicht zu kriegen. Solche Dinge sind natürlich entscheidend. Wenn ich jetzt da einen Exoten reinhole und es 3 Spezialisten in Deutschland gibt, die helfen können, das kann, also wirklich, das ist der Porsche unter den Mercedes, eine ganz heiße Kiste, aber wenn ich dann keinen hab der mir entsprechend, den ich am Markt kriegen kann zu Mitteln, die ich auch bezahlen kann um den Betrieb für den XXX sicherzustellen, dann hilft es mir auch nicht, wenn die sagen, das Ding geht nie kaputt.

I: Ne klar, gut, verstehe.

12) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen? State-of-the-Art zu bleiben?

A: Also das mach ich ganz einfach. Ich hab jetzt beispielsweise das letzte wo jetzt unterwegs ist vorgekommen als Angebot, als Lieferant bekommen hat. Ich hab da den XXX. Wir haben noch keinen XXX im Haus. Ich hab in die Ausschreibung direkt die Schulung mitreingeschrieben für unser Betriebspersonal und ich werde das nicht in Betrieb nehmen lassen, also es darf keine Migration geschehen, bevor diese Schulung ist. Die hab ich einfach mit der... geschafft. Al-

so ich halte das für eine ganz wichtige Sache und hab mich sehr darüber gefreut, dass ich da ne Bestellnummer hatte für die Schulung in der XXX Liste, damit ich da sagen konnte, ok das kommt mit in die Ausschreibung rein, in dem Fall war es ja auch Kistenschieben mit ein bisschen Migration, aber ich konnte bei diesem Kistenschieben eben auch sagen, so Freunde, diese Reihenfolge gebe ich vor erst Schulung, ihr könnt installieren wann ihr wollt, aber wenn nicht mindestens 2 von 3 Leuten geschult sind, wird diese Migration nicht stattfinden, weil ab da ist das für mich produktiv und dann muss ich hier Leute haben, die wissen, was sie tun. Und das ist die Art und Weise, wie ich mir vorstelle, wie ich meine Leute aktuell halte, meine Technik aktuell halte, wenn also ein sinnvoller Umbruch ist, um ne Technik anzupassen oder zu erneuern und das schon einen gewissen Stand hat. Also ich würd das nicht in der Beta Version hier beim XXX haben wollen.

I: Wobei das sich sehr stark ja darauf bezieht, da haben Sie ja die Entscheidung schon getroffen, dass sie die neue Funktionalitäten aus XXX in ihr Rechenzentrum lassen. Für mich noch ein bisschen der interessantere Teil ist, wie haben sie vorher sozusagen sichergestellt, dass auch XXX verwendet wird? Weil man hat ja gewisse Vorteile, die für den XXX sicherlich auch existent sind und die müssen sich ja in der Ausschreibung irgendwie wieder zu finden sein. Wie haben Sie sich da vorher..

A: Achso das war jetzt an der Stelle nicht notwendig, weil ich das System erweitert hab und da war XXX, XXX und ich sagte die Köpfe müssen neu und neue Köpfe sind dann eben von XXX. Also an der Stelle hab ich da eine andere Karte ziehen können. Das war einfach.

I: Aber jetzt mal grundsätzlich. Es gibt eine neue Technologie und sie sagen, das sollte nach Möglichkeit in unser Rechenzentrum Einzug finden, dann machen Sie vorher klassische Marktsichtung, wie sie vorhin schon mal sagten, sie unterhalten sich mit Herstellern lassen sich Aufschlauen und kucken dann, dass sie das berücksichtigen können?

A: Ja, Beispiel ich hab unseren DMZ Storage hier neu gekauft und damals hat der XXX auch versucht mir den XXX schon mal schmackhaft zu machen mit den neuen Dingen und dann sagt der das kostet doch keinen Mark mehr und was weiß ich noch alles und dann hab ich mit meinen Fachleuten gesprochen und hab mein Bauchgefühl gemacht und das war mir zu früh. Das war mir einfach zu früh. Und er hat dann uns, das geht ja dann über die Ausschreibung, all diese Dinge gehen natürlich dann zusätzlich Zeit ins Land, das ist auch ein Stück andere Erfahrung. Aber danach kann ich dann auch nicht mehr rum. Dann kommt ein XXX, der ja wirklich sehr entgegenkommen und freundlich ist und sagt passt auf Jungs, ihr könnt doch jetzt statt denen, die ihr da bestellt

habt oder die angeboten sind, können wir auch die anderen nehmen. Und das kann ich halt im Rahmen einer EU-Ausschreibung nicht machen. Weil ich auch nicht möchte, dass mir hinterher einer im Kreuz liegt und sagt, ja Moment, wenn ihr das gesagt hättet, dann hätten wir ja auch... Dann kann ich halt dann eben schlecht dran vorbei. Ja das war eben die erste Berührung zu diesem System und dann hab ich beim nächsten Mal dann nachgefragt. Hab ich gesagt, Jungs, sollen wir denn? Die wollten auf dem gleichen Stand bleiben. Sagte ich: Warum? Wir fassen hier jetzt Geld an, wir fassen das ganze System an, warum sollen wir nicht drüber nachdenken, einen Schritt weiter zu gehen. Das haben sie mitgetragen und deswegen haben wir jetzt hier an diesem Beispiel direkt gesagt, wir wollen das. Und haben keinen gefragt oder angefragt, sondern haben direkt gesagt, wir wollen das.

13) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Also das sind wenn, dann gehen die Dinge bei mir nur in die Ausschreibung, weil die Leute, mit denen ich gesprochen hab, sich genau an der Stelle orientieren. Also ich für meinen Teil sage, ich tue das nicht. Ich verlass mich zu sehr großen Teilen auf meine Fachleute hier. Und auf die Firmengespräche. Das heißt ich versuche mir über die Herstellerfirmen, und ich rede ausschließlich mit Herstellern bei einer Ausschreibung, nie mit Lieferanten. Da hole ich mir meine Infos bzw. bei meinen Kollegen die letztlich das hier betrieblich verantworten oder irgendwo aus irgendeinem Grund ich den Eindruck hab, die können das beurteilen. Mit denen Leuten spreche ich und das sind auch ganz häufig Menschen, die auch solche Fachzeitschriften studieren, machen, tun. Da ich nicht weiß, was ich morgen kaufen soll oder für wen ich morgen irgendwie immer ja sagen soll. Ich halte es eher für Zufall, dass ich mein 3. oder 4. Storage System da in irgendeiner Form anfasse, das hat sich einfach ergeben und morgen kann es was anderes sein und ich kann nicht ne eierlegende Wollmilchsau werden und will das auch nicht werden.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Wie wurde / wird Kontakt zu Partnern/Beratern hergestellt?

A: Bisher nein. Aber sollte ich in ein Thema geworfen werden, wo ich den Eindruck hab, dass ich mit den Möglichkeiten die ich im Haus hab, nicht zu einem objektiven Ergebnis komme, also um einfach die Zielrichtung festzulegen, also in dem Fall würde ich auch ein paar Mark locker machen lassen oder irgendwie mir besorgen um mir entweder Unterstützung einzukaufen oder an den Markt gehen und sage kuck mal bitte wer von der Herstellern da eigentlich unsere Anforderungen erfüllt und wenn ich da keine Ressourcen für hab, ja doch, das würd ich tun. Ich würd mir da jemanden beschaffen, der mir Dinge zuträgt, die hier nicht erfragen kann.

- ii. Wurde jemals ein Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
 - iii. Glauben Sie, dass Sie Ihre Partner in der Vergangenheit immer neutral beraten haben? Falls nein, in welche Richtung beraten?
- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
- i. Welcher Art: Direkt / Indirekt
 - ii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.B. durch RFI?
 - iii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
 - iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, dass ein Hersteller versucht eine Ausschreibung zu beeinflussen?
- d. Messen und Tagungen: aktiv, passiv

A: Also ich persönlich gehe da in der Regel nicht so hin. Manchmal weil ich die Zeit nicht hab, aber in der Regel auch weil ich sage, dann geh ich ja doch wieder in die Richtung dass ich Dinge wissen will, die ich dann hinterher doch nicht mehr brauche und das ist für mich so ein Stück Fehlinvestition auch für den XXX. Wenn das jetzt so was Globales ist und ich mir das mal ankucke, damit ich nen Überblick kriege dann ist das nochmal was anderes. In der Regel sind die Dinger aber doch zu punktuell finde ich für mich.

I: Ok, alles klar.

A: Passiert eher, dass da die Fachleute hingehen als ich.

I: Ok ist ja auch gut, wenn die Ihnen im Prinzip die Richtung dann auch mitgeben.

A: Also ich kann weder, gerade bei solchen Dingen geht es mir, also ich bin eigentlich gebürtiger Netzwerker sag ich immer obwohl ich aus der... komme. Ich habe, solange ich noch Betrieb für Netzwerke gemacht hab, habe ich weil ich Fachmann war, für dieses Gewerk auch an solchen Foren teilgenommen. Schon alleine um abzusaugen, wie andere Erfahrungen haben und und und. Mit nem gewissen Grundverständnis des Themas. Wenn ich jetzt das gleich tue, erwarten sich die Menschen die da hingehen genau diese Fachleute und die wollen sich austauschen. Und da kann ich nur versagen, hätte ich fast gesagt. Weil das ist nicht mein Gewerk. Und da gehör ich im Prinzip deswegen nicht hin. Und das ist dann so.

e. Intern: Buying Center

A 5: Customer Expert Interview: C₂

Performed on 11.12.14 (13:30h – 14:06h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Sachbearbeiter IT, Backoffice

2) Wie groß beziffern Sie Ihre jährlichen Ausgaben für Beschaffungen in der IT?

A: 150Kilo (Mit Verlängerungs-, Wartungs- und Leasing-Verträgen)

3) Wie viele Ausschreibungen werden ca. jährlich aus der IT heraus ausgeschrieben?

a. Davon ca. Storage-Ausschreibungen?

A: Keine Ausschreibungen, weil über Rahmenvertrag gekauft wird. Bzw. Großteil übers Rechenzentrum.

I: Wie oft wird neuer Storage beschafft

A: 5 Jahre

4) Stehen Sie in engem Kontakt zu anderen Unternehmen bzgl. IT-Themen?

A: Mit der XXX, da liegen zum Beispiel die Telefon-Rahmenverträge die handeln da sowas aus und wir können dann da Kontingente buchen.

I: Und außerhalb von der XXX mit Herstellern oder Partnern ?

A: Keine festen. Klar man hat irgendwo mal n Softwarestücke gekauft und dann hat man die halt in der Betreuung und für andere Sachen ruft man die halt auch mal an wenn man da was braucht. Wenn man Dienstleistung braucht

und weiß die sind da halt gut, dann kann man die auch mal einkaufen.

Denken Sie an den **Zeitraum vor der Ausschreibung** Ihres letzten Storage Systems...

- 5) Skizzieren Sie bitte den Ablauf der Beschaffung von der Feststellung des Bedarfs, über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

I: Denken Sie an den letzte Ausschreibung. Bzw was sie gerade sagten als sie das Konjunkturpaket genutzt haben. Können Sie mir da einmal, wenn sie das wissen den Ablauf der Beschaffung (bis hin zu finalen Entscheidung). Waren sie da beteiligt an bestimmten Bereichen?

A: Ja das war die Serverumstellung, aber wir haben in dem Zug unsere Rechenzentrum, unseren Serverraum komplett neu konzipiert, Umstellung auf VMware. Und haben uns dann halt mehrere kleine Lösungen rausgesucht für die LAN. Hatten dann halt von allen gängigen Anbietern Leute im Haus, die dann ihre Konzepte gezeigt haben.

I: Die haben dann so einen Proof-of-concept bei Ihnen aufgebaut oder...

A: Nönö, das waren nur Präsentationen. Basierend auf den technischen Spezifikationen und der Präsentation und dem Preis haben wir uns dann entschieden.

- 6) Welche Personen sind beteiligt? Buying Center skizzieren

A: Das waren damals mein Kollege und ich, zusammen mit den jeweiligen Beratern dann die wir da hatten. Und für die anschließende Finanzierung und so weiter ging das dann natürlich noch ein paar Ebenen höher. Wir haben die Ganze Vorbereitung gemacht und die Verfügung geschrieben. Und die machte dann ihren weg.

I: Und dann ging's dann auch an Ihren Referatsleiter oder Fachbereichsleiter?

A: Ja das war schon höher, das ging zum Amtsleiter und zum Rechnungsprüfungsamt.

I: Bei der Beschaffung hatten Sie ja eben gesagt, sie haben alles Vorbereitet, das heißt praktisch sie hatten da schon bestimmte Anforderungen dokumentiert oder wie muss ich das verstehen?

A: Ja, wir haben die Größen abgeschätzt, haben die Anforderungen dokumentiert. Also in dem Fall war das eigentlich, ja dann haben wir halt den Markt beobachtet, weil wir vorher in der Rahmenbeschaffung so noch gar nicht tätig wa-

ren. Unsere Anforderung war halt dass wir sowohl iSCSI. Als auch FirbeChannel haben wollten und von allen eigentlich so eine kleiner Lösung also jetzt die 2000 von XXX beispielsweise. Und äh am Ende kam dann halt sowie so nur noch XXX raus, weil das waren die einzigen die sowohl FirbeChannel und iSCSI hatten. Aber das wussten wir beide ja, als wir das Profil machten, noch nicht. Sonst hätten wir uns den Aufwand sparen können.

Denken Sie nun bitte an die **konkrete Erstellung** einer Öffentlichen Ausschreibung...

Zunächst ein paar allgemeine Fragen dazu:

- 7) Welche Person initiiert in der Regel eine Ausschreibung in Ihrem Hause?
Gibt diese Person bereits konkrete Vorgaben vor?

A: Die Kommt von uns, also jeweils vom Fachamt.

I: Geben Sie denn bereits konkrete Vorgaben vor wie das auszusehen hat?

A: Ja klar, technische Spezifikationen kommen auch von uns.

- 8) Welche Personen arbeiten die Ausschreibungen aus und formulieren diese?

I: Welche Personen arbeiten diese Ausschreibung/Bedarfserstellung aus? Sie sind zu zweit in dem Bereich oder?

A: Ja. Teilweise geht dann auch noch der Fachvorgesetzte jeweils da dran. Und wenn es jetzt eine größere Ausschreibung ist sind jetzt die Vergabestelle als bei der XXX, und XXX selber hat auch nochmal eine interne Vergabestelle, die dann nochmal prüft ob das auch wirklich so passen kann. Gerade wegen Diskriminierung und so.

- 9) Welche Personen nehmen beratenden Einfluss auf die Ausschreibungserstellung / wem vertrauen Sie besonders? Wer hat den größten Einfluss?

A: Also wir haben am meisten die Berater da, alle anderen sind technisch ja nicht in der IT sondern mehr in der Verwaltung. Deswegen hat man die Berater und die eigene Recherche die man macht.

I: Sind das bezahlte Berater oder Berater die von Herstellern kommen?

A: Das ist unterschiedlich. Teilweise sind das die Presales Consultants und teilweise haben wir zum Bsp. gerade bei Telefonanlagen, haben wir dann Exper-

ten die dann sagen wir haben das Potenzial und die haben halt dann die Kontakte zu meinetwegen Siemens und würden dann mit denen Verhandeln. Und von dem eingesparten Geld bekommen die dann die Provision. Und die machen dann die Beratung aber auch die Verhandlung und so weiter. Also als externer, Provisionsabhängiger Makler sozusagen.

10) Wie würden Sie selbst Ihren Einfluss auf eine Ausschreibung beschreiben?

A: Der ist schon relativ hoch. Also wenn wir Sachen haben wollen und der Bedarf besteht kriegen wir die in der Regel auch.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Welche Kriterien spielen in Ihrem Unternehmen eine wichtige Rolle?

- a. Standort des Herstellers, Betreuung, Technische Funktionalitäten, Preis, Innovation, Zuverlässigkeit, etc.

A: Primär: Preis (sonst sind wir bald pleite)

Danach kommt die Zuverlässigkeit (das Ding soll laufen) und je nach Wichtigkeit muss man mit dem Support abgesichert sein dass wenn es mal nicht läuft es dann halt wieder läuft. Support zum absichern

I: Das heißt technische Funktionalitäten sind für Sie eher untergeordnet?

A: Ja da muss man meistens Abstriche machen, weil das spiegelt sich sonst im Preis wieder. Also wir haben schon ganz gerne schöne Features drauf. Und bei der XXX ist das ja auch das Lizenzmodell von XXX ist ja dann doch, da kann man ja unheimlich viel dazu kaufen. Und äh, also wir haben beispielsweise bei der Beschaffung damals auch auf des Lizenz von diesem XXX System, das man da hinterher so überall drauf zugreifen kann, drauf verzichtet, weil das dann zu teuer gewesen wäre und die anderen das auch nicht auf dem Markt hatten. Bzw. die anderen schon aber wir haben damals darauf verzichtet, weil das dann zu teuer gewesen wär und dann mussten wir das halt dann anders lösen, aber halt über den Server.

I: Wissen Sie wie viel Datenvolumen Sie überhaupt haben also so über den Daumen gepeilt?

A: Ähm im Serverraum. Äh ich glaube die XXX hat so 4 oder 5 Terra. Aber wir haben jetzt noch zwei die CIFS Sachen bereitstellen, und dann halt preiswerter Synology, also vom Consumerbereich. Die machen dann auch nochmal die gleiche Menge ungefähr.

12) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen? State-of-the-Art zu bleiben?

A: Also wir sind eigentlich mit dem Beschaffen relativ intensiv vorher und erkundigen uns im Markt. Also gängige Zeitschriften, CT, AX und was es da so gibt. Computerwoche, wobei da ist jetzt technisch nicht so viel drin. Ja und dann halt das Internet, also ganz normale Suche .

I: Ok mit Herstellern haben Sie direkten Kontakt? Dass sie da sich aufschlauern lassen?

A: Äh ja das gibt es auch. Wir haben überall XXX im Einsatz, die laden auch regelmäßig ein und machen so Werbeveranstaltungen. Das man da Schnittchen kriegt uns sich die neuen Sachen anguckt. Sind wir auch immer gerne mal und gucken uns das an aber das sind in der Regel dann gerade sie Sachen die frisch auf dem Markt sind die wir uns eh nicht leisten können. Aber anhören und n Kaffee ist ja auch schön.

13) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

I: Also da hatten wir ja gerade schon Fachzeitschriften / Zeitschriften , Anbieter , Hersteller. Wie sieht es aus mit Marktforschungsunternehmen wie IDC oder Gardner.

A: Benutzen wir gar nicht. Also ich guck schon mal, also jetzt wo ich die Vergabeplattform, hab ich schon auch mal einfach andere Ausschreibungen angeguckt. Von der Formulierung her ist das auch immer.

b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

I: Berater hatten Sie ja schon bejat, sind im Einsatz.

A: Ja schon, naja private Kontakte sind ja schon mal nicht mehr neutral ne.

i. Wie wurde / wird Kontakt zu Partnern/Beratern hergestellt?

A: Teilweise habe ich kalte Akquise, das die einfach anrufen und wir dann gerade den Bedarf haben, und wir sagen ja kommt doch mal vorbei und dann machen wir eine kleine Präsentation. Teilweise suchen wir auch selber, online, wenn es da was gibt. Also beispielsweise bei Exchange Server hatten wir das, da gibt es einfach eine Webseite im Internet, die Exchange-FAQ oder so, die sind wirklich da in Deutschland fit da / empfehlend?? für Exchange. Und dann ruft man halt direkt da an, weil wir hatten auch schon mal so ein Systemhaus das wir sonst regelmäßig genutzt haben, in der Vergangenheit. Und wenn da ein Berater kommt und dann nach zwei Tagen das Problem immer noch nicht löst, kann man besser da dem einfach remote drauf lassen für zwei Stunden und der ist ja dann in dem Bereich spezialisiert. Und da suchen wir dann schon die Leute raus die da in dem Bereich dann auch... und aufschlauern kann ich mich selber.

- ii. Wurde jemals ein Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
- iii. Glauben Sie, dass Sie Ihre Partner in der Vergangenheit immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Nö, nö, also die sind in der Regel, die Systemhäuser haben entweder IBM oder HP als Partner und dann sind die halt nicht neutral.

- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
 - i. Welcher Art: Direkt / Indirekt

A: Ne mit XXX, aus Köln sind die glaub ich oder. Ich weiß nicht, sind das unabhängige Systemhäuser oder hängen die direkt dran?

I: Die sind ein unabhängiger Partner, der natürlich auch Reselling für XXX betreibt.

A: XXX und das war auch eher kalte Akquise, da hat auch einer mal angerufen. Und wir waren da gerade eben bei der Suche.

I: Ja gut wens passt is ja super, da spart man sich die Arbeit.

A: Ja genau.

I: Also sie hatten keinen direkten Kontakt zu XXX, haben dementsprechend auch nicht um Unterstützung gefragt. Äh der Partner hat der Ihnen, hat der Sie unterstützt bei den Definitionen der Anforderungen für die Ausschreibung

/ das Dokument, das sie dann formuliert haben?

A: Nö das haben wir nicht gebraucht.

- ii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.B. durch RFI?
- iii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, dass ein Hersteller versucht eine Ausschreibung zu beeinflussen?

A: Nö, eigentlich nicht. Zumindest hab ich es nicht gemerkt.

d. Messen und Tagungen: aktiv, passiv

A: Wir waren in letzter Zeit eigentlich nur auf diesen Inhouse Messen, die dann wohl doch eher Produktveranstaltungen sind. Messen selber war ich auch schon ewig nicht mehr auf der Cebit, ne. Jaja früher waren wir regelmäßig auf der Cebit und auch in München auf der IT-Systems. Aber des ist schon ewig her, also nicht in der Firma in der ich jetzt arbeite.

e. Intern: Buying Center

A 6: Customer Expert Interview: C₃

Performed on 12.12.14 (10:30h – 10:40h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Fachbereichsleiter

2) Wie groß beziffern Sie Ihre jährlichen Ausgaben für Beschaffungen in der IT?

A: Nein. Also natürlich kann ich die beziffern, aber das werd ich nicht tun.

I: Ja ok. Deswegen hab ich ja eben gesagt, dass sie das nicht tun müssen wenn sie es nicht möchten.

A: Ich denke viele Fragen davon werde ich nicht beantworten dürfen.

3) Wie viele Ausschreibungen werden ca. jährlich aus der IT heraus geschrieben?

A: Insgesamt in Summe?

I: Ja so über den Daumen. Muss jetzt nicht auf die letzte Ausschreibung genau sein.

A: Also ich würde jetzt mal sagen, dass wir im Bereich von 100 Stück im Jahr liegen.

I: Wow, ok.

a. Davon ca. Storage-Ausschreibungen?

A: Davon sind Storage-Ausschreibungen im Jahr maximal 1 bis 2.

4) Stehen Sie in engem Kontakt zu anderen Unternehmen bzgl. IT-Themen?

A: Ja.

I: Ja ok. Genau. Und da tauschen Sie sich im Prinzip regelmäßig aus zu so was gerade in der Branche los ist?

A: Zu allen Themen. Also zu fast allen Themen, ja.

Denken Sie an den **Zeitraum vor der Ausschreibung** Ihres letzten Storage Systems...

5) Skizzieren Sie bitte den Ablauf der Beschaffung von der Feststellung des Bedarfs, über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Ja gut also das ist ja daran gekoppelt, da wir ja XXX Systeme haben ist unser erster Ansprech-partner natürlich XXX. Wir ermitteln das in dem Bereich selber, schauen dann natürlich von den Kosten her was die Konkurrenz macht, also die Mitbewerber machen. Wir haben dann einen ganz normalen Beschaffer im Haus. Die geben einen Auftrag raus, das zu besorgen, einzukaufen. Also wir ermitteln die Speichergrößen, die zu erwartenden Kontingente und die Funktionen, die wir brauchen das ermitteln wir in der Technik. Wir haben eine zweigestufte Beschaffung und dann selber die Beschaffung an sich macht dann unser Haushaltsreferat.

I: Ok, das heißt aus dem Betrieb heraus sagen Sie: Wir werden jetzt langsam knapp an Speicherkapazität, wir müssen im Prinzip was tun.

A: Genau.

I: Ok, alles klar.

6) Welche Personen sind beteiligt? Buying Center skizzieren

A: Beschaffung selbst, Controlling-Referat und das wars im Prinzip.

I: Ah, ok. Plus die Fachabteilung hatten Sie ja grad schon genannt, ok wunderbar. Gut.

Denken Sie nun bitte an die **konkrete Erstellung** einer Öffentlichen Ausschreibung...

Zunächst ein paar allgemeine Fragen dazu:

- 7) Welche Person initiiert in der Regel eine Ausschreibung in Ihrem Hause?
Gibt diese Person bereits konkrete Vorgaben vor?

A: Da wird natürlich erst geprüft ob es nen Rahmenvertrag gibt. Und wenn es den Rahmenvertrag gibt, dann bedienen wir uns eines Rahmenvertrages. Da sind wir auch angehalten zu.

I: Ah ok. Unter welchem Rahmenvertrag kaufen Sie? Ist das hier die Provitako?

A: Das ist der, der mit XXX existiert.

I: Ja, genau das ist der Provitako-Vertrag, genau.

A: Genau, richtig.

I: Wenn jetzt in dem Sinne sozusagen nen Bedarf bei Ihnen festgestellt wird, ist es dann so üblich, dass im Prinzip, Sie haben ja gerade gesagt, naja wir schauen ob wir über den Rahmenvertrag beziehen können. Da ist immer die Frage, im Rahmenvertrag sind ja mehrere Hersteller drin. Gibt es da bereits konkrete Vorgaben aus dem Betrieb, dass Sie sagen, wir müssen jetzt unbedingt ne Erweiterung zu dem System haben oder wie gehen Sie da vor?

A: Naja, das sehen wir, ob Speichersysteme volllaufen oder nicht. Und das wär schon schön, wenn ich XXX Storagesysteme habe, dass ich dann auch XXX Speicher dazu kaufe.

I: Haha, ja gut. Aber manchmal ist es ja so, dass sie nen komplett neues System sich überlegen anzuschaffen, weil ne bestehende Erweiterung keinen Sinn mehr macht. Da ist ja die Frage, wo im Prinzip die Anforderung dann herkommt.

A: Es wird ne Wirtschaftlichkeitsbetrachtung dazu gemacht. Ob wir erweitern, ob wir neu kaufen, ob nen Rückkaufpreis gemacht wird. Da werden genaue Wirtschaftlichkeitsanalysen zu gemacht.

I: Ah ok, alles klar. Gibt's da auch schon die Notwendigkeit für technische Funktionalitäten, die erfüllt werden müssen?

A: Technische Funktionalitäten, ja.

I: Und auf Basis dessen kommen dann die Wirtschaftlichkeitsprüfungen?

A: Die fließen da mit ein.

- 8) Welche Personen arbeiten die Ausschreibungen aus und formulieren diese?
9) Welche Personen nehmen beratenden Einfluss auf die Ausschreibungserstellung / wem vertrauen Sie besonders? Wer hat den größten Einfluss?

A: Nein.

I: Ok, also kaufen Sie keinen externen Berater ein oder haben sozusagen noch...

A: Nein, in der Regel nicht.

I: Ok. Das heißt einzig und allein die Fachabteilung schaut, dass sie die Anforderungen definieren.

A: Genau.

10) Wie würden Sie selbst Ihren Einfluss auf eine Ausschreibung beschreiben?

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Welche Kriterien spielen in Ihrem Unternehmen eine wichtige Rolle?

- a. Standort des Herstellers, Betreuung, Technische Funktionalitäten, Preis, Innovation, Zuverlässigkeit, etc.

A: Ich glaub, dass das alles zusammenfließt.

I: Ja, ok. Also gibt's kein Kriterium, wo Sie sagen, das ist uns besonders wichtig?

A: Mh. Man könnte jetzt sagen Preis-Leistungsverhältnis muss stimmen, aber das ist pauschalisiert.

I: Ja gut, das ist ja schon nen wichtiger Indikator.

12) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen? State-of-the-Art zu bleiben?

A: Durch Weiterbildung der Mitarbeiter.

I: Weiterbildung der Mitarbeiter. Das heißt Sie schicken sie regelmäßig auf Schulungen oder zu Messen/Tagungen?

A: Ja. Machen wir.

I: Ok, wunderbar.

13) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Gucken wir auch drauf, ja. Wir haben Fachzeitschriften, wir haben Gartner, wir sind da Kunde.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Sehr stark. Wir haben auch verschiedene Ausschüsse, wo der Bund oder das Land sich zusammensetzen oder IT-Verantwortliche zusammensetzen und da ihre Erfahrungen austauschen.

I: Ah ok, ja, verstehe.

- i. Wie wurde / wird Kontakt zu Partnern/Beratern hergestellt?
- ii. Wurde jemals ein Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
- iii. Glauben Sie, dass Sie Ihre Partner in der Vergangenheit immer neutral beraten haben? Falls nein, in welche Richtung beraten?

- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):

I: Schauen sie da regelmäßig was sich da getan hat und kriegen neue Präsentationen, etc?

A: Ja, kriegen wir auch mit.

- i. Welcher Art: Direkt / Indirekt

A: Indirekt.

- ii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.B. durch RFI?
 - iii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
 - iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, dass ein Hersteller versucht eine Ausschreibung zu beeinflussen?
- d. Messen und Tagungen: aktiv, passiv
- e. Intern: Buying Center

A 7: Customer Expert Interview: C₄

Performed on 15.15.14 (10:00h – 10:34h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Sachbearbeiter im gehobenen Dienst

2) Wie groß beziffern Sie Ihre jährlichen Ausgaben für Beschaffungen in der IT?

A: Dazu möchte ich keine Angaben machen

3) Wie viele Ausschreibungen werden ca. jährlich aus der IT heraus ausgeschrieben?

A: Ausschreibungen in welcher Hinsicht?

I: Erst mal ganz global und dann ...

A: Ausschreibungen selbst in Form von Rahmenverträgen machen wir ja selbst nicht. Das macht ja das Beschaffungsamt beim Bundesinnenministerium. Da kriegen wir höchstens im Jahr so, hm ja, also ich für meinen Bereich krieg immer so 3-4 Bestelltapeten, wo ich dann quasi eintragen muss, wie denn mein Bedarf auf die kommenden drei Jahre ist. Da das dann meistens sehr schwierig ist, da im Vorfeld zu planen. Aber wenn ich da nix ausfüllen würde oder eine Fehlanzeige melden würde, dann wär ich nicht berechtigt, da in diesem Rahmenvertrag irgendwelche Abrufe zu machen.

I: Ah, ok. Das heißt Sie können über den Rahmenvertrag direkt beziehen.

A: Genau und eine Alternative wär halt, wenn es keinen Rahmenvertrag gibt, dann muss ich da natürlich auch irgendwie ganz normale Beschaffungswege alle fein säuberlich aussortieren und die ganzen Nachforschungen anstellen

und dann wird das ganze an die Bundesfinanzdirektion XXX abgegeben, Referat XXX. Die sind die zentrale Vergabestelle für den XXX.

I: Alles klar, also für alles was dann nicht im Rahmenvertrag aufgenommen. Gehen Sie da dann...

A: Also..

I: Ja, sagen Sie erst mal.

A: Ja, die Besonderheit bei uns ist halt, dass wir auch eine eigene Vergabestelle haben – das ist historisch gewachsen – das haben ja andere Mittelbehörden oder Behörden in der XXX nicht. Früher hat die Vergabestelle im Prinzip alles gemacht und dann kamen halt die Sachen mit Rahmenverträge von XXX und die zentrale Beschaffungsstelle bei der BFD XXX und so weiter und da wurden die Aufgaben ein bisschen beschnitten. Also die Vergabestelle macht im Prinzip alles, was Notbeschaffungen sind, bis zigtausend Euro und alles was Rahmenvertragsware ist. Alles was darüber hinausgeht, was dann freihändig vergeben werden muss, da machen die nur ihren Kommentar ran und geben das dann die BFD XXX ab.

I: Und heißt das, dass für den Fall, dass sie nicht über den Rahmenvertrag beschaffen können oder auch darüber beschaffen, dass sie zumindest vorher das Leistungsverzeichnis erstellen? Oder ist das dann auch was, was aus der Beschaffung heraus gemacht wird?

A: Also wie jetzt nochmal konkret? Das hab ich jetzt akustisch nicht ganz verstanden.

I: Ne, es ging darum, machen Sie die Leistungsbeschreibung noch selbst?

A: Ja.

I: Und das heißt, das ganze rechtliche und sagen wir mal finanzielle macht ihre zentral Beschaffungsstelle?

A: Naja, ich kanns ja nur von mir sagen, das bereit ich schon alles so weit vor, sodass dann so wenig wie möglich andere da noch rumzuhekeln haben und ewig lange Diskussionen. Für mein Gefühl dauert die Beschaffung ja immer noch zu lange. Im Regelfall, wenn alles gut läuft, sag ich mal so, ist das in ein Monat durch, der Normalfall, so wie mir das gesagt worden ist, sind es drei Monate. Was ich immer noch für viel, viel zu lange halte. Und wenns schlimm kommt, und das durfte ich ja selbst schon erfahren, wenn zwischendurch dann irgendwelche Rahmenverträge auslaufen oder nicht mehr verfügbar sind, dann kann so ne Beschaffung auch schon mal 2 Jahre dauern. Schon alles erlebt.

a. Davon ca. Storage-Ausschreibungen?

I: Sie hatten ja eben gesagt, Sie beziehen über den Rahmenvertrag, oder eben wenn der das nicht hergibt, dass sie dann auch ne Ausschreibung vorbereiten. Wenn Sie das auf Storage Ausschreibungen oder Storage Rahmenverträge runterbrechen, wie oft beziehen Sie dann darüber? Können Sie das beziffern?

A: Jetzt Rahmenverträge im Jahr zum Beispiel?

I: Ja.

A: Naja, dieses Jahr warens 4 Rahmenvertragsabrufe und eine europaweite Ausschreibung. Und ja, es kommt immer darauf an, wie die Anforderung der Bedarfsträger sind. Also normalerweise darf ich ja nichts auf Vorrat beschaffen und aber ich bin halt bemüht dann bei jeder Beschaffung dann immer so einen kleinen Puffer einzubauen. Weil das Thema Beschaffung ist jetzt nicht unbedingt gerade mein Lieblingsthema. Naja, weil das Problem ist ja nicht wegen der Beschaffung an sich, sondern der Aufwand, der dahinter steckt. Am Ende kommen da nur 3-4 Papierchen raus, aber der Aufwand und die Energie, die man reinstecken muss, das ist ne Menge Arbeit. Weil jeder hat natürlich so, wie soll ich sagen, seine eigenen Regeln und Befindlichkeiten, wie das auszu-sehen hat. Und das macht die Sache natürlich schwierig, weil wie gesagt, bei uns ist ja noch eine Logistik-Leitstelle vorgeschaltet, und jeder Sachbearbeiter hat einen besonderen Fokus auf bestimmte Sachen, die ich als Bedarfsträger oder Beschaffer in dem Sinne nicht voraussehen kann. Und das ist dann immer wie so ein Lotteriespiel, ne.

I: Ok, verstehe. Gut das ist natürlich immer... das macht das ganze wirklich komplex und dass ist dann natürlich sehr langatmig. Versteh ich.

4) Stehen Sie in engem Kontakt zu anderen Unternehmen bzgl. IT-Themen?

A: Früher, ja. Jetzt überhaupt nicht mehr, weil wir durch ne hohe Aufgabenverdichtung, sagen wirs mal so, komme ich gar nicht mehr dazu. Also früher hab ich da, gibt ja hier so Foren, wo man sich getroffen hat – von anderen Firmen, von anderen Behörden usw. Die letzten zwei Jahre bin ich gar nicht mehr dazu gekommen. Ich krieg dafür auch nicht frei weil das Problem ist halt, ich momentan hier sehr sehr eingespannt.

Denken Sie an den **Zeitraum vor der Ausschreibung** Ihres letzten Storage Systems...

- 5) Skizzieren Sie bitte den Ablauf der Beschaffung von der Feststellung des Bedarfs, über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

I: Wie lief die EU-weite Ausschreibung ab?

A: Der Bedarf kommt natürlich von meinen Bedarfsträgern, wir sind hier im Bereich Server, Datenbanken und so weiter. Und die legen halt fest, um welche Kategorie von Speicher das dann sein soll. Ob es jetzt ausreicht, hoch verfügbarer Speicher von der XXX zu sein, oder ob das unbedingt Enterprise Storage von ner XXX sein muss, weil sie sich da versprechen noch schneller ausfallsicher... Die treffe ich natürlich nicht selbst. Die sagen mir natürlich dann, sie hätten gerne so und so viel und das soll dann am besten die und die Raid-Gruppe sein und mit der und der Ausfallsicherheit und der und der Geschwindigkeit. Und dann kuck ich halt nach, wie viel haben wir da momentan noch da. Und entweder ich hab es dann noch da oder habe es nicht da. Wenn ich es nicht habe, dann muss ich natürlich kucken, wie kann ich das am besten lösen. Dann versuch ich natürlich erstmal Alternativ-Storage anzubieten, also wenn ich dann anderswo ein bisschen mehr habe. Ab und zu klappt das, meisten nicht. So, dann wird sich hingesezt, wird gekuckt, werden die Anforderungen dann rausklamüsert und ein Anforderungsprofil erstellt. Dann ist mein erster Anruf, bevor ich überhaupt weiter machen, beim Haushalt nachzufragen, ob wir überhaupt Geldmittel haben. Weils sonst muss ich leider meinen Bedarfsträger nochmal vertrösten und biete Ihnen an, entweder eine Alternative anzunehmen oder halt zu warten bis Haushaltsmittel da sind. Sind Haushaltsmittel da, dann wird natürlich eine Leistungsbeschreibung gemacht. Also ganz normal, als wenn ich einen Beschaffungsantrag mache, dann wird das Ganze mit dem Verweis an die Logistik-Leitstelle geschrieben. Die machen, früher hab ich's selbst gemacht, mittlerweile macht das die Logistik-Leitstelle, wenn es über 120000 Euro ist, wird dann ein Mittelbildungsantrag ans Finanzministerium geschrieben. Die müssen halt Maßnahmen über 120000 Euro zustimmen. Also wenns gut läuft, geht's innerhalb von 3 Tagen. Wenns schlecht läuft auch mal länger. Dann werden die gesammelten Unterlagen + das was ich im Vorfeld gemacht habe der Vergabestelle übergeben mit dem Hinweis, es gibt keinen Rahmenvertrag. Dann schreiben die Vergabe liegt an dem Rahmenvertrag. Das wir dann an die BFD XXX abgegeben wird. Dann sagen die dem Haushalt Bescheid, dass die die Mittel, die dafür von dem XXX zur Verfügung gestellt werden, der BFD XXX übertragen werden. Dann wird der ganze Papierkram zu der BFD XXX einmal physisch und einmal elektronisch. Elektronisch deshalb, dass die Kollegen dann schon mal sehen, was sie

erwartet. Und dann meldet sich, im günstigsten Fall 3 Tage später, der zuständige Bearbeiter der BFD XXX bei mir. Der hat dann natürlich auch gewisse Formalien, die er gerne hätte. Die arbeite ich dann natürlich nochmal nach. Der packt das dann alles in irgendein Programm. Ich hab das selbst noch nie gesehen, weiß aber, dass es das gibt, wo dann jeder da rein kucken kann, dass da offene Vergabeverfahren sind. Und dann steht da dann immer noch für irgendwelche Fragen der Anbieter zur Verfügung. Also sprich, wenn da dann irgendwas an der Formulierung unklar ist oder so, dann wird mir das per Mail übersandt, dann beantworte ich die Frage, übersende die zurück und der Kollege bei der Vergabestelle dort pflegt die dann in das System ein oder informiert die Bieter. Und irgendwann ist dann Angebotsfristende und dann wird dann dort entschieden, wer den Zuschlag bekommt und ich krieg den Hinweis, das wurde vergeben.

I: Ok. Also das hört sich...

A: Ja, das ist ein sehr komplexes Thema. Und wenn das gut läuft, hab ich dieses Jahr positiv erlebt, dann dauerts auch nur 3 Monate. Wenns schlecht läuft, hatte ich letztes Jahr, dann dauerts ein bisschen mehr als ein Jahr. Das kommt natürlich ein bisschen darauf an, die haben natürlich auch gewisse Betragshöhen, ob es ausreicht, bundesweit auszuschreiben, oder ob das europaweit ausgeschrieben werden muss und das hängt dann halt an den Wertgrenzen fest.

I: Ja, an den Schwellwerten...

A: Und letztes Jahr, die war halt über den Schwellwert hinaus und musste halt europaweit ausgeschrieben werden und das macht die Sache natürlich ein bisschen komplexer für die Kollegen dort und dauert halt auch ein bisschen länger dann. Weil man da dann den Leuten auch ein bisschen mehr Zeit geben muss. Aber bis jetzt hat das immer irgendwie geklappt. Natürlich ist an dem eigentlichen Verfahren aus meiner Sicht immenser Optimierungsbedarf. Also das dauert alles viel zu lange, weil auf bestimmte Sachen kann man gar nicht reagieren. Ich weiß ja, dass von Ihrem Haus ja ab und zu auch irgendwelche Rabattangebote oder Sonderangebote sind. Da weiß ich schon im Vorfeld, dass wir die niemals in Anspruch nehmen können, weil wir einfach zu langsam sind. Das ist das, wo immer so ein bisschen Bauchschmerzen habe. Das ist auch bei anderen Firmen ähnlich. Da gibt's halt so Aktionstage oder sonstige Sachen. Das schaffen wir zeitlich nicht und dann fällt das natürlich für uns immer flach.

I: Ja, klar. Ich hab jetzt gerade mehr an ihre Fachabteilungen gedacht. Wenn die neue Anforderung für eine Datenbank stellen, die sie neu aufsetzen müssen und sie müssen dann erst mal beschaffen. Huh, das kann ja schon mal das eine oder andere Projekt deutlich verzögern. Wahnsinn.

A: Ja also im ungünstigsten Fall ist das so. Meistens überbrückt das dann, von dem was ich wirklich noch habe, weil die sind ja auch quasi Dienstleister für andere Bereiche. Die stellen dann die Datenbank, die kommt zwar auch aus unserem Bereich, aber wir stellen dann die Datenbank bereit, und die stellen wir auch für andere Bereiche oder Behörden zur Verfügung und die lassen sich bestimmt nicht so abspeisen, wenn ich sage, ja muss ich jetzt erstmal beschaffen, wartet mal ein Jahr oder so. Da versuchen wir schon irgendwo ja quasi Lösungen / Übergangslösungen zu finden. Ist zwar nicht schön, aber das ist so typisch Verwaltung halt. Ich hätte schon gerne im Vorfeld ein XXX System was dann ... an Datenpool zur Verfügung steht, aber da kommen dann gleich die Haushälter und schreien dich an, ich darf nix auf Vorrat beschaffen. Das ist manchmal sehr, sehr ungünstig. Also muss man das immer so Stückchenweise, also mit jeder Beschaffung so ein kleines bisschen mehr als Puffer.. Damit man gar nicht in solche Situationen kommt. Man muss hier tricksen. Und man muss wissen, wie man trickst. Das darf halt nur nicht auffallen, also von mir haben Sie das nicht.

6) Welche Personen sind beteiligt? Buying Center skizzieren

Denken Sie nun bitte an die **konkrete Erstellung** einer Öffentlichen Ausschreibung...

Zunächst ein paar allgemeine Fragen dazu:

7) Welche Person initiiert in der Regel eine Ausschreibung in Ihrem Hause?
Gibt diese Person bereits konkrete Vorgaben vor?

I: Einmal, die Ausschreibung, wurde die dann von Ihnen initiiert? Also läuft das dann immer über ihren Tisch, so hab ich das verstanden.

A: Ja, nicht alle Sachen. Also nur was das Thema Storage betrifft und Server und irgendwelche Virtualisierungsgeschichten.

I: Ja gut. Storage interessiert mich natürlich jetzt am meisten. Genau. Und auch nochmal, das hatte ich eben so verstanden, sie schreiben im Prinzip schon die Anforderungen oder konkrete Vorgaben dann zusammen. Bevor es weitergeht?

A: Ja.

8) Welche Personen arbeiten die Ausschreibungen aus und formulieren diese?

I: Und machen Sie das zusammen mit Ihrer Fachabteilung, oder welche Personen arbeiten die Ausschreibungsformulierung konkret aus?

A: Ja, das ist die eigene Fachabteilung – ich selbst.

I: Wunderbar, ok.

A: Weil es gibt hier sonst, also ist in diesem Haus keinen, der das macht. Ich bin hier quasi solo Alleinunterhalter für zwei Standorte – ne, drei.

9) Welche Personen nehmen beratenden Einfluss auf die Ausschreibungserstellung / wem vertrauen Sie besonders? Wer hat den größten Einfluss?

I: Gibt's dann noch irgendwelche anderen Personen, sagen wir mal, die beratend Einfluss auf die Ausschreibungserstellung nehmen? Also das bezieht sich jetzt speziell auf die Erstellung dieser Leistungsbeschreibung.

A: Mmmh – ne. Also eigentlich nicht. Also früher hatte ich da mal einen Kollegen, mit dem ich das zusammen gemacht hab. Der hat uns vor 2 Jahren verlassen. Seitdem muss ich das alles wirklich alleine machen. Wie gesagt. Ich reagiere quasi nur auf die Anforderung von unseren Datenbankern, die von einer Firma Oracle gesagt gekriegt haben, das muss so und so mit den und den Parametern laufen. Und entweder kontaktiere ich die Firmen selbst schon im Vorfeld, oder betreibe halt dann immenses Studium um zu sehen die idealste Lösung. Und daraus gehend schreibe ich natürlich eine allgemeine Leistungsbeschreibung, die ich dann auch immer so schreibe, dass sie immer Hersteller-neutral ist, so dass wirklich kein – ich weiß ja, viele Storage-Hersteller haben ja Alleinstellungsmerkmale – die lass ich immer weg, weil meine Erfahrung zeigt, das kann nur böse Blut geben. Das hab ich mal bei einer Server-Ausschreibung gesehen. Darauf hab ich überhaupt gar keine Lust. So dass wir im Prinzip die grundlegendsten Anforderungen erfüllen. So Datendurchsatz, usw. Und meistens lass ich dann noch die Auswahl des Raid-System, ob jetzt nun Raid 10, 5 ist, das ist quasi marginal. Also gibt ja gewisse Vor- und Nachteile von allen Sachen, aber die sind in der Hinsicht wirklich vernachlässigbar.

10) Wie würden Sie selbst Ihren Einfluss auf eine Ausschreibung beschreiben?

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Welche Kriterien spielen in Ihrem Unternehmen eine wichtige Rolle?

- a. Standort des Herstellers, Betreuung, Technische Funktionalitäten, Preis, Innovation, Zuverlässigkeit, etc.

A: Also für mich ist halt in erster Linie natürlich wichtig, dass die Leistungsparameter, die ich fordere, dass die auch erfüllt werden. Kann man von den meisten Storage-Herstellern sagen, dass die durch die Bank erfüllbar sind. Kriterium Nummer 2 ist natürlich die Zuverlässigkeit, in der Hinsicht, dass ich so wenig wie möglich Ausfälle habe. Und ich würde natürlich sagen Preis, aber das regeln ja schon die vergaberechtlichen Dinge, da muss ich mich nicht auch noch um den Preis kümmern. Das machen andere für mich. Von daher ist das für mich auch kein Kriterium, weil wie gesagt, ich sehe halt schon zu, dass das in einem ordentlichen Rahmen ist. So dass das kein... Storage ist, wo ich schon von vornherein weiß, erstens nur ein kurzer Lebenszyklus, dann kann man damit rechnen, dass dann irgendwelche Probleme nach kurzer Zeit auftreten. Ich sehe eigentlich immer zu, also was für mich immer noch wichtig ist, weil ja die Haushälter immer knausrig sind, das liegt ja auch in der Natur der Sache, das ist ja ihre Aufgabe, knausrig zu sein, dass der allgemein Lebenszyklus eines Storage-Gerätes über das normale Maß hinausgeht. Also dass das mehr als 3 Jahre ist. Dass man einfach nochmal eine Support-Verlängerung machen kann, oft 2-3 Jahre, sodass das Gerät etwas länger im Haus ist. Darauf achte ich halt, dass der Lebenszyklus etwas länger ist. Sonst, ja die sonstigen Parameter ergeben sich halt, wie soll ich sagen, aus den Anforderungen. So Geschwindigkeit der Platten. Das kommt ja immer darauf an, für was es ist. Aber die andern Sachen, die sind für mich schon wichtig, aber der Preis zum Beispiel überhaupt nicht, weil das Geld ist da oder nicht da.

I: Ja, das ist bei Ihnen ja...

A: Ja bei so einer europaweiten Ausschreibung, da heißt es ja immer, das wirtschaftlichste Angebot gewinnt. Da ich VWL und BWL studiert habe, seh ich das wirtschaftliche ein bisschen anders als die Haushälter, die das dann endgültig entscheiden, aber ich glaube es ist meistens so, dass die billigste Lösung gewinnt.

I: Ja, das muss nicht die wirtschaftlichste sein, genau.

A: Ja darum sehe ich ja immer zu, dass ich anhand von Leistungsparameter zusehe, dass das nicht immer das allerbilligste ist, sondern wirklich auch die Anforderungen erfüllt.

- 12) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen? State-of-the-Art zu bleiben?

A: Ja, ich versuche mich ja trotzdem regelmäßig weiter zu bilden. Da kommt man dann natürlich auf die neuen Technologien. Also dieses Jahr war das jetzt ein ganz schlechtes Beispiel, aber die Jahre davor war es so, dass wir für den Bereich Storage meistens so 3-4 Lehrgänge auch besucht habe, wo ich mich dann auch aktiv weitergebildet habe. Und da kriegt man dann auch die neuen Technologien mit. Aber ich gelobe Besserung, ich mir das für das nächste Jahr wieder vorgenommen. Sofern mein Chef und der Haushalt will, werde ich das auch wieder tun.

13) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Ja, ich sag mal, so mit. Also Querbeet. Sowohl im Prinzip, die Dinge die in Fachzeitschriften sind. Früher hab ich auch mal so eine Zeitung, die hieß Storage, bestellt. Da waren immer die neuesten Informationen drinnen. Mittlerweile komm ich auch nicht mehr groß dazu, die groß zu lesen. Also die liegt zwar immer hier rum und so aber die schnellste Methode ist natürlich das Internet. Also wenn man da dann über diverse Seiten dann Informationen bezieht. Ich les mir das dann auch direkt bei den Herstellern durch, was so ne Innovation ist. Also ob z.B. bei Ihnen auf den Seiten oder so, die werden ja auch in regelmäßigen Abständen aktualisiert. Also ich schau da schon ab und zu vorbei und kuck mal an, was da so ist. Sagen wir mal so, man weiß ja, in welche Richtung das geht und machen wir uns nix vor, es gibt nicht mehr so viele Storage-Hersteller, die kann man mittlerweile an 2 Händen abzählen. Begrenzt natürlich dann auch die Suche. Und da les ich mir dann schon durch, was auf den Herstellerseiten alles steht, an neuen Innovationen dann da ist oder was als nächstes kommt. Das kommt quasi noch mit hinzu. Also wie gesagt, das Problem ist ja in dieser schnelllebigen Zeit, dass ich nicht viele Zeitschriften bestelle, weil wenn die kommen und ich das auf dem Tisch habe sind die Informationen meistens, meistens schon wieder alt. Darum bin ich mit der Recherche im Internet eigentlich immer ein bisschen fixer.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Wie wurde / wird Kontakt zu Partnern/Beratern hergestellt?

A: Jein. Also im privaten gar nicht. Da bin ich der einzige, der in einer Behörde in dem Umfeld zu tun hat. Aber von so befreundeten Unternehmen wie zum Beispiel..., da kuckt man sich natürlich schon mal so ein bisschen an, was haben die, wohin geht bei denen die Reise. Mein Idealziel wär, dass da die Zusammenarbeit vielleicht ein bisschen besser ist. Dass man da mal gemeinsam. Aber die Kollegen vor Ort sind da mächtig am Rotieren und bei mir ist das halt auch so, dass ich wirklich Alleinunterhalte bin und wenn ich nicht da bin, dann macht das keiner.

I: Aber so externe Berater kaufen Sie eigentlich nicht ein?

A: Ne. Gar nicht.

- ii. Wurde jemals ein Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

- iii. Glauben Sie, dass Sie Ihre Partner in der Vergangenheit immer neutral beraten haben? Falls nein, in welche Richtung beraten?

- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):

I: Sie hatten ja eben schon gesagt, dass Sie auch immer im regelmäßigen Kontakt zu Herstellern sind, wie beispielsweise zu XXX. Ist das dann wirklich immer ein direkter Kontakt oder sind Sie auch über Partner eingebunden, also manchen Rahmenverträge sind ja über die XXX beispielsweise gebunden...

A: Ja also, da das Verhältnis zu dem Hr. XXX von XXX ziemlich gut ist, und uns ja schon bald ein Jahrzehnt kennen, ja da tauschen wir uns aus und das liegt einfach an der Tatsache, dass wir uns schon ziemlich lange kennen. Ja und ab und zu kommen dann auch so Firmen wie XXX, eigentlich zu anderen Kollegen wegen anderer Themen, aber da werde ich dann auch immer eingeladen und da kommt man natürlich auch mal so ins Gespräch. Also wie gesagt, ja mach ich alles mit, aber jetzt zu konkreten Fällen, da kontaktier ich meistens direkt die Hersteller oder dann im Frühjahr halt viel die XXX. Aber da achte ich dann schon drauf, was die XXX wirklich an Rahmenverträgen hält, also ist halt so, da muss man auch aus Fairnessgründen sagen, klar, ich würd die da nicht irgendwie hintergehen, dafür ist da Verhältnis zu gut, das möchte ich auch nicht kaputt machen. Aber da, wo sie leider weggefallen sind, klar, wenn da irgendwelche Fragen sind, wenn da Probleme mit irgendwelchen anderen

Firmen gibt, die irgendwelche Verträge halten, die früher mal XXX hatte, da frage ich dann schon mal nach, ob das von mir aus kompliziert dargestellt worden ist oder so. Aber nur rein zum Verständnis. Jetzt keine konkreten Zahlen und Anforderungen. Bringt der XXX nix und bringt uns auch nix.

I: Das heißt aber im Umkehrschluss, im direkten mit Hersteller, mit uns beispielsweise werden schon Informationen angefragt, hinsichtlich was habt ihr jetzt neues gemacht, wo seid ihr gerade stark unterwegs, also dieser klassische Austausch mit Hersteller und Ihnen direkt.

A: Ja.

- i. Welcher Art: Direkt / Indirekt
- ii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.B. durch RFI?
- iii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, dass ein Hersteller versucht eine Ausschreibung zu beeinflussen?

A: Ne. Wenn ich sowas feststellen würde, würde ich dann strikt – das liegt bei mir vielleicht auch an der Natur der Sache, weil wie gesagt, jeder hat eine faire Chance verdient. Aber wenn man versucht, auf dem Weg mich zu hintergehen oder so, würd ich dann auch eiskalt sagen, nö. Da würd ich dann auch alle, egal ob es die günstigsten oder schönsten Sachen der Welt sind, da hab ich dann auch eine persönliche Abneigung dagegen. Da würd ich alles versuchen, dass das nicht passiert. Dass der einen Zuschlag kriegt. Also wie gesagt, ich spiele wirklich gerne mit fairen Karten und bin da auch sehr offen und ehrlich aber erwarte das natürlich auf von meinen Gegenübern immer. Aber wenn ich da so merke, dass da irgendwie ja ein Spiel betrieben wird, da sich besonders hervorzutun, da würd ich dann persönlich die Knüppel rausholen und zwischen die Beine schmeißen.

I: Ok, das ist gut. Alles klar.

d. Messen und Tagungen: aktiv, passiv

I: Die Antwort hatte ich glaube ich schon gehört. Ich frag trotzdem nochmal. So Messen und Tagungen, habe ich verstanden, ist eigentlich so, fällt hinten runter mangels Zeit bei Ihnen?

A: Ja.

I: Früher war das mal ein bisschen stärker?

A: Ja. Also da war ich viel unterwegs, aber seit der eine Kollege da eben weg ist, ist da auch wenig Zeit, da fehlt halt einfach einer bleibt hier und der andere geht auf Reisen. Jetzt ist es halt so, wenn man Alleinunterhalter ist und dann auch noch einen Standort zusätzlich kriegt, macht diese Sache nicht unbedingt einfacher. Aber da muss ich halt durch. Also wie gesagt, ich probier es halt trotzdem. Dieses Jahr waren halt, ja ein paar unangenehmen Baustellen, mit denen ich nicht so gerechnet habe. Nächstes Jahr ist das ja alles ein bisschen gechillter. Ich sag es mal so, da sind ein paar Dinge geplant, die hab ich ja jetzt schon so weit in die Reihe gebracht, da denke ich mal schon, dass ich an der einen oder anderen wieder mal teilnehmen kann.

e. Intern: Buying Center

A 8: Vendor Expert Interview: V₁

Performed on 11.12.14 (16:00h – 16:49h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Recording exists; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Account Manager – Öffentliche Auftraggeber

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Hier bei XXX!

I: Und davor noch irgendwie anders?

A: Ne.

I: Wie viele Jahre sind das?

A: XXX? Fünf!

I: Fünf Jahre, OK. Was hast Du denn vorher gemacht?

A: Software – ITIL Software

I: Ah ok, also schon IT davor.

A: Ja ja logisch. Ja, ja klar. 15 Jahre.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

b. Davon ca. Storage-Ausschreibungen?

A: Unterschiedlich. 5 – 10.

I: 5 – 10. OK.

A: Können auch mehr sein. Das ist... sagen wir mal 10. 10 passt sicherlich.

I: OK, dann sagen wir mal 10.

A: Also die wir wirklich bearbeiten. Es gibt ja auch welche, die guckst du dir an

und sachst: Scheiße, das hat keinen Sinn.

I: Na ja klar

A: Ja logisch, da brauchst keine Arbeit reinstecken. Da bin ich aber auch anders als die anderen. Aber das zeichnet uns aber auch aus. Sach ich mal. Also zumindest im Öffi-Bereich. Generell gilt: Wenn Du früher nichts von der Ausschreibung wusstest, vergiss es! Bis auf ganz wenige Ausnahmen, wo Du sachst, das ist eine strategische, die ich mache, wie XXX, wo Du sachst, die gehen uns so auf den Sack, da gehen wir jetzt irgendwie mal mit einem brutalen Trick dran oder wo du sachst, wir machen ne Quick & Dirty um einfach nur den Wettbewerb zu ärgern und das er vielleicht Federn lässt, was den Preis angeht. Aber sonst gilt eigentlich, weiß Du erst von der Ausschreibung oder Dein Partner durch die Veröffentlichung im entsprechenden Gremium: Vergiss es. Hast Du in der Regel keine Chance.

4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?

a. Wenn ja: Welche?

A: Ne, eigentlich nicht. Ja gut, Jetzt könntest Du sagen FTS, ja ich meine, das ist ein Partner und ein Hersteller zugleich.

I: Na gut, den zähle ich jetzt eher zu Partner, weil wir sprechen jetzt ja nicht über seine Produkte in dem Sinne. OK. Na gut, also FTS. Gerade natürlich für die Öffis sehr interessant, andere Partner oder Beratungsunternehmen?

A: Ja, CC in diesem Fall. Na klar, du hast immer mal mit kleineren zu tun, auch mal ne Bechtle, aber das sind die Jungs mit denen ich den Großteil meines Geschäftes mache.

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

I: Was machst Du da alles?

A: Leider fast alles! Weil wir eigentlich mehr Partner bräuchten, die kompetent sind. In der Gesamtberatung. Also vom Erstkontakt, das heißt also vom Pitch, das gehört hier natürlich einem XXX oder einem XXX oder sowas, natürlich

mit dazu. Den ersten Pitch mach ich in der Regel alleine und dann hast Du in der Regel ein vertiefendes Gespräch, da ist dann klassisch der SE dabei, die vertiefenden Gespräche können von der Demo bis zu mehreren Demos, bis zum Referenzbesuch gehen, je nach Projektgröße, Auswahl des Partners oder Einbeziehung des Partners...

I: Wenn er den Lead jetzt nicht gebracht hat, sondern wenn wir im direkten Kundenkontakt sind?

A: Wir bringen fast immer den Lead!

I: Ja? Ist das so? Ist das wirklich so?

A: Zu 80%. Leider! Das ist leider so. Ja.

I: OK. Also Auswahl des Partners... OK.

A: Ja, bis natürlich Konfiguration, Angebotserstellung, die dann natürlich wieder über den Partner abgebildet werden, bis hin zum Abschluss und eben ja häufig sogar mit zur Projektgestaltung vorher. Migration. Inbetriebnahme, usw.

I: OK

A: Also wir bilden da schon maßgeblich den Großteil des gesamten Sales-Zyklus ab. Vom Erstkontakt, bis den ganzen Zwischenstationen, bis hin dann auch tatsächlich zum Abschluss. Klar die, das Paperwork der Angebotserstellung darf dann auch mal der Partner machen.

6) Welche Personen waren daran beteiligt?

I: Also Du hattest ja gerade schon Dich natürlich genannt, die SEs genannt, den Partner genannt...

A: Partner SE

I: Partner SE, ja OK. Partner Vertrieb dann ja logischer Weise noch.

A: Professional Services von uns von den Partnern. Oft auch noch die kaufmännische Seite des Partners. Also wenn ich mal XXX nehme, dann muss man ja auch die Besonderheit mit bedenken wenn man mit dem Kunden spricht um einfach zu wissen, was ist möglich, was ist nicht möglich.

I: Ahh, OK. Verstehe. Auf Kundenseite, mit wem hast Du da so zu tun?

A: Auch die gesamte Range: Vom Storage-Admin bis hin zum IT-Leiter bis zum Beschaffer. In der Industrie würdest Du sagen, der Einkäufer.

I: Diese Gremium, also dies Rechnungs...

A: ...prüfungsamt! Mit dem haben wir selbst nix zu tun.

I: Also das heißt, praktisch... wir erfahren erst...

A: Ne ne. Da darfst Du gar nicht, da solltest Du auch nicht in Erscheinung treten.

I: Na gut, ha ha ha. Verstehe.

- 7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?
- a. Wenn Partner: Welche?
 - b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?
 - c. Wie häufig sind Sie generell über Partner eingebunden?

I: Also jetzt hab ich verstanden, zu 90% sind wir eigentlich im direkten Kundenkontakt und eher so zu über 10% über Partner eingebunden?

A: Ja, genau.

I: Der Kundenkontakt, wie kommt der normalerweise zustande? Wie würdest Du das sagen für Deinen Bereich?

A: Gut, also bei bestehenden Kunden ist klar...

I: Bestandskunden ist klar!

A: Bestandskunden ist klar. Der Rest durch Referenzen und einfach Anrufen. Da ist auch ein gewisser Teil an, an referenzierten Kaltakquise, so..., oder natürlich auch mal, was nicht so oft passiert, durch ne Partnerinfo. Das er sacht, hör mal, ruf mal an beim Hochsauerlandkreis, ich weiß, da läuft ne EVA am Ende des nächsten Jahres aus.

I: Ja ja, klar.

A: Aber na gut, dann rufst du trotzdem blöd an, sacht ja icht ich weiß das, sondern sacht, och Mensch...

I: Ja, klar. Genau

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

- 8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Das kommt immer auf den Kenntnisstand, sagen wir mal, des Kunden an. Also, es gibt Kunden, die Wissen wie es geht. Die machen dann gar nichts. Also wir müssen erst mal unterscheiden, unter 200.000€, also unter...

I: Also unter dem Schwellwert...

A: und überm Schwellwert. Also über dem Schwellwert ist immer bisschen anders. Unterm Schwellwert, es gibt viele Kunden die Wissen einfach wie es geht.

I: Versuchen die dann die Projekte aufzusplitten, das ist ja auch nicht erlaubt, oder?

A: Nein, das ist nicht erlaubt. Wird manchmal gemacht. Ja. Aber, es ist eigentlich,

wie immer, nicht erlaubt oder die setzen da einfach ein halbes Jahr dazwischen. XXX ist das genauso: Die wollten eigentlich Backup-to-Disc Maschine haben, aber das geht bei aller Trickserei nicht, also kaufen sie die 3-4 Monate später. Geht auch nicht. Aber wie immer: Wo kein Kläger, da kein Richter.

I: Ja, OK.

A: Es ist schon unterschiedlich. Es gibt Leute die sagen, OK, alles klar wir machen eine Ausschreibung in dem wir drei Angebote brauchen. Gib mir drei Namen ich schreibe die an, als Beispiel. Ne. Dann haben die eine fertige Konfiguration und dann sollen die darauf einen Preis abgeben und der wirtschaftlich günstigste kriegt es. So, ne. Und siehe da, es ist dann meistens der besprochene. Erstaunlicherweise. Es gibt natürlich auch welche die sagen, ich will produktneutral ausschreiben, das ist natürlich der komplizierteste Fall. Wie gesagt, dann musst du natürlich schon am Leistungsverzeichnis drehen. Also das du da möglichst alle Goodies von XXX reinpackst, die entweder Alleinstellungsmerkmale sind...

I: Ja.

A: Snapshots, 255 oder 56, was es jetzt auch immer ist, pro Tag. Als A Kriterium und irgendwelche anderen Sachen. Also alles reinpacken und möglichst mit dem Kunden sprechen, weil es gibt natürlich auch abgewixte Jungs von XXX oder XXX, die einfach sagen, können wir alles, ist mir scheißegal ob ich es kann oder nicht. Ich sag einfach mal ja. Wann soll es denn auffallen?

I: Ja, Ja, klar.

A: Wer macht schon 255 Snapshots? Als Beispiel?! Also das ist schon beratungsintensiver, das heißt also Alleinstellungsmerkmale und was natürlich dann hilft, manchmal gehen wir dann auch zum XXX, zu wissen, wenn wir wissen gegen wen wir, wer unser stärkster Wettbewerber ist, wie bauen wir da so was auf. Beispiel ist zum Beispiel früher XXX. Klappt jetzt so nicht mehr. Ich nimm jetzt mal XXX. In dem Du sagst, ob der Kunde es brauch oder nicht brauch. Optional alles an Software anbieten. Alles. Und XXX. Weil XXX früher und zum großen Teil immer noch XXX sagt, ich brauche eine separate Bühse.

I: Ah ja OK. Und dann kriegst Du sie raus.

A: Dann kickst du ihn einfach über den Preis raus, das du sagst, die Anforderungsliste ist so groß, wenn die die Erfüllen wollen und können, selbst wenn die einen Hammerpreis machen, ne, das wird ein riesen Paket, was die schnüren müssen. Das ist natürlich dann die ganz große Nummer. Sicher, wenn Du schiss hast, das einer vielleicht einfach alles mit Ja beantwortet. Aber sonst musst Du Dich wirklich mit dem SE hinsetzen und sagen, wir schrauben an dem Leistungsverzeichnis, das möglichst das rauskommt...

I: Das ist ja dann gerade oberhalb des Schwellwertes, ne?

A: Es gibt auch manche pingelige Kunden, die das auch unterhalb des Schwellwertes machen, die auch sagen für eine 80.000€ Ausschreibung oder 60.000€, wenn du jetzt einen Kämmerer oder Beschaffer hast, der, und die IT Abteilung ist schwach, und der sagt, ich mach das jetzt aber so, die können dem ja jetzt nicht einfach sagen, wie in der Privatwirtschaft: Hans Du machst das sonst schmeiß ich Dich oder keine Ahnung oder Order per Mufty, ich bin Geschäftsführer Du machst das. Da sagt der... Nix. Ich hier öffentlicher Dienst. Wenn er das unbedingt will, dann macht er das. Aber das ist relativ selten, weil die schon auch faul sind. Viele.

I: Und warum auch? Und dann Oberhalb haben wir natürlich genau diese Themen USPs, wir hatten ja noch zwei weitere Themen...

A: Aber wenn die es wollen, dann helfen wir natürlich bei der Leistungserstellung. Damit die dann quasi eine Vorlage haben und machen dann Copy/Paste.

I: Also heißt, Unterstützung mit Angebotstexten...

A: Ausschreibungstexte. Sagen wir lieber mit Texten die unsere Lösung beschreibt.

I: OK. Du hattest jetzt einmal das Thema, OK, klar, Unique Selling Points hervorheben ist sicherlich das einfachste. Ich würde ganz gern jetzt noch einmal zwei andere Themen anreißen. Einmal das Thema Betriebskonzept und Erweiterungen. Das sind ja auch noch mal so zwei Lücken die da existieren. Also bei Betriebskonzept so das Beispiel, wir haben in den Außenstellen schon XXX im Einsatz, in der Zentrale soll ein neues System eingeführt werden...

A: Ja, gut. Ja, ja klar, logisch. Bei bestehenden Kunden machen wir natürlich..., das machen wir auch gerne manchmal bei anderen Geschichten, ich sag mal, die Markteintrittsbarriere für den Wettbewerb hochsetzen.

I: OK, ja.

A: Sagen wir mal, wenn der XXX, nehme ich jetzt als aktuelles Beispiel, nicht noch hier jetzt die 200.000€ gehabt hätte, hätten wir gesagt, kaufst Du jetzt die Backup Maschine, gibst 30.000€ aus, so, und dann kaufst du schöne 3-4 Monate später die primäre Maschine und wir verweisen natürlich dann darauf, dass die sich verstehen müssen. Replikation usw. dann haste natürlich ne Eintrittsbarriere. A, das Du dann in einer Ausschreibung sagen kannst, der Wettbewerb müsste dann das andere System ablösen, muss aber trotzdem wirtschaftlich der Beste sein. Das sind natürlich so Trickereien die du gerne damit hereinbringst. Was auch gerne ist, was man auch manchmal liest bei großen Ausschreibungen, wo sie dich draußen haben wollen, ist dann eben das ein System ausgeschrieben wurde, XXX oder XXX oder sonst so was, und jemand sagt, wenn du dich drunter legst, ist willkommen aber du musst die Schulungsgebühren und so bezahlen.

I: Ahhh, OK.

A: Ja, und wenn dann einer sagt, ich will Dich gar nicht draußen vor lassen, das ist unser präferierter Partner, aber ich bin offen, aber Freunde, Schulung, Datenmigration ist aber dein Thema. Bitte mit einpreisen. Wie weit das immer Koscher ist, so, aber keiner zerrt einem in Wirklichkeit vor dem Rechnungsprüfungsamt. Das will keiner. Aber da weißt du, wenn du das machst, dann brauchst du bei dem Kunden, das spricht sich herum, dann brauchst du dich nicht mehr blicken lassen.

I: Klar. Ja. Das Thema Erweiterungen, das hatten wir ja mal bei der XXX einmal. Vielleicht das noch. Ist das so ein valides Mittel, das die wirklich hingehen und sagen, ich hab hier so ein System, ich meine das würde uns ja jetzt mit XXX massiv in die Karten eigentlich spielen.

A: Klar. Es ist ja auch legitim. Das Du sagst, ich hab jetzt ein System und ich hab drei Shelves oder vier oder fünf, die ich jetzt kaufen will, so. Und da kann jetzt ja kein anderer anbieten. Und dann wird jetzt eigentlich nur ausgeschrieben um sicherzustellen, dass innerhalb unserer Wettbewerbslandschaft der Kunde die Möglichkeit hat seinen bestmöglichen Preis zu bekommen. Das ist ja immer der Hintergrund...

I: Ja, ja, genau.

A: ...einer Ausschreibung. Letzten Endes den bestmöglichen Preis zu kriegen um nicht in irgendwelche Kartelle, im Prinzip oder Absprachen reinzulaufen. Das ist ja letzten Endes der Hintergrund. Das ist ja legitim. Das sind ja Dinger, die du auch siehst in Ausschreibungen, da machst du ein Vermerk, kenn ich noch nicht den Kunden, der hat XXX, der schreibt hier eine XXX Erweiterung aus. Natürlich brauchst du da nicht drauf bieten. Aber zumindest hast du da im umgekehrten Fall eine Wettbewerbsinformation bekommen. Das ist auch legitim. Und wird auch laufend gemacht. Machen wir ja auch.

I: Absolut.

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

A: Na gut, es gibt natürlich in großen Ausschreibungen, gibt es natürlich auch Beratungsunternehmen. Also das hast du sehr häufig, wenn ein gesamtes SAN, ein gesamtes neues Rechenzentrum ausgeschrieben wird. Dann hast Du entweder Systemhäuser CCs, Bechtel dieser Welt. Es gibt spezialisierte Buden, die ihren Senf dann dazugeben. Die den Kunden dann auch Beraten in welcher Technik soll er gehen. Die dürfen ja dann selbst nicht an der Ausschreibung teilnehmen.

I: Ja, genau.

A: In der Regel. Sonst hast Du da linke Tasche, rechte tasche.

I: Ja, klar. Hast Du da einen Namen, wo Du sagst, die sind dir da besonders häufig aufgefallen?

A: Ne, das ist unterschiedlich. Du hast eben oft die großen Systemhäuser, die mit drin sind. Die sich das natürlich sehr überlegen. Weil sie dann wissen, sie können am größeren Kuchen ja eigentlich nicht mehr partizipieren. Ich hab da vielleicht 50.000€ an Personal reingesteckt...

I: hätten aber 2 Mio. abholen können...

A: also das ist unterschiedlich.

I: Auf Kundenseite siehst du da oft noch spezielle...

A: Also wie gesagt, das ist ja schon relativ groß. So eine Beschaffung, das können ja mehrere Leute in einer Abteilung sein, je nachdem wie groß der Kunde ist. Ja, und du musst natürlich oft auch, sagen wir mal, auf der technischen Ebene verschiedene Begehrlichkeiten einfangen. Also wenn du da jetzt diese Truppe hast, sagen wir mal die VMware Truppe, du hast die Microsoft Truppe, du hast vielleicht noch ne Oracle Truppe, du hast ne SAP Truppe. Und die Stimmung musst du natürlich mit haben. Wenn Du da jetzt einen hast von Oracle, immer wieder gerne gesehen, der sagt dann aber jetzt Oracle hat 1988 aber gesagt Raid 10. Das will ich aber heute immer noch haben. Da musst du natürlich gucken, dass du von so Leuten nicht nachher ein Störfeuer kriegst, was sich verdichtet in dem IT Entscheidungsgremium. Oder ob das ein Silo ist. Also man muss die Fachabteilung teilweise einbinden.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Das ist die IT Leitung und die Beschaffung selbst.

I: Glaubst Du das die Beschaffer einen größeren Hebel haben als die IT Leitung?

A: Kann man so nicht beantworten. Das geht so und so aus. Wenn der Beschaffer sagt, ich mach das nicht. Dann stehen die natürlich auf dem Schlauch. Gut ist natürlich wenn die kooperieren. Aber wenn die Beschaffung nicht will, dann will sie nicht, dann musst Du nach irgendeinem Kompromiss suchen mit dem du leben kannst. Zum Beispiel, wenn die Beschaffung sagt, ich schreibe produktneutral aus, ist mir scheißegal, was du mir hier erzählst und was irgendwo veröffentlicht ist. Weil ich das immer schon so gemacht habe und weil ich euch nicht glaube. Dann musst du das so machen, aber dann nimmst du natürlich indirekt Einfluss darauf, dass der natürlich kein technisches Leistungsverzeichnis erstellt.

I: Also kein richtiges zumindest. Ich habe ja wirklich ein paar von diesen neutralen auch gefunden, das Problem daran ist ja, du hast nur Sachen drin, wie ich brauche 1000 10k SAS Platten und FC. So, da kann jede Bude drauf antworten.

A: Ja, gut. Ne gute ist natürlich schon bisschen genauer. Da liest dir natürlich auch jeder Wettbewerber heraus: Das ist XXX. Ich sag mal mit den Snapshots. Wenn einer sagt, ich will eine Integration. Bitte gewährleisten sie das sie optional... bla bla bla... konsistenten Snapshot von. Ne. Weil unsere Lösung von Backup-to-Disk.

I: Wobei ich meinte jetzt für neutral, absolut neutral geschrieben. Hast du dann natürlich so ein geringes Level, das die wirklich jeder drauf antworten kann.

A: Ja, gut. Aber das zum Beispiel mit dieser Applikationsintegration, das kannst du schon reinschreiben. Das ist ja auch neutral.

I: Ja gut, klar.

A: Das ist ein Kundenwunsch, das ist eine Kundenanforderung. Du kannst dich jetzt darüber streiten, ein Beschaffer kann sich jetzt darüber streiten, ne das ist so spezifisch, das mach ich nicht als A Kriterium. Das ist kein Kriterium, das wenn du es nicht erfüllst, rausfliegst. Aber dann kannst du natürlich sagen, dann machen wir es eben mit Punktevergabe. Dann mach ich eine Gewichtung. Das ist dann natürlich so ein Ping-Pong.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?

g. Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Da kannst du dich ja nur an den Ausschreibungskriterien langhangeln. Da kannst du reinschreiben, wir sind Marktführer. Das interessiert keine Sau. So, also bei einer Ausschreibung ist ja, das ist ja wie ein Multiple-Choice-Test. Du musst das beantworten, was in einer Ausschreibung steht.

I: Wobei wir ja immer noch in der Phase sind, in der wir praktisch, du hast die Möglichkeit jetzt vielleicht Kriterien reinzubringen.

A: Das geht nur, da geht auch nur technische Leistungsbeschreibung. Du kannst nur eine technische Leistungsbeschreibung reinbringen, der Kunde kann natürlich reinbringen und verlangen, das sagen wir mal die Anbieter bestimmte Kriterien erfüllen müssen. Sprich, Zertifizierungen, Know-How, Support Bedingungen. Die gehören aber in den erweiterten technischen Leistungsbereich. Das der irgendwie sagt, ich will einen deutschsprachigen Helpdesk: 24x7. Ich möchte das zertifizierte Mitarbeiter da sind, die das erbringen können. Ich will

Hersteller-Support. Damals XXX raus. Also solche Geschichten. Aber, aber betriebswirtschaftliche Geschichten, Finanzierungsgeschichten und so, die gehören nicht in so eine Ausschreibung.

I: Das ist dann...?

A: Das wäre separat.

I: Das heißt im Prinzip, also eigentlich das ganze Thema technische Funktionalitäten, das ist so unser größter Hebel den wir eigentlich haben.

A: Plus, natürlich den betriebswirtschaftlichen Preis der dabei rauskommt. Aber du kannst alles andere, also diese weichen Geschichten, kannst du nur ganz nebenbei in so Bewertungsgeschichten mitbringen. Wie so Support, wenn du jetzt einen anderen Partner hast, sagen wir mal wie so eine XXX oder eine XXX, die ihren eigenen Support bringen. Das du da ebenso ein bisschen bastelst. Aber, an anderen weichen Kriterien, man kann manchmal auch, gibt's auch Ausschreibungen, wo ich sag mal, ein Leasing nachgefragt wird, Nebengebote sind zulässig. Es gibt aber auch welche nicht. Die dann wieder sagen, weil Leasing ein eigenes Geschäft ist, muss das extra ausgeschrieben werden.

I: Separat. Ah ja, OK.

A: Wenn du Pech hast.

12) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

I: Und dann würdest du sagen, das sind gleichzeitig auch die wichtigsten Kriterien unserer Kunden: Preis, technische Funktionalität?

A: Mhh, ja. Sagen wir mal in der Ausschreibung: Ja. Aber warum sie dann XXX kaufen, so also Value Proposition, da gehört schon ein bisschen mehr zu. Ist klar, ne!

I: Was würdest du da noch sagen? Was zählt da noch dazu?

A: Viel Bauchgefühl. Also jetzt unabhängig von all unseren Features. Das muss beim Kunden überkommen. du hast ja auch Kunden, wenn du jetzt einen ganz nüchternen Kunden hast und der sagt, ist ja alles geil, brauch ich alles nicht. Dann wirst du reduziert auf den Preis und dann musst du dir ja auch schon im Sales-Prozess überlegen, wie stark kämpfe ich um den. Weil wenn dan so ein Data-Core oder irgendeiner mit einer Billigbüchse um die Ecke kommt und sagt, ich brauch aber nur ein DAS da, oder wie diese Kiste da heißt. Dann wird es eng, wenn da mit einem M5 vorstehst.

I: Also würdest du sagen, Betreuung ist der Schlüssel?

A: Bei den Öffis – ja. Also Betreuung, das die sich gut aufgehoben fühlen und auch das Gesamtpaket. Dass die wissen, Mensch, da gibt es einen Innendienst, da gibt es Leute die kümmern sich, wenn ich mal ne Frage habe, da kommen auch mal ein zwei Techis, die mich mal an die Hand nehmen. Das ist für die schon wichtig. Das Sicherheitsgefühl ist für die vielleicht noch wichtiger oder dieses Sicherheits- und Geborgenheitsgefühl ist durchaus wichtig bei den Jungs.

I: Ja, wunderbar.

13) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: Ja, das müssen wir denen natürlich einpflanzen. Also letztendlich, wenn wir unser Produkt verkaufen und der Kunde sagt, hey geil, das will ich haben, dann müssen sich natürlich diese Punkte möglichst auch wieder in der Leistungsbeschreibung finden lassen.

I: Also klassisches Pre-Sales. Pitchen, beraten!

A: Genau. Ja, das auch zu Ende beraten. Also bei den Öffis denen dann auch den Textbaustein legen. Am besten nicht sagen, ja schreib mal irgendwas dazu, sondern der kriegt dann da von uns fertig vorgefertigte Texte, muss er nur noch Copy & Paste machen.

A: OK, alles klar.

14) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

I: Was glaubst du, wo die sich da informieren?

A: Ne, also. Ne, also du musst ja da mal sehen die Ausschreibung an sich ist ein mehr oder weniger festes Format. Das sind Formblätter.

I: Ne, es geht mehr um den Inhalt davon, also wie zum Beispiel die Leistungsbeschreibung.

A: Das kommt von uns oder in Zusammenarbeit mit denen. Das ist „Custom made“.

I: Material von Anbietern, also von uns praktisch.
A: Genau
I: Whitepaper, Textbausteine.
A: Genau. Zum Teil natürlich auch von Partnern. Also wenn diese Fit sind, wie eine FTS, eine CC.
I: IDC, Gartner?
A: Ne!
I: Siehst du auch nicht. Fachzeitschriften?
A: Also für Ausschreibungen selbst nicht. Also das die auf uns aufmerksam werden, das kann durchaus durch eine Fachzeitschrift passieren. Aber das wäre dann eher der Leadprozess. Daher eher: Nein.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Also Große, wie eine Behörde oder auch der Bund, die haben oft schon ein Beratungsunternehmen. Weil sie schiss haben, da was falsch zu machen. Wenn es da um richtig Geld geht. Aber dann bist du wieder oberhalb der EU Grenze. Vorher nix, das machen die so.

- iii. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Natürlich nicht.
I: Was glaubst Du in welche Richtung die dann beraten? Oder unter welchen Gesichtspunkten?
A: Unter dem... Also bei einer XXX würde ich sagen, den Weg des geringsten Widerstandes. Das ist traurig aber wahr. Deswegen treffen wir uns jetzt im Februar. Ich meine da gibt es solche und solche. Aber in der Regel, wenn die da hinlaufen als ihr unabhängiges Systemhaus und einer hat da irgendwie XXX und sagt ich will hier irgendwie meine Systemlandschaft erweitern oder ich überleg neuen SAN Storage... da gibt es dann viele die irgendwie dann einfach bei dem bleiben, was die da haben. Dann haben die am wenigsten Erklärungsbedarf. Dann packen die irgendwie ihr Angebot zusammen und dann ist gut. Und ich glaub den nie und das ist auch ein Thema, das ist auch eine interessante Frage, bei so einer XXX, nicht mit allen Leuten, aber es gibt da ein paar Leute, wo ich sage, Freunde, das kann doch nicht sein. Wenn du dir den

Provitako Rahmenvertrag vorstellst, da sind vier Hersteller drin. Und ich sag dem Kunden, Kunde, jetzt mach mir doch mal eine Konfiguration, es gibt keinen Berater den ich kenne, der vier Dinger vorstellt, wo der Kunde nicht sagt, jetzt empfehle mir davon doch mal zwei. Das gibt es eigentlich nicht. Aber wonach dann das Systemhaus wirklich empfiehlt, das denke ich ist bei denen eine Bauch- oder vielleicht auch eine Lobby-Sache. Oder eine Sache des einfachsten Widerstandes. Wenn der sagt, es ist schon immer ein XXX Kunde gewesen, dann versuch ich erst gar nicht den zu missionieren, kostet mich nur Zeit, bringt mir den Auftrag nicht schneller.

I: Würdest du auch sagen, dass die eventuell auch sehr stark Margengetrieben agieren?

A: Ja, klar. Das kann natürlich auch ein Thema sein.

I: Du hattest eben gesagt, bei Provitako sind vier Hersteller drin. Wer sind die vier?

A: FTS mit Ethernus, IBM, EMC und NetApp. Na klar ist das auch Margengetrieben, aber das ist eher nachgelagert.

iv. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Ja, wenig. Das ist 1% oder 2%. Das sind dann aber schon so richtige. Millionenschwere Ausschreibungen. Wo Leute immer sicher gehen wollen oder wo sie vielleicht mal einen von Legal drüber gucken lassen wollen und sagen, ist das alles Koscher oder könnte dir einer ans Bein pinkeln.

I: Aber das sind dann auch schon immer die Systemhäuser, die dann noch einen Beratungsarm haben oder sind das noch mal ganz andere Unternehmen?

A: Es gibt Spezialisierte. Aber die habe ich jetzt nicht Namentlich. Es gibt Firmen aber auch Rechtsanwälte, von denen sind wir auch schon geschult worden, XXX, die dann also wirklich beraten, dass das eine rechtssichere Ausschreibung wird. Das sind dann aber andere Ausschreibungen.

c. Messen und Tagungen: aktiv, passiv

A: Über Vergaberecht generell ja. Also ich werde ja auch laufend angeschrieben, wie jetzt von XXX, das ist so ein Ding gerade für Dingens, wo jetzt zum Beispiel steht, wie EVB-IT Vertrag Vergaberecht, ja. Das gibt es. Na klar. Logisch.

I: Und für die Leistungsbeschreibung? Dass die da gucken? Kriegen wir da irgendetwelche Infos?

A: Das kann der Kämmerer oder diese Jungs ja gar nicht leisten. Der macht ja nicht nur Beschaffung für... vielleicht für Switche. Der muss ja alles Mögliche läuft ja über dessen Schreibtisch. Das kann der nur mit der Fachabteilung. Das Leistungsverzeichnis kann nur die Fachabteilung bringen.

I: Und die sind schon klassisch mal auf einer Messe oder einer Tagung?

A: Ja, logisch. Und die würden mit uns aber auch Fragen klären. Wir sind ja auch schon oft genug gefragt worden früher, wo er sagt, Mensch, wenn wir da ausschreiben müssen könnt ihr uns helfen oder so.

d. Intern: Buying Center

15) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

A: Ich würde es ausweiten. Zum Beschaffungsprozess.

I: OK. Also zum Beschaffungsprozess?

A: Ein Dutzend mal. Locker. Ja.

a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)

I: Also Beschaffungsprozess einmal... Und weiter?

A: Also völlig unterschiedlich. Das geht dann wirklich dahin zu sagen, hey ich muss ausschreiben, dann schreibst du eben aus: Produktscharf. Drei Angebote. Das geht ja dann so hin, was wir natürlich eigentlich nicht machen, das du dann mal zwei Partner empfiehlst, die auch ein Angebot abgeben. So, bis hin zum Suchen von kreativen Beschaffungsmöglichkeiten. Vorstellen von Rahmenverträgen. Provitako. Bezugsberechtigte. Und wenn ja, willst du überhaupt? Weil du kaufst dann die CC ein. Was ist mit deinem alten Partner? Geht eine freihändige Vergabe? Wie jetzt von XXX. Wobei ich immer den Beschaffungsprozess so gehe, das du dem Einkäufer oder der IT-Abteilung suflierst, was möglich ist.

I: Was ist mit so vorab Preisinformationen oder sagen wir Preisindikationen?

A: Ja, klar. Immer. Wir machen ja in vielen Fällen, wie hier jetzt bei der XXX auch. Wir machen den Preis, gucken das wir unter die Schwellenwerte, Den Anwalt XXX haben wir an Bord genommen, der kannte ja den Kunden nicht, der hat ja wenn du so willst ein, bis 70% oder 80% des Sales-Prozesses ist im erspart geblieben, wenn du so willst. Na klar, es gibt auch massenweise so Dinger, darf ja eigentlich auch nicht bei Bestandskunden, da verkauf ich den Kram. Da hab ich eine 10% Marge von der XXX, eingerechnet, dann ruf ich den XXX an und sage, hier ist die Konfig, da ist der Einkaufspreis, mach ein Angebot fertig. Da

ist dein Ansprechpartner.

- I: Wir machst du das, wenn du jetzt einen Kunden hast, der will nicht über die Provitako beschaffen. Aus welchen Gründen auch immer beschaffen. Das heißt, dass er dann ausschreibt unabhängig von dem Rahmenvertrag.
- A: Wenns geht, guck ich das wir ein gemeinsames Gespräch mit der Beschaffung kriegen. Oder er soll vorfühlen, was bei der Beschaffung möglich ist. Der große Vorteil auch bei den Öffis ist, die kennen sich ja. Das sind ja nicht Jungs, die in der Regel so eine Jobrotation haben, das du sagst, der ist da jetzt seit so einem halben Jahr und im nächsten halben Jahr hast du wieder einen anderen. Die sitzen ja da und der Beschaffer sitzt da 10-20 Jahre. So, und die kennen sich ja. Die haben mehrere Beschaffungen. Die wissen auch, ob die miteinander können oder nicht. Und meistens warnen die dich dann auch davor, wie so ein XXX, hey unsere Beschaffungsabteilung ist eben sehr sehr eigen. Die ist eben eigener als andere. Die haben eben ihre speziellen Macken und wenn du das weißt, dann gehst du eben darauf ein. Fragst die dann so, also du suchst einen Weg. Wie auch immer. Also als Beispiel, es gibt unterschiedlichste Wege, wo so eine XXX sagt, OK, ich brauch ein Schreiben von dir, wo ihr sagt, dass ihr die besten Preise habt. Aber unserer Beschaffung, unserer Kämmerer glaubt das nur, wenn wir einen Direktvertrag mit dir machen. EVB-IT. Darf kein Partner dazwischen, weil er ja dann sagt ist ja eine Partnermarge, könnt ein anderer mit weniger Marge... Also, wir machen denn dann mit dir. Dann sagen wir: Gut wir machen das und machen eine Abtretungserklärung an den Partner, damit der auch nicht leer ausgeht. Also du musst etwas kreativ sein und dir einen Weg suchen, der geht. Keiner will wirklich ausschreiben!
- I: Ja, das ist ja weil du im Prinzip dann nicht mehr sicherstellen kannst, auch den richtigen zu bekommen?
- A: Jaa, aber wie gesagt. Also wir reden jetzt immer unter dem Schwellenwert. Über dem Schwellenwert sind die Leute vorsichtig. Also so Sachen wie ich jetzt erzähle sind eigentlich zu 90% unter dem Schwellenwert. Also unter den 200.000€. Aber selbst eine kleine nationale Ausschreibung die kostet keine Zeit. Lass es drei Wochen sein. Das ist jetzt im Öffi-Sales-Cycle eigentlich sehr schnell.
- I: Mit den Rahmenverträgen. Die werden ja zentral ausgehandelt. Wie, was ich jetzt mitbekommen habe. XXX. Oder jetzt auch hier den Provitako, sozusagen die Einkaufsgemeinschaft, die sich ja da gebildet hat. Hast du damit irgendetwas zu tun oder ist das was du dann nur einsetzt um eben entsprechend dann bei den Kunden...
- A: Also wenn wir uns nicht bekannt gemacht hätten, über Jahre beim XXX, der eigentlich immer die treibende Kraft der Ausschreibung gewesen ist, dann wä-

ren wir gar nicht im Warenkorb. Weil vorher waren wir da nie drin.

I: Kannst du das vergleichen mit einer klassischen Ausschreibung, das man natürlich auch hier versucht die Rahmenverträge im Vorfeld mit technischen Spezifikationen zu unterstützen, immer wieder Präsentieren, was wir alles machen können?

A: Klar. Das ist ganz klarer Lobbyismus. Wenn die dich nicht kennen und irgendwie sagen, wozu denn, dann tauchst du da auch nicht auf. So einfach ist das. Wenn die dich nicht kennen und nicht wissen, was du bist, auch wenn sie vielleicht den Namen kennen, dann tauchst du nicht auf. Vorher gabs uns eben nicht in den Rahmenverträgen.

I: Wie läuft das denn dann, sagen wir mal, also ein Kunde hat einen Bedarf, ich bin Bezugsberechtigt über Provitako, ich seh da jetzt vier Hersteller drin. Und dann? Also er schreibt ja dann nicht aus, weil er im Rahmenvertrag drin ist.

A: Dann musst du den natürlich dann evangelisieren. Der Rahmenvertrag hilft dir ja dann nur, wenn der Kunde soweit ist, wie in der Industrie, und sagt, ich kaufe jetzt. Du musst alles das gleiche machen, wie in der Industrie auch. Die einzige Hemmnis die dich quält ist, das du jetzt noch mal eine Zeitverzögerung hast in Form einer Ausschreibung. Das du einen Warenkorb hast, der Koscher ist, wo einer sofort bestellen kann. Aber du musst natürlich die Bedarfsermittlung im Sales-Cycle, alles das, musst du natürlich trotzdem machen. Dass der Kunde sagt, ich will XXX kaufen. Ich kauf jetzt nicht XXX.

I: Würdest du sagen, das generell das Ziel dann ist so viele Rahmenverträge wie möglich irgendwo in...

A: Sehr hilfreich. Ja klar. Du brauchst große Rahmenverträge im Öffi-Bereich, sonst geht da nichts.

b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

A: Ich sag mal so, der größte gemeinsame Nenner ist: Alles geht, wenn bei den Öffis einer sitzt der die richtigen Eier hat. Das ist die Quintessenz meiner Erfahrung aus allen möglichen Seminaren und von unterschiedlichen Leuten. Ich kenne Öffi-Buden, die beschafft haben, oben XXX, was eigentlich nicht geht, was trotzdem das Rechnungsprüfungsamt passiert, wo die dann irgendwo eine Vergabeakte haben und sagen, ich habe nicht ausgeschrieben „weil“. Jetzt kannst Du nachlesen irgendwo Gesetztes massig... aber wenn keiner rügt und wenn keiner was macht... dann ist das wirklich so: Wo kein Kläger, da kein Richter.

I: Manche Kunden geben ja sogar Stücklisten heraus!

A: Also ich muss jetzt gerade einen Brief schreiben, ich hatte vorhin ein längeres Telefonat mit der XXX in XXX, so, also die machen sie XXX und XXX für die ganzen Beamten. Die haben einen XXX von uns, und die bauen ein neues Rechenzentrum: Update! Neues XXX. Jetzt hab ich mit XXX so lange gerechnet, das wir unter 200.000€ kommen, das ist die europäische Vergabeschwelle. Die fürchten schon noch viele, weil die Wissen über 200.000€, europäisches Recht, gucken Sie anders hin und gucken vielleicht auch noch andere drauf, ja, das ist unangenehm. Da müssen die Leute schon dickere Eier haben. Jetzt hab ich mit dem Einkäufer telefoniert, der hat mich angerufen. Da hatten wir eine kurze Telefonkonferenz. Da war noch einer Von XXX dabei, so daß er sacht: Alles schön und gut, ich kann eine freihändige Vergabe vielleicht irgendwie zusammen basteln. Wir sind ja unter 200.000€, ne! Wollte er noch mal von mir bestätigt kriegen warum, ob das willkürlich ist, ne, dann habe ich gesagt, ne das ist eine Angebot von XXX, der kann das anders kalkulieren... bla bla bla. Alles gut. Ja sacht er, aber was ist jetzt zum Beispiel für ihn ein Grund nicht auszuschreiben, er könnte ja in sechs Wochen das gleiche Ergebnis kriegen. Ich sach mal, Gott sei Dank hab ich, ist mir das eingefallen, dass wir nun eine neue Preisliste haben. Die ist 15% teurer. Also als November. So, das ist ja ein kreativer Mann, sacht er, ich hab von diesen Passus noch nie gehört und auch noch nie davon gehört in irgendeinem Vergaberecht, dass das überhaupt zu Trage kommt, aber er sacht mir da, hat mir irgendwie vorgelesen, ich kenn nicht mehr was, da gibt es einen Paragraphen X plums so und so, und wenn Du dann begründen kann, das er so im Ausnahmefall was besonders günstiges oder eine einmalige Gelegenheit hat, also A das Angebot von XXX und außerdem ist es eine extrem günstige Beschaffung und warum, na klar, unser Angebot endet vom 31.12., dann ist die neue Preisliste und ist 15% teurer, sacht er, kann er seinen Stempel drunter machen: Wunderbar.

I: Ja super!

A: Du brauchst kreative, auch kreative Leute auf der Seite des Kunden. Ob das nun 100% Koscha ist, wenn Du damit jetzt zu irgendeinem XXX oder einer Anwaltskanzlei gehst, wahrscheinlich nicht. Aber wenn es bei denen aber beim RPA - Rechnungsprüfungsamt – mit dieser Begründung durchgeht...

I: Alles fein.

A: Gut, genau.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 9: Vendor Expert Interview: V₂

Performed on 03.12.14 (16:45h – 17:13h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

I: Systems Engineer für Öffentliche Auftraggeber und ausgewählte Kunden im XXX

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Bei XXX, also naja meinst du jetzt so richtig tief oder?

I: Naja, so ganz allgemein

A: Ganz allgemein bei XXX

I: Und wenn du die Jahre deiner Erfahrung in der Storage Branche zusammen zählen müsstest? Wo bewegst du dich da momentan?

A: Also bei XXX sinds 2 und bei XXX würd ich noch so 1 Jahr mitzählen. Also 3 Jahre.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

A: Jetzt außerhalb von Public oder alles?

I: Insgesamt, so ganz grob

A: Naja so, das weiß ich nicht, so zwischen 10 und 20, vielleicht 15-20 würd ich jetzt mal schätzen, wobei eher 15

- 4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?
- a. Wenn ja: Welche?

I: Machen wir erst mal den Punkt Hersteller

A: Ne. Ich hab sicherlich noch guten Kontakt zu Kollegen bei XXX, aber nichts Geschäftliches.

I: Ok, keine geschäftlichen Kontakte. Und zu Beratungsunternehmen? Dazu zähle ich auch beispielsweise unsere Reselling Partner, die aber auch einen Beratungsarm haben. Also damit mein ich nicht die Consultants, mit denen du so zu tun hast, sondern wirklich die Leute, die so reine Beratung machen.

A: Nö.

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Grundsätzlich ist es schon so, dass ich von Beginn an mit dabei bin. Oftmals von Beginn an mit dabei bin, das heißt wirklich vom Ersttermin bis teilweise zum Schluss im Grunde. Wirklich auch zur Qualifikation zum Teil schon von Deals. Was sicherlich ein Problem ist, wenn es um Skalierung geht. Wenn du darauf hinaus willst. Aber, ich sag mal so, es kommt oft vor das ich damit dabei bin.

I: Und was ist so konkret deine Aufgabe in diesem Zeitraum? Vom Erstkontakt bis zur finalen Entscheidung?

A: Ja, also das beginnt natürlich mit der Vorstellung vom Portfolio von XXX, dann Kundenanforderungen abklappern, dann zu qualifizieren, was passt für den Kunden, welche Lösung passt zum Wunsch vom Kunden, die Lösung Zuschneidern sag ich mal, also das ganze Lösungsdesignthema, dann teilweise auch, nein nicht nur teilweise das Sizing, die Umsetzung was... an geht machen wir als XXX, also nicht ich, aber wir als XXX auch und Angebotspräsentation, und da ist es oft auch so, dass das der Partner macht. Also kann man sagen von Vorstellen bis hin zur Qualifikation, Sizing usw. das ist oft dann bei mir. Ah ja genau und Ausschreibungsbeantwortung, das ist ein ganz wichtiger Punkt noch. Auch der liegt bei uns.

6) Welche Personen waren daran beteiligt?

A: Also sicherlich der Account Manager, der SE, dann ja der Manager von SE in meinem Fall, weil ich oft noch mit dem XXX Rücksprache halte und meine Gedanken mit ihm teile und unser Quoting-Team. Und bei Ausschreibungen vielleicht noch schon öfters auch das DLM Team involviert.

7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?

A: Direkt

- a. Wenn Partner: Welche?
- b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?

A: Durch – im Prinzip durch uns. Indem wir den Kunden, also es war ein Termin mit Kunden und wir haben den Kunden darauf angesprochen.

c. Wie häufig sind Sie generell über Partner eingebunden?

A: Was heißt von Partner? Also der Partner sagt ich brauch deine Hilfe?

I: Ganz genau. Der Partner braucht Informationen und will dich einbinden um dann entsprechend beim Kunden weiter zu kommen.

A: Naja das ist schwierig zu sagen. Hm grundsätzlich, lass mich mal überlegen. Es ist halt oft so, dass wir das direkt machen. Zwar auch schon über Partner, aber schon auch direkte Kommunikation zum Kunden haben. Das ist bei mir oft so. Da kommt ein Partner auch mich vllt. In 2 oder 3 von 10 Fällen vor, aber nur deswegen so wenig, weil wir oft alles direkt machen mit dem Kunden.

I: Ah ok. Das passt ja. Also könnte man sagen, so 30 %.

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Gar keine, haha, also ja ohne Witz. Bisher wars bei mir nicht so, dass ich da groß beeinflussen konnte. Was natürlich schon ist, dass wir im Vorfeld den Kunden von unserer Technologie überzeugen wollen und das auch tun. Also

wir versuchen das dann schon so zu präsentieren, sodass der Kunde Eigenschaften erkennt, die wir haben und kein anderer Hersteller hat, in der Hoffnung, dass er die dann auch so ausschreibt.

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

A: Von XXX oder allgemein?

I: Es geht jetzt um deine Kunden sozusagen, wo du bei der Erstellung einer öffentlichen Ausschreibung irgendwie beteiligt warst.

A: Naja, es ist zum Teil so, dass das Berater sind, also externe Berater, nicht von XXX sondern diese Partnerberater, die du vorher angesprochen hattest. Zum einen die, zum anderen der Kunde natürlich, aber ja, das wars eigentlich. Partner vielleicht noch.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Der Hersteller

I: Der Hersteller? Ok.

A: Naja, ums anders auszudrücken, derjenige, zu dem der Kunde das meiste Vertrauen hat aus meiner Sicht. Als da wo sich der Kunde gut beraten fühlt. Ich glaub die Person, der er trusted, die hat am meisten Einfluss auf die Ausschreibung.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?

a. Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Ja, also Innovation sicherlich, Marktführerschaft weiß ich nicht - spielt sicherlich auch eine Rolle, aber nicht die entscheidende. Ich glaub die entscheidende ist tatsächlich die Technologie und die Menschen. Also diese Kombination aus „Wir haben echt eine geile Technologie, die auch die Probleme des Kunden löst“ und wir auch der Überzeugung oder die Confidence haben in unsere Technologie und das auch mit Überzeugung rüber bringen können an die Kunden und das auch in einer gewissen Weise der Kunde uns auch vertraut und schon zu schätzen weiß, dass wir auch Dinge bzw. dass wir sehr offen

sind, was ja gut ist, weil der Kunde ja dann auch ein Vertrauensverhältnis zu uns aufbaut. Ich glaub die Personen und die Technologie an der Stelle.

12) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Also Betreuung, Persönlicher Kontakt, die Greifbarkeit von uns als Hersteller als Person und das Gefühl gut beraten zu werden. Das glaub ich schon, dass das mit das Hauptkriterium ist. Und vielleicht Emotionen mit dem Produkt ein Stück weit.

13) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: Das ist eine gute Frage. Indem wir die Technologien dem Kunden vorstellen. Die Gefahr ist oftmals dabei, dass der Kunde sich ja nicht nur uns anschaut sondern viele Hersteller. Das Problem oder die Herausforderung an der Stelle ist es, dass der Kunde genau diese Mehrwerte von uns, die uns auszeichnen auch im Kopf behält. Das ist oftmals nicht ganz leicht. Durch häufige Penetration, engen Kundenkontakt, gezieltes Vorstellen von bestimmten Mehrwerten ist das schon möglich.

14) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Weiß ich nicht, aber würd ich eher nein sagen.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Nein, sicherlich nicht; also ja, was heißt von unseren Partnern – unsere Partner sind ja nicht nur unsere Partner sondern auch für andere Partner. Also glaub ich nicht.

I: Du sagst ja nein. Was glaub du in welche Richtung die beraten?

A: In die Richtung, wo der einfachste Abschluss zu sehen ist aus meiner Sicht. Also der Partner tickt ja so, dass er auch Umsatz machen und Geld verdienen will, Sachen verkaufen will, und aus meiner Sicht wird der Partner das verkaufen wo er den einfachsten Sales Cycle hat. Vielleicht auch, dass der ein oder andere nach.... geht, und auf langfristiger Sicht den höchsten Umsatz machen kann. Aber letzten Endes ist es schon auf jeden Fall Umsatz-fokussiert. Ob es jetzt lang- oder kurzfristig ist, ist unterschiedlich.

- ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Ja, hab ich schon erlegt. Allerdings im letzten Jahr hatte ich das 1 Mal.

I: Ok, weißt du noch die Firma?

A: Kann ich mal nachschauen, weiß ich aber nicht mehr.

- c. Messen und Tagungen: aktiv, passiv

A: Glaub ich, ja, also vielleicht ein emotionaler Punkt an dieser Stelle. Ich glaub nicht, dass es inhaltlich beeinflusst, aber ich glaub das bindet den Kunden emotional an einen Hersteller/Produkt und hilft bei der Entscheidung für den Kunden.

- d. Intern: Buying Center

- 15) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

A: Ja also das kann man nicht so einfach beantworten. Offiziell: kein Mal, inoffiziell: 1x – allerdings wurde die Person von Kunden vom Projekt abgezogen, weshalb das nicht wirklich zählt.

a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)

A: Also ums offen zu sagen, der Kunden ist auf mich zugekommen und hat mir ne vorläufige Ausschreibung zugeschickt, die aber... was ohne des Wissens passiert ist von den Offiziellen, die eben die Verantwortung für die Ausschreibung hatten. Im Endeffekt konnten wir aber nix tun, weil die Person aus dem Projekt abgezogen wurde und wir dann nicht auf die anderen – die Verantwortlichen – zugehen konnten um zu beeinflussen. Also von dem her einmal, aber das zählt nicht so richtig.

b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

A: Die Ausschreibung wurde noch nicht veröffentlicht. Da kann ich noch nichts zu sagen.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 10: Vendor Expert Interview: V₃

Performed on 05.12.14 (10:30h – 10:59h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Recording exists; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

I: PreSales Consultant Public

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Wie meinst du das jetzt? Unternehmensmäßig oder?

I: Ja du hast ja jahrelang Erfahrung gesammelt.

A: Ja also ich sag mal im Support natürlich bei XXX zum einen und später im Vertrieb bei XXX.

I: Ok. Wenn du jetzt die Erfahrung in Jahre zusammenfassen müsstest, die du Storage-mäßig hast. Wie viel Jahre würdest du dann zusammenzählen mittlerweile?

A: 20

I: 20 Jahre? Also kann man dich durchaus als Experten bezeichnen. Es gibt da so ne 10-Jahresregel für Expertentum.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

A: Gut, da kann ich ja nur die XXX Jahre zählen, das ist dann vielleicht jährlich 2-3.

- 4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?
- a. Wenn ja: Welche?

I: Fangen wir erst mal mit Hersteller an. Irgendwie fachlichen Kontakt zu HP, EMC, IBM

A: Also Storage-Hersteller

I: Ja genau

A: Nein

I: zu anderen Beratungsunternehmen?

A: Ja zu unseren Partnern natürlich. Also Partner wie XXX, wie XXX, wie andere.

I: XXX

A: also unsere Partner, ne? Technologiepartner...?

I: Genau ja.

A: ...mit denen wir in solche Sachen reingehen.

I: Ja, sag nochmal.. XXX..

A: XXX sehr intensiv natürlich, XXX, so die üblichen Verdächtigen. Das ist es dann schon letzten Endes.

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Also kann ich gar nicht so sagen. Muss ich sagen, fällt mir auch schwer, weil typischerweise ist das bei mir so, warum auch immer, wir haben ja sehr viele Rahmenverträge, im Bereich Bund zum Beispiel machen wir keine Ausschreibungen, weil wir da sehr viele Rahmenverträge haben. Die letzte große Ausschreibung, die ich mitbearbeitet habe war die XXX Ausschreibung. Da gabs vorher gar keinen Kundenkontakt. Und das ist meistens so. Ich hab meistens – entweder hab ich Ausschreibungen auf dem Tisch, die reinkommen übers Ausschreibungsportal, wo wir vorher keinen Kundenkontakt haben und das auch gar nicht gewünscht ist, dass wir Kundenkontakt haben und dann hast du natürlich sehr wenig. Das heißt, du musst dir die Sachen zusammenreimen, die du in der Ausschreibung vorfindest. Oder aber du hast vorher Kontakt mit

dem Kunden. Dann versucht du die Ausschreibung zu vermeiden. Weil dann hast du den Kunden sowieso schon. Und dann kauft der XXX oder wenn auch immer legst ihm ne XXX Ausschreibung vor. Das heißt ich hab nicht typischerweise Wettbewerbssituationen, wo man vorher eine Beratung macht, dann macht der Kunde eine Ausschreibung und dann entscheidet der sich für ein System. Das hab ich eigentlich in der Form noch nie gehabt.

I: Ok, absolut ok. Vielleicht kurz, du hast ja diese Rahmenverträge erwähnt.

Wenn du das jetzt hervorheben müsstest. Wie läuft das dann ab.

A: Ja Rahmenvertrag, z.B. IT XXX, oder auch im Bund. Bund haben wir auch den Rahmenvertrag. Es ist ja so, dass auch unsere Kunden, zumindest bei den öffentlichen Auftraggebern, diese Ausschreibungen hassen, wie was weiß ich. Die wollen das alle nicht. Deshalb haben die halt über Rahmenverträge ein Konstrukt geschaffen, über unter anderem z.B. auch ProVitako im Kommunalbereich, auch sehr erfolgreich, wo wir schon praktisch halt vorher mit einer Einkaufsgemeinschaft wie der ProVitako oder halt dem Land Nordrheinwestfalen, oder dem Bund, der Beschaffung oder der XXX nen Rahmenvertrag – auch da haben wir Rahmenverträge -wo wir sagen, wir verhandeln vorher mit dir einen Preis oder einen Rabattsatz, den du alleine vielleicht gar nicht kriegen würdest, weil da viele zusammen sind mit der Einkaufsgemeinschaft oder mit der Beschaffung direkt (XXX Beschaffung oder von dem Land). Dann brauchst du anschließend nicht mehr in die Ausschreibung reingehen, weil du kriegst - eine Ausschreibung dient ja auch zum einen in einer Auktion zum Beispiel den Preis zu drücken und die bekommen halt jetzt einfach einen Preis, können zu dem Preis kaufen und dann geht's nur noch – die haben natürlich viele Hersteller am Start, also auch ne EMC ist in ProVitako drin, oder auch ein Bund natürlich. Und dann kann sich der entsprechende Beschaffer überlegen, aufgrund von technischen Merkmalen, nehme ich das eine System oder das andere. Und das ist natürlich für uns sehr komfortabel, weil wir dann halt keine Ausschreibung bearbeiten müssen, sondern wir können die Zeit effektiv investieren um unsere Kunden entsprechend zu briefen und von unserer Technologie zu überzeugen und halt den Job zu machen, sag ich mal.

I: Das heißt aber für die Rahmenvertragsverhandlung werden technische Aspekte eigentlich null betrachtet, sondern da geht's rein um kaufmännische Themen?

A: Nein, nein, nein. Das ist was ganz anderes. Ein Rahmenvertrag ist ja eine Ausschreibung sozusagen. Ein Rahmenvertrag ist ja z.B. auch bei der ProVitako oder auch bei der XXX standen ja Leistungswerte drinnen, die verschiedene Hersteller füttern. Bei der XXX war das eine Storage-Ausschreibung, das war jetzt kein Rahmenvertrag, aber das bedeutet, dass das schon bindend ist für die

Bezugsberechtigten. Die können ohne Ausschreibung direkt über die XXX XXX kaufen, weil die XXX einen Vergleich gemacht hat, auch einen technischen Vergleich Preis-Leistungsmäßig. Haben wir halt drei bestimmte Klassen von Systemen anbieten müssen zu einem bestimmten Preis und da wurden Funktionalitäten und Preis in ein ganz komplexes Verhältnis gesetzt und da kam ein Gewinner raus und das war hier an der Stelle XXX. Das heißt wir sind schon Preis-Leistungspunkte technisch bewertet die besten an der Stelle. Deswegen können diese Bezugsberechtigten halt direkt XXX kaufen, weil wir sozusagen diese „Ausschreibung“ gewonnen haben. Und haben dadurch einen Rahmenvertrag gewonnen. Jetzt gibt's aber andere Rahmenverträge, die so aussehen, dass verschiedene Hersteller einfach ein Preisangebot machen, auch wieder natürlich aufgrund von Leistungskriterien mit Partnern zusammen, also mit einer XXX zusammen, z.B. bei der XXX oder mit XXX zusammen im Bereich Bund und machen halt dann mit denen. Und dabei spielt dann auch natürlich bei der erstmaligen Implementierung des Vertrags spielt auch die technischen Parameter eine Rolle, die dann ausgeschrieben waren zusammen mit einem Preis, wo aber dann teilweise verschiedene Hersteller ihre Angebote platzieren konnten. Also da wurde nicht gekuckt, wer ist der beste von denen, sondern wir wollen ne EMC, IBM oder NetApp halt hier haben. Dann geben alle mal Angebote ab und dann haben wir zum einen ein Preiskontingent und wissen, zu welchem Preis wir da einkaufen und zum anderen wissen wir aber auch, welche Leistung wir da einkaufen. Da wurden zum Beispiel nur bestimmte Maschinenklassen reingenommen. Also bei der Bundeswehr nur, nein nicht bei der Bundeswehr, bei der XXX, die XXX und nicht die XXX und solche Dinge. Das wird schon immer kombiniert. Aber nicht so, dass ein Kunde, der einfach einen Katalog auf den Tisch legt und sagt, jetzt kuck mal, ob du da einen Haken dahinter machen kannst. Das gibt's auch. Da haben wir durchaus auch schon Ausschreibungen gemacht. Das war z.B. die XXX Ausschreibung, das war die XXX Ausschreibung, aber das sind dann halt andere Dinge.

I: Jetzt hast du ja eben gesagt, bei diesen Rahmenverträgen, wie z.B. XXX. Gab es denn da vorab überhaupt die Möglichkeit mit dem Kunden über diesen anstehenden Rahmenvertrag zu sprechen, welche Möglichkeiten da reingehören. Also konnten wir irgendwie unseren Einfluss da geltend machen?

A: Nein

I: Also die haben uns angefragt und dann mussten wir darauf reagieren?

A: Ja, also wir haben natürlich schon im Vorfeld immer mal wieder unsere Duftmarken da gesetzt, aber weil das ja halt ein totaler XXX-Laden war - letzten Endes mussten wir dann auf die Ausschreibung warten um halt dann aktiv

reingehen zu können, zusammen mit dem Partner, der den Kunden schon lange kennt, der da natürlich auch schon mal was in die Richtung gemacht hat aber da bin ich nicht involviert gewesen.

6) Welche Personen waren daran beteiligt?

A: Kundenseite kann ich nicht sagen. Weiß ich nicht.

I: ok. Mit wem hatten wir Kontakt denn da?

A: Es gibt normalerweise immer nur eine E-Mail-Adresse und einen Ansprechpartner. Das ist im Bereich Beschaffung. Das ist der, der die Ausschreibung bearbeitet. Das ist typischerweise kein technischer Ansprechpartner sondern halt ein Beschaffer. Und du darfst normalerweise keinen Kundenkontakt haben. Du darfst Fragen stellen - halt Bieterfragen stellen an ein anonymes Postfach, dann wird gekuckt, ob das eine valide Frage ist und dann wird die für alle anonym beantwortet. Und normalerweise, in großen Ausschreibungen, hast du keinen Kontakt direkt mit irgendwelchen Entscheidern oder Technikern und kannst normalerweise Rückfragen nur in Form von Bieterfragen stellen. Es gibt keine Möglichkeit mit jemandem zu reden, wie hab ihr euch das vorgestellt, wie muss ich das interpretieren oder so. Die einzige Möglichkeit ist da die Bieterfrage. Auf unserer Seite natürlich der Account Manager, der Innendienst, der XXX, verschiedene SEs, vllt. Auch Solution Architekten wenn die denn fachlich benötigt werden (in dem Fall nicht), DLMs natürlich bei uns, Manager halt, wie so ein Public Manager (XXX oder so) und dann auf Partnerseite natürlich auch die entsprechenden Pendanten dazu: SEs, Sales Manager, DLMS. Da sind teilweise, stelle ich immer wieder fest, in so größeren Ausschreibungen, die haben mindestens die doppelte, wenn nicht drei oder vierfache Anzahl an Leuten, die an diesen Dingen arbeiten.

7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?

A: Partner

a. Wenn Partner: Welche?

A: Für XXX wars XXX, für den XXX haben wirs selber gemacht. Das ist eine Nachverhandlung, also eine Neuauflage eines bestehenden Vertrags gewesen.

b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?

I: Für diese XXX, wie ist da der Kundenkontakt zustande gekommen?

A: Weiß ich nicht. Da haben wir ja schon Kontakte, weil wir da den Rahmenvertrag schon hatten mit der Beschaffung.

c. Wie häufig sind Sie generell über Partner eingebunden?

A: Ja sagen wir mal so, wir kriegen Ausschreibungen und große Ausschreibungen, die bekommen wir schon direkt auf den Tisch. Dann ist halt noch die Frage, welcher Partner meldet sich bei uns. Das sind dann verschiedene.

I: Wie häufig ist das so? Also eigentlich immer über Partner?

A: In dem Rahmenvertrag XXX waren wir ja ohne Partner unterwegs. Da haben wir direkt angeboten. Bei allen anderen müssen wir ja über Partner gehen. In allen anderen Fällen immer über Partner, die dann dazu stoßen. Die Ausschreibungsunterlagen werden ja auf ein Portal hochgeladen, das scannt der XXX immer wieder mal durch und sagt, hier gibt's ne neue Ausschreibung. Wir wissen also immer schon von Ausschreibungen, die kommen. Dann sehen wir uns die selber an und dann kommen auch schon die ersten Partner, die das auch mitkriegen und sagen, wollen wir nicht zusammen. Und dann wird natürlich gekuckt, welche Partner könnten das sein, mit denen wir da zusammen losgehen und mit denen machen wir dann halt was.

I: Also kann man sagen so 90 % ist über Partner?

A: ja. 90-95 % ist Partner, weil das ist ja unser Geschäftsmodell.

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: keine

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

A: Partner möglicherweise, die dann mit dem Endkunden direkt zu tun haben, weil sie den kennen und betreuen. Natürlich vielleicht auch schon mal der ein oder andere Account / Sales Account Manager, der halt im Vorfeld schon mal involviert war und mal bestimmte Features angebracht hat.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Den größten Einfluss?

I: Ja. Auf die Erstellung der Ausschreibung. Du hattest ja vorhin ne ganze Menge von Leuten aufgezählt.

A: Jaja, ich frag mich das auch oft. Also typischerweise ist ja die Frage, wer beschäftigt sich bei dem Kunden mit dem Thema und wer ist auch der Endkunde. Ist das eine Fachabteilung zum Beispiel, die mal irgendwo was gesehen hat, die vielleicht ein Feature geil findet. Oder ist es halt der Storage-Admin, der vielleicht schon seine üblichen Verdächtigen kennt und behalten möchte sag ich mal. Da gibt's ja unterschiedliche Interessenslagen. Von daher kann ich das schlecht beantworten. Weiß ich nicht so genau. Ich würde sagen, natürlich der Partner hat da einen Einfluss, aber natürlich auch der Endverbraucher, der Storage-Admin, ist natürlich einer der die Ausschreibung auch beeinflusst im Sinne von, dass er sagt, ich möchte das, das und das haben (die Features) und die kommen dann in die Ausschreibung rein. Und wenn das ne EMC-Bude ist, dann wird er EMC Features da rein haben wollen, die ihm gut gefallen und wenn das ne NetApp-Bude ist, dann werden da NetApp Features drin sein. Also das was er schon einsetzt und was er auch weiter haben möchte. Und im Rahmen dessen kann er nur kucken, gibt es vergleichbare Technologien auch von anderen Anbietern.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?

- a. Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Das ist jetzt nicht technisch sondern...?

I: Ne, ne, technische Funktionalität kann ein Aspekt sein. Was glaubst du, also Marktführerschaft, Betreuung, technische Funktionalitäten, Preis, Innovation, oder was auch immer dir noch einfällt. Über was differenzieren wir uns am meisten in einer Ausschreibung?

A: ja, schwer. Ich sag mal technische Features ist natürlich so, dass wir da uns schon stark differenzieren können, was auch dann bei vielen Kunden eben ausschlaggebend vielleicht ist. Ich sag mal so Themen wie Marktführerschaft und so, ist sicherlich alles richtig, aber ob das jetzt so etwas ist. Weil ne XXX legt auch Folien auf und sagt wir sind die Marktführer, eine XXX wird das

wahrscheinlich genauso machen, ja. Also insofern differenzieren wir uns, ist das ein nicht so richtiger Mehrwert, ne. Im Vergleich zu kleinen Anbietern sicherlich auch über unsere globale Präsenz. Wobei das halt hier in Deutschland ein nicht so spannendes Thema ist. Das ist dann eher in Commercial interessant. Sicherheitsthemen sicherlich auch. Also ich sag mal Personalthemen, im Sinne von wir mussten oft schon entsprechend sagen wie viele zertifizierte ... haben wir und mussten dann CVs anhängen oder so. Also schon auch Personal und Mitarbeiter. Deutsche Mitarbeiter und auch deutscher Support ist oft auch ein Thema.

16) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Das gleiche.

I: Ja, das eine war ja, wie differenzieren wir uns am stärksten und das andere. Also du glaubst es sind die gleichen.

A: Also ich glaube, dass wir immer kucken, dass wir so ein Ding immer anpassen an unsere Kunden. Weil wenn wir sagen, wir sind der XXX, interessiert das keine Sau. Da können wir uns vielleicht differenzieren, aber deswegen wird uns keiner kaufen. Weil das ist beides unter dem Kundenfokus, diese beiden Fragen. Kann ich schwer voneinander trennen.

12) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: Ja das kann ich, ich sag mal nur sicherstellen, indem ich mich bemühe, bei dem Kunden, wo wir vor Ort sind, Technologien immer frühzeitig zu pitch, zu promoten und die Mehrwerte rausarbeiten. Also ich kann das nicht erst machen, wenn die Ausschreibung auf dem Tisch liegt, weil da wird dann entsprechend nix drüber stehen. Also ich muss im Vorfeld natürlich versuchen, möglichst viel von den Leuten, die so eine Ausschreibung erstellen zu beeinflussen. Und das ist ja das, was wir immer sehen, an den Stellen wo eine Ausschreibung rauskommt von einem Kunden, den XXX gar nicht auf dem Radar hat, die verlieren wir in der Regel, weil wir da vorher nicht beeinflussen konnten im Sinne von wir können mal zeigen, was unsere Mehrwerte sind und auch was wir anders machen als andere. Und immer da wo wir das machen und der

Kunde das frisst, und vielleicht schon mal was gehört hat oder wir mit einer Referenz kommen, dann haben wir gute Chancen, dass das entsprechend in der Ausschreibung auch drinsteht. Ansonsten haben wir keine Chancen. Ansonsten kannst du nur Punkte in eine Ausschreibung dahingehend positiv interpretieren, was wir auch schon oft gemacht haben,

I: Das heißt also, in erster Linie sagst du, das ist klassische Beratung eigentlich.

A: Ja, ein klassisches Pre-Sales Gespräch. Also ich sag mal aufschlauern des Kunden, Mehrwerte pitchten.

13) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Ja. Also Fachzeitschriften sicherlich, Messen vielleicht auch, also Veranstaltungen, und die holen sich natürlich auch typischerweise schon mal gerne Partner oder Anbieter ins Haus.

I: Da kommen wir gleich noch drauf. Bleiben wir erst mal kurz bei diesem medialen Thema. Also Material von Anbietern?

A: Ja genau, Webseiten von Anbietern. Whitepapers genau. Webcasts vielleicht noch wenn was angeboten wird. Solche Dinge. Wenn sie die denn dann finden auf den Seiten. Haha.. So Tech-demos, die kostenlos sind.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Berater möglicherweise und auch ich sag mal Bekannte zum Beispiel im öffentlichen Umfeld, kann man sich glaub ich gar nicht vorstellen, wie stark die teilweise untereinander vernetzt sind und was die voneinander wissen. Wer setzt welche Technologie ein, wie zufrieden ist man, und das auch wenn einer eine Störung hat, das spricht sich so schnell rum, da weiß die Stadt ... dass die Stadt... mit XXX auf die Nase gefallen ist, oder was auch immer. Nur so als Beispiel, die sind da unheimlich vernetzt untereinander. Insofern sind die natürlich beruflichen Kontakte untereinander, vielleicht auch befreundete, was weiß ich. Aber ich sag mal in der Regel so in dem Umfeld. Also so auf Referenzen von anderen Behörden, die sowas ähnlich machen, da stehen die total

drauf.

- i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Nein. Nein.

A: Also ich glaube die sind auch, genauso wie wir, Margengetrieben. Es gibt positive Ausnahmen. Ich hab jetzt einen Berater erlebt gerade, in dieser Ausschreibung XXX. Das war ja keine Ausschreibung. Aber wo ein Berater mal wirklich den Kunden neutral auch gegen seine eigenen Unternehmensinteressen positiv beeinflusst hat. Also da gibt's sicherlich auch Ausnahmen. Aber so ein typischer Sales Manager wird zuerst mal kucken, mit wem verdiene ich am besten – mit dem gehe ich ins Rennen. Das haben wir oft erlebt.

- ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: also von der Seite krieg ich wenig mit. Sicherlich in einem Umfang, der sich bemerkbar macht, aber ich könnte jetzt nicht sagen, ob 50 % oder 25 %. Die holen sich schon oft Expertise ins Haus, weil sie auch nicht über so viel Expertise vielleicht verfügen. Deswegen holen sie sich welche ins Haus.

I: Aber wie oft kannst du jetzt nicht sagen?

A: Ne, fällt mir so nicht ein.

- c. Messen und Tagungen: aktiv, passiv

A: Messen vielleicht auch, also Veranstaltungen

- d. Intern: Buying Center

14) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

- a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)
- b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

A: Gar nicht

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 11: Vendor Expert Interview: V₄

Performed on 02.12.14 (12:45h – 13:32h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Interviewee has not agreed to a recording of the conversation; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Sr. Systems Engineer, XXX für den Public Bereich XXX mit der Fokussierung auf Forschung und Lehre

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Als Storage-Verantwortlicher Administrator auf Kundenseite, anschließend im Systemhaus und schließlich beim Hersteller mit mittlerweile mehr als 17 Jahren.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

A: 10-15 Ausschreibungen pro Jahr die offen sind, sprich, wo technologische Aspekte behandelt werden. Deutlich mehr wenn auch geschlossene Ausschreibungen eingebzogen werden. Dies beziehen sich dann nur auf eine Partnerauswahl

4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?

a. Wenn ja: Welche?

A: Sämtliche unserer Partner sind auch Berater, die teilweise als Ideengeber für die technischen Aspekte einer Ausschreibung. Am engsten XXX, XXX, XXX, XXX, XXX

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Ich bin vor Ort bevor der Kunde die eigentliche Ausschreibung definiert und platziere technische Aspekte und berate den Kunden. Daraufhin definiert der Kunde die technischen Möglichkeiten als Kriterium für seine weiteren technologischen Ausbau der Infrastruktur und lässt diese dann Bestandteil der Ausschreibung werden. Es geht natürlich auch um die Kostenseite. Hier erstelle ich eine Projektion der Kosten auf Basis des ersten Musters zur großen Schätzung des Aufwandes. Vor dem Hintergrund der Beantragung von Fördermittel. Zunächst muss Geld angefordert werden, was am Ende an einem mehr oder minder konkreten Beispiel erfolgen muss. Schlüsselkomponenten sind Technologie und zu erwartende Kosten. Darüber hinaus werden teilweise Ausschreibungstemplate geliefert, falls der Kunde danach fragt. Vor der finalen Entscheidung muss aufgepasst werden, das wir nicht zu nah am Kunden sind. Hier müssen wir auf die Compliance achten. Bspw. darf der Kunde nicht mehr zum Essen oder anderen Dingen eingeladen werden. Hier könnte auch der Wettbewerb ansonsten einen Angriffspunkt haben und eine formale rüge einleiten.

- 6) Welche Personen waren daran beteiligt?

A: Ich als PreSales, Sales von XXX. Auf Kundenseite der Administrator und der IT Verantwortliche, was im Normalfall der technische Entscheider ist. Abteilungsleiter. Partnerseitig müssen wir uns zurückhalten, da oft mehr als nur ein XXX -Partner im Boot ist.

- 7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?
 - a. Wenn Partner: Welche?

A: Nein, aufgrund der Gleichberechtigung

b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?

A: Direkter Kundenkontakt auf Basis langjährigem Kundenkontakte oder dann doch über Partner, der eine Ausschreibung beantworten möchte und sich den Hersteller als Unterstützung ins Boot holt. Dritte Möglichkeit ist der Kontakt über den Vertrieb.

c. Wie häufig sind Sie generell über Partner eingebunden?

A: 90% aller Ausschreibungen laufen über unsere Partner

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Im Wesentlichen zu unterscheiden in zwei Fällen: Kunde hat uns im Vorfeld aufgesucht oder hat uns schon im Einsatz. Dann nutzen wir unsere Möglichkeiten der Technologieplatzierung bzw. unterstützen mit Formulierungshilfen für die Ausschreibung. Die andere Variante ist, dass wir nicht direkt eingebunden sind, dann entfällt mein Part. Prinzip ist sehr digital. Wenn Ausschreibung auf dem Markt ist, dann haben wir in der Erstellung keine Tätigkeit gehabt.

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

A: Unserer Wettbewerber, Partner, beim Kunden der Einkauf, die vor allen Dingen monetäre Aspekte einbringen. Diese haben wiederum einen Einfluss auf die möglichen Varianten der Technologie.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Ich würde es nicht an den Kategorien wie Partner, Einkauf etc. festmachen, sondern den größten Einfluss hat derjenige, der über die Zeit das größte Vertrauen zum Kunden aufgebaut hat. Dies kann im Prinzip jede Person sein. Wir

sprechen hier vom sogenannten Trusted Advisor.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

- 11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?
- Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Technische Funktionalitäten, falls es die Ausschreibungen zulassen. Die berühmten USPs. Anzahl an Referenzkunden einer bestimmten Größenordnung. Gerade wenn es kleine Wettbewerber oder Startups sind.

- 2) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?
- Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Funktionalität und Preis/Leistungsverhältnis

- 12) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: Im Vorfeld am liebsten durch Consulting, PoCs, Technologie Workshop speziell zu diesen Themen.

- 13) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

- Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Hat sicherlich einen gewissen Einfluss. Am ehesten noch Whitepaper und TRs. Doch deutlich mehr eigene Erfahrung aus der Administration.

- Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Kann ich nicht beantworten.

- i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Nein! In die Richtung der eigenen Kompetenz hinsichtlich eigener Herstellerleistung. Auch hinsichtlich was er in der Vergangenheit beim Kunden verkauft hat. Loyales Verhalten. Bei Neukunden kommt es aus meiner Sicht darauf an, welche Stellung der Partner zum Hersteller hat. Letztlich hängt es davon ab, welche Chancen sich der Partner von der Herstellerlösung beim Kunden erhofft.

- ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Offiziell engagiert oder zu Rate gefragt? Aus meiner Erfahrung existierten beide Seiten. Zu 30% werden offiziell Partner/Berater engagiert (gegen Vergütung) die dann im Anschluss auch nicht anbieten dürfen. Oder Partner haben massiv beraten ohne dass dies jemals wirklich auftaucht. Offizielle vs. Schattenbeauftragung.

- c. Messen und Tagungen: aktiv, passiv

A: Maximal als Ideengeber für Technologien. Um auf diese aufmerksam zu machen.

- d. Intern: Buying Center

A: Im öffentlichen Bereich auf jeden Fall

- 14) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

A: Da ich bei einer Ausschreibung teilweise von drei bis vier Partner angefragt werden und sich die Antworten in Bieterfragen wiederum potenzieren kann es locker hoch auf 60 Anfragen kommen.

a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)

A: Technischer Natur, Sizing Fragen, Kapazitäten, Performance, Zusicherung von Eigenschaften

b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

A: I.d.R. zu 80%. Vor allen Dingen durch meine in der Beratung zu einer Technologie und natürlich durch den Preis.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht	Stimme nicht zu
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zu

- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 12: Vendor Expert Interview: V₅

Performed on 04.12.14 (15:30h – 16:01h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: PreSales Consultant, Public

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Betrieb

I: Betrieb, ok. Und dann schließlich beim Hersteller?

A: Ja. 20 Jahre Betrieb und jetzt Hersteller.

I: Ok, wow. Das heißt so in Summe wo sind wir dann ungefähr? So bei 22-23 Jahren oder?

A: Ja so ziemlich genau. 95 hab ich mit dem angefangen. Dann sinds jetzt 19 Jahre.

I: Ok, 19 Jahre, ok Respekt. Also bist du nen echter Experte auf dem Gebiet.

A: Oh danke, jaja, genau.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

I: Wie viele Storage-Ausschreibungen beantwortest du ungefähr jährlich? Kannst du das beziffern?

A: Nein. Vielleicht 10-15 oder so. 10-15.

I: Ok, 10-15. Ok.

- 4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?
- a. Wenn ja: Welche?

A: Zu Herstellern nein.

I: Stehst du in engem Kontakt zu anderen Beratungsunternehmen?

A: Innerhalb der Ausschreibung mit demjenigen der die Ausschreibung beantwortet. Also mit unseren Partnern ansonsten nicht.

I: Ok, welche Partner wären das so? Wer sind da die Hauptpartner mit denen du zusammen arbeitest?

A: XXX. sonst XXX. Wen haben wir denn noch? Die XXX, die XXX.

I: Ok.

A: Ja das waren sie eigentlich so. Die XXX noch.

I: Ok. Alles klar, wunderbar. Gut.

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Ja, das sind eigentlich grundlegend 3 Schritte. Man kann das einfach so gliedern. Das ist halt innerhalb des zeitlichen Verlaufs, dass du halt erst einmal einen grundsätzlichen Pitch machst bei Leuten, die die XXX nicht kennen oder die XXX kennen, jeglicher Couleur, natürlich das aktuelle Portfolio. Dann Fragen einsammeln. Wo soll die Reise hingehen? Was wollen die erreichen? Wo wollen sie hinkommen? Wie könnten wir das mit XXX tun? Die Konzepte, die sie sich vorstellen hinterfragen. Also es ist immer das Hinterfragen: Wie seht ihr eure IT? Was wollt ihr damit erreichen? Seid ihr zufrieden mit dem was ihr tut? Was müssten wir tun, damit ihr besser werdet? Was braucht ihr von uns? Also immer dieses Frage-Antwort-Spiel. Und dann komm ich halt innerhalb kurzer Zeit, also paar Tage später nochmal dort hin und stell da vor wie XXX ausschauen könnte, was da so die Konzepte dahinter sind, wie wir das tun könnten. Das ist auf sehr hoher Flughöhe. Da geht's noch gar nicht um die Technik. Sondern da geht's einfach darum, wie können wir helfen, was könnten wir tun, um sie besser zu machen. Ja, also dass die ihre Arbeit leichter machen können, einfacher, dass die Konzepte gehen und welchen Mehrwert hätte

XXX, denen zu verdeutlichen. Und letztendlich auch die Schraube dran zu drehen und zu erklären, ja mit XXX könntet ihr A) Geld verdienen oder im öffentlichen Bereich eure Zeit sinnvoller verwenden als sich mit Storage zu beschäftigen. So und das sind immer wieder die ganzen Sachen. Und der dritte Schritt ist dann, ich sag jetzt immer ungern beeinflussen. Sondern natürlich zu versuchen, alle anderen fernzuhalten und eine Ausschreibung, wenn sie eine Unterstützung wollen, da muss man immer bisschen vorsichtig sein, eine Ausschreibung dahingehend mit dem Kunden zusammen zu formulieren, dass am Ende XXX rauskommt.

I: Ok, wunderbar.

A: Wobei der letzte Satz natürlich etwas schwierig ist. Das hört sich jetzt ganz blöd an. Aber du hast ja nach meinen eigenen Worten gefragt. Man muss immer bisschen aufpassen. Es gibt einfach manche, die schreiben aus, da hast du keine Chance irgendwas zu beeinflussen. Und da darfst du auch nichts tun, sondern die trauen sich nicht. Manche Fragen dich, was muss ich tun, damit ich euch krieg.

I: Mhm, ok. Wunderbar. Zu dem Aspekt kommen wir später noch. Genau. Wenn du jetzt in diesem was du grad geschildert hast, in diesem ganzen Zeitraum. Welche Personen sind dann daran beteiligt?

6) Welche Personen waren daran beteiligt?

A: Also zum einen die Admins natürlich als mein direktes Pendant. Zum IT-Leiter sag ich jetzt mal, zum Fachabteilungsleiter, zum Fachbereichsleiter. Das sind die mit denen man sich im Storage auseinandersetzt. So die Flughöhe, die ein SE hat gewissermaßen oder gemeinhin einnimmt. Es kann aber auch bis zu nem Architekten hochgehen, aber natürlich kein Entscheider, kein CIO-Level oder so, da natürlich nicht.

I: Ok. Auf unserer Seite noch irgendjemand?

A: Von unserer Seite hol ich mir hin und wieder DLM mit ins Boot. Um dort einfach die Templates zu kriegen. Um dort einfach auch die Anforderungen schon formuliert zu kriegen, wie man am besten was formuliert. Die haben teilweise sehr schöne Templates dafür. Und dann zieh ich mir natürlich irgendwoher Architekten falls irgendeine Technik notwendig ist die ich selber nicht weiß. Wie XXX oder sonstige Sachen was da gibt tatsächlich aufs Butterbrot schmierst. Dass du halt dort auch noch...oder für Backup irgendeinen Kollegen, SE-Kollegen, Architekten, auch XXX Truppe.

I: Ok, wunderbar.

A: Je nach....

I: Ja, ok.

7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?

I: Jetzt hast du ja schon gesagt du warst im direkten Kundenkontakt. Waren auch Partner eingebunden oder eingebaut?

A: Teils teils. Das kommt immer drauf an wie die Ausschreibung läuft. Man kann das nicht 1:1 oder schwarz/weiß beantworten. Es gibt Ausschreibungen, da sitzt ganz bewusst der Partner mit am Tisch und den laden wir dann auch ganz bewusst mit dazu ein. Um zu verhindern, dass der Partner in ne andere Richtung geht. Oder um das gemeinsame Verständnis zu erreichen oder um auszuschließen, dass wir was anderes verstehen als der Partner es versteht. Weil es ist ja oftmals so, dass wir teilweise nur den Storage betrachten, der Partner aber in der ganzen Ausschreibung auch das Umfeld zu beachten hat. Es gibt Ausschreibungen, da ist nicht nur Storage, sondern Server, Client, alles. Also macht der Partner komplett das Fulfillment in dem Ganzen und wir nur nen Teilbereich. Und in der Ausschreibung beantworten wir ja nie direkt, immer nur der Partner und wir sind Erfüllungsgehilfe.

I: Ja, ok. Genau. Als du eben von den Kunden sprachst, wie ist da der Kundenkontakt zustande gekommen? Über den Vertrieb oder ist der Kunde auf uns zugekommen? Oder hat der Partner den Kontakt hergestellt?

a. Wenn Partner: Welche?

b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?

A: Bei öffentlichen Ausschreibungen werden in der Regel...da muss man bisschen unterscheiden. Wenn es denn so ist, dass wir wissen oder mitkriegen aufgrund von XXX oder ähnlichen Auswertungstools, dass da nen XXX ansteht, dann sind wir meistens auch schon ein Jahr vorher dort und sprechen das schonmal an und versuchen dort unsern Client zu sichern. Das ist die eine Variante. Da wissen wir dann schon was los ist und kriegen die Ausschreibung dann eh schon direkt zugeschickt über den Kunden oder einen Partner wo der Kunde sagt, ja ich möchte gerne mit der XXX oder mit der XXX gehen. Das ist die eine Variante. Die zweite Variante sind Überraschungen, wo du nichts mitkriegst, die dann über nen Partner kommen oder in irgendeiner öffentlichen Bundesanzeiger veröffentlicht werden.

I: Mhm, ok alles klar.

c. Wie häufig sind Sie generell über Partner eingebunden?

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Hm, keine. Es geht...na das ist wirklich schwierig zu beantworten, weil meistens...also ich hab bisher einen einzigen Fall gehabt von allen Ausschreibungen im Öffi-Bereich, die ich die letzten 2 Jahre mitgemacht hab, wo ich aktiv beteiligt war an der Formulierung. Ansonsten keine Rolle.

I: Ok.

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

A: Nein. Eine Vorstellung. Na vorstellen kann ich mir viel. Vorstellung oder Fantasie. Aber...

I: Sagen wir aus deiner Erfahrung heraus. Du hast ja schon mit vielen Kunden gesprochen, gerade wenn dann Ausschreibungen rausgekommen sind oder auch vorher in der Erstellung. Was glaubst du wer da noch seinen Einfluss geltend macht. Da ne Idee?

A: Ja das sind immer jetzt fällt mir der Name nicht ein. Aus dem Healthcare-Bereich Krankenhaus in XXX die haben da immer die Revision noch im Boot, die das dann noch einmal durchliest.

I: Ja, also Controlling meinst du?

A: Ja, Controlling, Revision, die wollen das immer noch wissen. Oder teilweise Legal-Geschichten, die das nochmal überprüfen, dass die natürlich entsprechend dem europäischen Recht konform ist. Oder, dass irgendwelche Stabstellen einfach da sind oder Fachbereiche, die sowas einfach nochmal überprüfen, dass da die beim Hersteller relevanten Dinge drinstehen. Wobei man das auch nicht global, also ich hab also auch schon Ausschreibungen gesehen wo ich mir gesagt hab, dann schreib doch gleich die Artikelnummer hin, dann können wir gleich eine Quote tippen.

I: Ja. Ok. Ok wunderbar.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

I: Also wer entscheidet am meisten was reinkommt und was nicht reinkommt.
A: Der Admin ist es nicht, aber der Chef vom Admin, also der Fachbereichsleiter bzw. die Architekten. Meist sind es ja kleinere Geschichten ist ja immer alles in Personalunion. Aber in größeren Unternehmen sind es einfach Architekten, Fachbereichsleiter die Budgetverantwortlichen.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

- 11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?
a. Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Im Öffi-Bereich ist es weniger die Innovation. Also da muss man so nen Ranking einbauen. Es kommt immer wieder Öffi-Bereich ist nicht Öffi-Bereich. Man muss es segmentieren glaub ich. Die Frage ist ein bisschen... ist legitim aber unfair, wenn du in diesem Bereich alles über einen Kamm scherst. Wenn du die Bereiche Forschung/Lehre nimmst und XXX wie XXX. Auch da musst du wieder unterscheiden. XXX interessiert wenn ichs auf XXX sagen kann kein Feature Fucking. Die interessiert der Preis. Schluss, aus, fertig. Wenn du an XXX gehst, dann interessieren mehr Features. Wenn du Healthcare mit Auftraggeber städtische Kliniken nimmst, ja Mindest Erfüllung der Funktionalität, Preis muss stimmen. Alles andere ist unwichtig. Preis.

I: Preis, ok. Alles klar. Gut und damit hast du im Prinzip auch schon beantwortet, welche Kriterien für den Kunden die wichtigste Rolle spielen. Also da sagst du ja ganz klar im Prinzip Preis. Weniger Innovation.

- 12) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?
a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Ich bin ja kein Vertriebler, dass ich da in den letzten Momenten noch dort bin und versuche was zu beeinflussen. Diese Frage wär vielleicht an die Account Manager zu richten, an den XXX oder XXX oder XXX, besser vielleicht noch, oder zusätzlich zu richten, dass du dort noch ne Richtung mitkriegst.

I: Mhm, ok. Wunderbar. Gut, dann...

13) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: Das kommt, wenn ich anfangs mit den Erstgesprächen. Bei den Vorstellungen um rauszufinden was sie brauchen, um die Begehrlichkeit in den ersten zwei Gesprächen zu wecken. Nur da sind Chancen, dass du genau das reinpflanzt, was die z.B. XXX ohne den nicht mehr leben können. Das brauchen sie.

I: Also klassisch würdest du da sagen, Beratungsleistung eigentlich, oder?

A: Ja.

I: Ok, Beratungsleistung.

14) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Die letzten Ausschreibungen, die ich gesehen hab in dem Bereich waren es Whitepapers, Kundenpräsentationen vom Hersteller wo halt die Begehrlichkeit dann hinfällt.

I: Ok. Wenn du sagst wo die Begehrlichkeit dann hinfällt, meinst du dann

A: Ja wenn du nen guten Erstpitch machst und dem Mensch sympathisch bist und du hast ne geniale Show abgeliefert und du warst historisch schon paar Mal dort in dem Kunden drin, dann wirst du zu großen Teilen in der Ausschreibung auch deine eigenen Worte wiederfinden. Und deine Folien und was du hinterlassen hast.

I: Ok, alles klar.

b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Ich glaube Referenzen spielen tatsächlich eine Rolle. So: Wir macht denn ihr das? Ok, dann mach ich das auch so in der Richtung. Partner spielen auch eine gewichtige Rolle. Gartner weiß ich nicht. Davon halt ich eigentlich eh nichts. Aber ich unterschätz es wahrscheinlich.

- i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

A: Nein.

I: Ok, in welche Richtung meinst du haben sie beraten?

A: Wo es die meiste Marge gibt.

I: Ok, margenfokussiert. Ok.

A: Also seien wir jetzt ehrlich. Es wird kaum Partner geben, genauso wie im Mediamarkt. Es wird da keine objektive Beratung geben welche Videokamera du heute kaufst. Warum sollen unsere Partner anders sein?

I: Ja. Gut es gibt ja gewisse Referenzen oder Präferenzen manchmal.

A: Ja genau. Es gibt die XXX, die hat halt nix anders im Shop. Schluss, aus, fertig. Aber geh zur XXX oder zur XXX, die machen mit dir XXX Pitch ohne Ende und hinterher schieben sie XXX durch weil die Marge besser ist.

I: Ja, ok.

- ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Ich habs vermutet. Also ich kanns so nicht sagen, aber ich glaube wenn ich mir die kleinen Klitschen ansehe, wo ich nur einen Admin da hab, der das machen soll...der hat keine Zeit für Ausschreibungen. Der gibt dann sicher Geld 2,3,4 dafür aus die das machen.

I: Ok, kennst du da irgendjemanden der da so Beratungsleistung erbringt in XXX oder Umgebung, mit dem ihr schon zu tun hattet?

A: Ja es gibt da in XXX... ich geb dir mal Namen bei einer der letzten Ausschreibungen das war nen unabhängiges Beratungsunternehmen, ist jetzt eigentlich. Mit denen können wir sehr gut, aber...das sind Rechtsanwälte die da.

- c. Messen und Tagungen: aktiv, passiv

A: Ja, für Kunden ja. Also grad unser XXX Format grad in XXX wieder. Gratulation hierzu. Ich glaube, dass das schon eine gute Rolle spielt. Genauso Eigenwerbung, „XXX“ oft erlebt, spielt oft das Zünglein an der Waage. Wertvolle Veranstaltungen um dem Admin nochmal die Sicherheit zu geben und das nochmal so zu beeinflussen oder dann doch nochmal rauszuziehen, dass er sagt ah ok, das geht ja doch, das ist ja doch richtig.

d. Intern: Buying Center

15) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

A: Nie. Nein. Dass ich eine Ausschreibung anfertigen sollte?

I: Nein nein. Also er fertigt eine Ausschreibung an, aber braucht jetzt irgendwelche Informationen um das durchführen zu können. Also keine Ahnung, er fragt nach technischen Informationen, die er einfließen lassen kann oder so was.

A: Also von 10 Ausschreibungen vielleicht 2 Mal.

I: 2 Mal, ok.

a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)

A: Es ging A) um Kosten zu ermitteln, also was kostet die Lösung. B) ging es um das, wie er einfach was formulieren muss, dass hinterher eine Technik von uns herstellerneutral beschrieben wird.

I: Ah ok, mhm, wunderbar.

b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

I: Von diesen 2 Mal, wurden die Kunden am Ende auch gewonnen?

A: Nein.

I: Ok, verdammt. Ok. Gut.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 13: Vendor Expert Interview: V₆

Performed on 03.12.14 (09:30h – 09:59h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zu Beginn ein paar ganz **allgemeine Fragen zur Demographie Ihres Unternehmens und Ihrer Person:**

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

I: PreSales Consultant für Public

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Beim Kunden.

I: Beim Kunden. Das heißt du warst vorher auf Kundenseite?

A: Ich war vorher auf Kundenseite, ja. Bei der XXX. Beziehungsweise eigentlich davor bei, ja eigentlich muss ich schon sagen, ne davor war ich bei XXX, da hat das eigentlich angefangen. Das ist so XXX. Ich weiß nicht ob du die noch kennst?

I: Ne, sagt mir jetzt gar nix. Das heißt wenn du jetzt so deine Jahre in der Storagebranche zusammenfassen müsstest von der Anzahl her, wo bewegen wir uns da? Was würdest du da sagen?

A: 12

I: Wow, ok. Alles klar.

A: Bin schon bissl älter, wa.

I: Naja. Ok, wunderbar.

A: Deswegen ja auch Public, weißt du.

I: Deswegen auch Public. Meinst du weil da ist alles nen bisschen langsamer oder wie?

A: Hahahaha.

I: Ne.

- 3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?
- a. Davon ca. Storage-Ausschreibungen?

A: Gut, da komm ich auf, bei denen die wir eigentlich auch so ein bisschen mitbeeinflussen konnten...Ja sagen wir mal so...Ja gut das ist ja alles was der Public so ausschreibt, also so über 25.000. Und ich mach nur Public in XXX. Puh das ist echt ne gute Frage.

I: Also nur so übern Daumen.

A: 30-40 wobei da muss man nen bisschen revidieren. Da gibt's jetzt ja welche, die konnten wir so nen bisschen steuern, wo wir vorab eben die Arbeit gemacht haben und welche, die eben unabhängig kommen von unabhängigen Leuten, die das gemacht haben. Und die sind ja wieder aufwendiger als die anderen. Also ich sag mal insgesamt so 30-40 kannst du so sagen. Von den richtigen vielleicht so 3-4, von denen die wir nicht beeinflussen konnten. Oder wo keine Vorgeschichte mit XXX war.

- 4) Stehen Sie in engen Kontakt zu anderen Herstellern oder Beratungsunternehmen?
- a. Wenn ja: Welche?

I: Ne. Also ne. Ich kam von XXX; das wollt ich jetzt meiden. Kannst ja mal den XXX fragen.

A: Haha, ich komm ja auch von XXX. Von daher...

I: Achso! Hahahah.

A: Und bei Beratungsunternehmen? Wie siehts da aus?

I: Beratungsunternehmen... Da meinst du so... Gib mir mal nen Beispiel.

A: Also es geht nicht um unsere Reselling Partner sondern um Unternehmen, die in Ausschreibungen sagen wir mal Beratungsleistung übernehmen. Das kann natürlich auch nen Reselling Partner sein. Aber es geht jetzt mehr um die Leute, die wirklich Ausschreibungsberatung durchführen.

I: Also da hatten wir mal einen für hier die Kreise in XXX. Der hat uns mal angefragt, also so paar Punkte. Aber so engen Kontakt, nein.

A: Ja. Weißt du noch wer das war? Die Firma?

I: Da muss ich mein ausgelagertes Gedächtnis mal fragen, warte mal. Das war Kreis...Das war XXX glaub ich. Das ist aber so ne kleine Klitsche. Hm. Der die Ausschreibung selbst formuliert hat rechtlich war der Herr XXX.de

A: IT-Planung.de. Ja, ok wunderbar. Alles klar. So sonst von den Reselling Partnern Leute, die die Ausschreibung mit beraten?

I: Also Reseller? Ne, hab ich jetzt keinen.
A: Ok, alles klar. Wunderbar. Gut, dann.
I: Fujitsu dient ja als Reseller, aber so dass die Ausschreibungen bei uns gemacht haben, ne, nicht dass ich wüsste.
A: Ne ok, dann ist ja gut. Genau, dann....

Denken Sie an **Ihren letzten Kundenkontakt und den Zeitraum zur Beschaffung** eines Storage-Systems...

- 5) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis zur finalen Entscheidung.

A: Also natürlich machen wir das so, dass wir z.B. in XXX oder woanders sind, da gehen wir hin und pitchen den XXX ganz normal, sodass sie XXX kennen. Dann machen wir die C-Level bekannt. Dann machen wir selbst nochmal ne Demo. Dann ist es meistens so, wenn es gut gelaufen ist, dass die eben auf uns zukommen und sagen ja, Alleinstellungsmerkmal. Dann holen wir da paar Punkte raus und sagen die und dann wars das aber auch schon. Also wir würden jetzt nicht hingehen und sagen wir schreiben jetzt an der Ausschreibung mit, ne. Um Gottes Willen. Wir geben so paar Texte mit und aber jetzt so an der Ausschreibung mitschreiben, das wär.....das kann man schon kriminell sehen teilweise. Das ist dann nicht mehr so ganz frei sag ich mal.
I: Jaja, absolut. Ok. Wenn du jetzt nochmal an den letzten Punkt über die Erstellung bis hin zur finalen Entscheidung denkst, d.h. wenn die Ausschreibung letzten Endes veröffentlicht wurde. Dann bist du in der Beantwortung drin?
A: Ja, dann gehen wir mit dem Partner eben zusammen durch die Punkte durch und beantworten die. Wenn wir nicht schon... was wir hier natürlich sehr oft...ich weiß nicht wie es bei euch ist... hinkriegen ist eben, dass die produkt-spezifisch ausschreiben. Also dass wir die soweit kriegen, dass die produkt-spezifisch ausschreiben. Wenn wir das schaffen, dann gehen wir eben den einfachsten Weg. Und die schreiben dann sogar die Produktnummern rein.
I: Ok.
A: Wenn nicht, dann ist es meistens so, dass man sich mit DLM hinsetzt, dass du dich mit dem Partner hinsetzt und dann die Dinge ausfüllst.
I: Ok.

- 6) Welche Personen waren daran beteiligt?

A: DLM meistens. Dann manchmal XXX von Legal, aber den holt dann meistens das DLM Team mit ins Boot. Ja der XXX manchmal, wenns Dinge gibt die man mal gescheit besprechen muss oder eben auch XXX dann eben. Also bei uns ist es der XXX. Ihr gehört schon zu XXX, oder?

I: Ja genau, wir sind XXX. Bei uns ist es der XXX dann, genau. Ok. Genau.

7) Waren Sie im direkten Kundenkontakt oder über Partner eingebunden?

A: Wie meinst du das jetzt? Vorab oder?

I: Ja während der gesamten Erstellung der Ausschreibung. Also hattest du da jemals direkten Kundenkontakt?

A: Als die Ausschreibung erstellt wurde? Nein.

I: Nein, ok.

A: Also wie gesagt wir liefern nen paar Texte bei aber das wars auch schon.

I: Das heißt der Kontakt lief einzig und allein über den Partner, der die Ausschreibung beantwortet?

A: Über den Partner oder eben über so nen Beratungshaus, die dann eben noch ein zwei Fragen stellen.

a. Wenn Partner: Welche?

b. Wenn Kundenkontakt, wie ist dieser zustande gekommen?

c. Wie häufig sind Sie generell über Partner eingebunden?

I: Wie häufig bist du von den 30-40 Ausschreibungen über Partner eingebunden?

A: Lass mal grad überlegen. Sagen wir mal... ja das ist jetzt wieder die Unterscheidung ob die produktspezifisch ausschreiben. Ich sag mal 25%, nen Viertel.

I: Ok, wunderbar.

Denken Sie nun bitte an **die Erstellung einer Öffentlichen Ausschreibung...**

Zunächst ein paar allgemeine Fragen dazu:

8) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Wie gesagt, erstmal drauf geil machen, wie gesagt. Dass sie dann eben unsere Produkte nehmen. Wenn die natürlich Hersteller total ausschreiben, dann sind wir natürlich raus, dann machen wir natürlich gar nix. Höchstens, dass wir im Hinterkopf so nen paar Features mitgegeben haben. Aber sonst eben wie ge-

sagt über XXX Center oder über DLM eben bzw. macht das eben der XXX. Oder die XXX, die die Texte dann eben weitergeben.

I: Ok, genau.

9) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung?

I: Also das betrifft natürlich jetzt alle in dem Sinne. Aus deiner Erfahrung heraus. Also wir hatten das natürlich bei uns, da bist du das logischer Weise, vielleicht auch noch Leute wie der XXX aber darüber hinaus. Wir haben ja noch die Kundenseite.

A: Ja, ich würde auch sagen andere Hersteller teilweise. Weil wenn wir nicht drin sind, dann merkst du natürlich an den Formulierungen, dass die auch so Texte haben... Dass das eben von denen getriggert wurde bzw. eben von Kundenseite, wenns nen größerer Kunde ist, dass die ja wahrscheinlich schon Präferenzen haben und dementsprechend vorgehen. Also nicht dass Storage team allgemein sondern eben was weiß ich wenns um XXX geht, dann sagen die nein, weil wir haben immer schon XXX Storage jetzt haben wir das in der Ausschreibung stehen. Und so weiter und so fort.

I: Ok, wie siehst aus auf Kundenseite?

A: Ja, das mein ich damit, Kundenseite. Also mit XXX und so. Dass die da eben intern gewisse Regularien oder Standards haben und die dann eben durchsetzen.

I: Achso das meinst du damit. Wie sieht's aus mit Partnern, speziell Reselling Partnern, die die Ausschreibung beantworten? Oder die mit nem Kunden schon in ner Beziehung sind, nehmen die noch Einfluss darauf?

A: Ja, möchten sie tun. Die haben ja auch nen Interesse, dass sie das gewinnen und dementsprechend dann eben. Also ich geh davon aus, dass sie Einfluss nehmen. Nur das krieg ich natürlich nicht mit, wie weit die das tun.

I: Ok, genau.

A: Das ist ja schon sehr unter der Gürtellinie. Also nicht unter der Gürtellinie sondern hinterm Horizont, das siehst du nicht.

I: Ok.

10) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Kommt drauf an, wenn nen Berater drin ist würd ich sagen der. Weil dann verlassen die sich auf den. Wenn dem nicht so ist, sollte eigentlich der Partner

den meisten Einfluss haben, weil der ne langjährige Beziehung ggf. sucht.
I: Mhm, ok. Jut, super, cool. Wir habens fast geschafft.

Denken Sie nun an die **inhaltliche Gestaltung** einer Storage-Ausschreibung:

- 11) Über welche Kriterien differenzieren Sie sich in Kundenausschreibungen?
- Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Innovation, technische Features, ich sag mal auch was jetzt auch Innovation und technische Features beinhaltet, aber eben auch bei meinen Kunden oft der Burner ist, ist eben Backup. Das ist so das Megathema bei denen meistens. Dann ja Historie teilweise.

I: Also Historie mit dem Hersteller meinst du, ne?

A: Jaja, genau. Wenns schon XXX war und die wissen wie gut, dann ist es teilweise gar nicht die Frage. Und sonst also Marktführerschaft weniger, vielleicht im Unterbewusstsein, aber das kriegen wir nicht so mit, dass das getrieben ist. Weil wir das auch nicht so auf die Prio 1. Es geht eher um die Technik und eher um den Kunden helfen und wie man denen helfen kann. Vielleicht macht der VB das anders aber ich bin eben SE.

- 17) Was denken Sie, welche Kriterien spielen für Ihre Kunden eine wichtige Rolle?
- Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Also es gibt da zwei Megapunkt das ist einmal die Technik und der zweite Punkt ist Support. Weil wir eben gewisse Sachen....also wir haben zwei große Public Kunden wo eben über den XXX gearbeitet wird und dadurch eben das so nen Benefit für die ist, dass die eben sagen das hat kein anderer Hersteller und das ist genial und das ist nen Alleinstellungsmerkmal. So Alleinstellungsmerkmale eben so nen bisschen.

- 12) Wie stellen Sie sicher, dass neue Technologien und Methoden in der Ausschreibung berücksichtigt werden?

A: (lacht) Ja wie gesagt, dass wir eben das pitchen, dass wir eben Demos zeigen wie es funktioniert, wie das Neue funktioniert. Vorabgespräche eben, dass das

eben gut ist, dass das für die Zukunft gebaut ist, dass man eben sich nix verbaut und zukunftsorientiert ist, sowas. Dass es das sicherstellt ist schwierig glaub ich.

I: Ja es geht mehr darum was du dafür tust, dass es überhaupt in die Ausschreibung reinkommt, aber XXX beantwortet das 100%ig. Genau.

13) Was denken Sie, welche Informationen werden vom Kunden während des Ausschreibungsprozesses aber vor Veröffentlichung am ehesten herangezogen um Ausschreibung zu formulieren?

a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Vielleicht Gartner, die anderen Sachen glaub ich weniger. Wenn dann war das vorab vor der Ausschreibung, aber während der Ausschreibung würd ich eher sagen, dass Gartner, IDC noch zieht, aber...

I: Ja es geht jetzt genau um die Ausschreibungsformulierung, also während des gesamten Prozesses also wo sie sich praktisch das Material anschauen. Also meinst du so Whitepaper oder Fachzeitschriften?

A: Achso, also auch vor Formulierung, also Whitepaper ist da nen Thema oder so Specs eben. Die Sachen.

b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

A: Private Kontakte kann ich mir gut vorstellen. Sowas wie interne Referenzen, hast du schon mal gehört davon, wie findste das, euren Support. Das ist extrem hoch. Das ist nen Punkt, der ist wahnsinnig hoch. Den schätz ich so ein, dass er wahnsinnig wichtig ist. Aber so Beratungsunternehmen, wenn die so einen ran ziehen, dann sind die eigentlich eher neutral.

i. Glauben Sie, dass Partner in der Vergangenheit ihre Kunden immer neutral beraten haben? Falls nein, in welche Richtung beraten?

I: Also wir hatten ja vorhin mal über diese langfristigen Beziehungen gesprochen. Dass nen Partner sozusagen mit nem Kunden schon längere Zeit zusammenarbeitet. Jetzt will der ja ne Ausschreibung erstellen....

A: Kommt auf den Partner an.

I: Also heißt eigentlich ja, dass sie nicht immer neutral beraten haben, oder?

A: Ja, würd ich sagen, weil es gibt natürlich auch Partner, die spezifiziert sind in eine Richtung. Wenn du jetzt eine XXX siehst, die haben das komplette Portfolio. Ich glaub schon, dass die das eben nen bisschen... kannst auch nicht sagen, weil... die haben ja auch nen Goal. Nen Goal ggf. von gewissen Herstellern, also intern, ihr müsst soundso viel XXX verkaufen und so weiter und so fort. Ich glaub schon, dass die so getrieben sind und in der Hinsicht nicht komplett frei entscheiden können.

- ii. Was denken Sie, wie oft werden Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

I: Also heißt, dass die aktiv hinzugezogen wurden, hey ich muss hier ne Ausschreibung formulieren, kannst du mich unterstützen?

A: Muss ich jetzt grad mal durchrechnen, ja. Gut bei Öffis ist es eher so, dass die das öfters brauchen, weil die eben diese rechtliche Seite absichern wollen. Das sind ja EU-weite Ausschreibungen und das ist sehr komplex. Also für die Verwaltung und so, dass die sich dafür eben nen Berater nehmen, der eben das schon öfter gemacht hat. Wenn du so nen XXX dir anguckst also so ne Stadt die macht das eben IT-seitig nicht so oft und da holen sie sich halt Unterstützung. Weniger wegen Technik, mehr wegen Formellen.

I: Richtig. Ok, genau. Kannst du mir da irgendwelche Namen nennen, also was das für Unternehmen sind? Also vorhin hattest du ja gesagt XXX.

A: Ist es auch, genau. XXX, die der Herr XXX machte. Dann hatten wir noch nen anderen Laden, wo hatten wir den denn. Bei XXX war der drin. Der macht das ziemlich kräftig find ich. Oh Gott. Ich muss mal gucken wo ich den finde. Von XXX. Ich such mal ne Ausschreibung.

I: Wie hieß der Kollege von XXX?

A: XXX hieß der. XXX.

I: XXX, ok.

A: Ok, das war der nicht. XXX. Da war das der andere Laden in XXX. Oh Gott ey. Wenn du so viel hast dann weißte auch nicht mehr wo....

I: Ja ich weiß, was du meinst.

A: Ach hier. Ach, der XXX hat die eher im Kopf.

I: Genau, dann haben wir noch zwei Sachen zu dem: Messen und Tagungen.

c. Messen und Tagungen: aktiv, passiv

A: Ja.

d. Intern: Buying Center

14) Wie häufig hat Sie in den vergangenen 12 Monaten ein Kunde direkt nach Informationen zur Anfertigung einer Ausschreibung gefragt?

A: Also mich bzw. Accountteam. Also das war halt da wo wir das irgendwie platzieren konnten. Wie häufig... 12-13 mal.

a. Welcher Art waren die Anfragen? (Spezifika, Kosten, etc)

I: Ging das dann Richtung Budgetplanung, Richtung technischer Inhalte?

A: Da ging es immer um Alleinstellungsmerkmale.

I: Ok, USPs. Wunderbar ok.

b. Wie häufig können diese Kunden am Ende auch gewonnen werden und wie?

A: 90%

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu unseren Systemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Es kommen Partner zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 6) Partner beraten oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 7) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 8) Oft beeinflusse ich die Meinung von Partnern über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 14: Partner Expert Interview: P₁

Performed on 08.12.14 (10:00 – 10:28 Uhr)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

18) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: PreSales Consultant

19) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Also eigentlich durchgängig beim Partner. So 13-14 Jahre.

20) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

A: Eine Schätzung: sag ma mal 25

a. Davon ca. Storage-Ausschreibungen?

A: So 10

21) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?

A: Zu XXX klar, hier haben wir engen Kontakt. Zu anderen natürlich auch aber nicht so. Zu Beratungsunternehmen, ja gut wenn es ein Thema ist, das nicht mehr in unserem eigenen Portfolio drin ist, dann haben wir da natürlich auch irgendwelche Partnerfirmen mit denen wir dann zusammen arbeiten. Das schon.

22) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?

A: Also wir unterstützen öffentliche Auftraggeber bei der Erstellung von Ausschreibungen.

23) Bezeichnen Sie sich selbst als „neutraler Berater“?

A: Dem Kunden gegenüber auf jeden Fall. In den meisten Fällen wird schon hinterher XXX rauskommen, aber es gibt da so ein paar Fälle wo es dann halt mit anderen bisschen besser passt.

24) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?

a. Falls ja, von wem?

A: Ja von XXX. Jetzt kommen neue Sachen in das Portfolio durch eine Umstrukturierung.

b. Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

A: Der Presales macht sowohl die Beratung als auch die Ausschreibung als auch im Salesprozess eingebunden, von da her ist das da schon immer eingefärbt.

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

25) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?

A: Also einmal gibt es ja ein Portal für Ausschreibungen und dann natürlich über die persönlichen Kontakte.

26) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.

A: Also ich persönlich hatte bisher immer nur Vergnügen Ausschreibungen zu beantworten, wenn sie schon da war.

I: Weißt du von Kollegen die da schon davor eingebunden wurden?

A: Also ich hab des jetzt nur so am Rande mitgekriegt, da geht es um eine Netzwerkinfrastruktur. Und da ist wirklich vom Ist-Aufnahme, Sollkonzeptionierung, Grobkonzept und dann da eine Richtung reinbringen.

27) Welche Personen waren daran beteiligt? (Selling Center)

A: Der Presales, die Technik die es hinterher umsetzen soll, der zuständige Vertriebler natürlich. Und dann stimmen wir uns auch immer noch mit der Distribution ab. Der Hersteller ist dann immer auch noch mehr oder weniger tief involviert, ja nach dem wie die Aufgabenstellung ist.

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

28) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Die Ausschreibung vorformulieren. Die letzte Form kommt dann im Endeffekt vom Kunden selber. Also Unterstützung mit Textbausteinen und der Formulierung. Ja gut und dann eben auch Unterstützung bei den Grundlagen die dann dazu führen. Also wie gesagt bei der Ist-Aufnahme und si eine Soll-Definition die sich dann abgestimmt mit den technischen Möglichkeiten ergibt.

29) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)

A: Ja gut das ist natürlich auf der Kunden Seite die Leute die für den Einkauf zuständig sind und natürlich aber auch die bestehende Technik die für Sie natürlich dann auch immer von mit einbringen, dass Sie da nicht auf einmal wo anders konzentriert werden. Auf unserer Seite der Vertrieb, der will natürlich schau dass da was kommt wo er möglichst auch was verkaufen kann.

30) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Das ist natürlich immer sehr von den Personen selber abhängig. Letztendlich initial erstmal der Kunde und die Leute die auf Kundenseite für solche Konzeptionen zuständig sind. Wenn die halt dann das also den unterstützenden

auch freie Hand geben. Wie heißt das immer so schön: Wer zahlt schafft an.

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

- 31) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?
- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Ein wichtiger Punkt ist natürlich das man so eine Vertrauensbasis, eine etablierte Lösung hat, wo man von einem vernünftigen Support abgesichert ist. Na gut und preislich muss es natürlich dann passen. Und die Technik muss natürlich zur Aufgabenstellung passen. Und normalerweise ist es dann halt schon so dass man guckt das man über die Lösung, eine Prozessoptimierung hinkriegt. Ja wenn letztendlich das Material dann mehr wird das man dann bei XXX zusammen kauft, das viele Sachen dann auch einfacher werden.

- 32) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?

A: Wenn man beim Kunden als Berater schon mal eine gewisse Vertrauensstellung hat und da eben bei Gelegenheit nutzt ihn an den Mehrwert heranzuführen. Dass man da dann letztendlich über die Kundenbindung die man mal aufgebaut hat an solche neuen Themen heranzuführt. Also letztendlich ist das so ein Anbahnungs-Prozess das man halt dann guckt in 5 Jahren muss er halt dann ein neues Equipment anschaffen, dass man da halt nicht erst 3 Monate davor auf der Matte steht sondern dass man halt zwischendurch halt immer dieses Bewusstsein aufbaut. Also letztendlich so eine Frage der Kundenpflege.

- 33) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige
- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- ii. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Bei vielen öffentlichen ist das so dass sie dann doch auch untereinander ein bisschen vernetzt sind und gucken was da die Partner so machen.

- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):

A: Ja gut bei anderen ist das natürlich sehr stark Personen abhängig. Ich hab auch schon erlebt dass bei öffentlichen Stellen, die Personen die das dann entscheiden, dass die da halt dann sich irgendwelche Innovationen haben aufschwätzen lassen von Herstellern dann auch. Bei vielen ist das wirklich so dass durch den Austausch auf so einer gewissen Ebene auch viele Sachen getrieben werden.

- i. Welcher Art: Direkt / Indirekt

A: So direkt nicht nein.

- ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?

A: Also das hab ich jetzt so in der Form jetzt noch nicht erlebt.

- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?

- d. Messen und Tagungen: aktiv, passiv

A: Das glaub ich auf jeden Fall, das sich hier Kollegen aus den Öffentlichen informieren.

- e. Intern: Buying Center

34) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 15: Partner Expert Interview: P₂

Performed on 27.11.14 (09:00 – 12:00 Uhr)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Interviewee has not agreed to a recording of the conversation; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Einer von zwei XXX der XXX mit insgesamt gut 20 Mitarbeitern

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Unsere Mitarbeiter haben in der Regel einschlägiges IT Know-How aus ihren vorhergehenden Beschäftigungen. Darüber hinaus sammeln sie natürlich in den Projekten jede Menge Erfahrung durch bspw. der Migrationsbegleitung über einen längeren Zeitraum. Hierdurch besitzen die meisten ohnehin einen relativ guten Marktüberblick. Des Weiteren pflegen wir einen guten Informationsfluss mit den Herstellern und Anbietern. Diese kommen regelmäßig auf uns zu und stellen neue Konzepte vor (Kombination von Technologie und Abrechnung).

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

A: In einem normalen Jahr bearbeiten wir ein Auftragsvolumen von ca. 1-2 Mrd. €. Unser Fokus liegt auf Großprojekte im dreistelligen Mio. € Bereich.

a. Davon ca. Storage-Ausschreibungen?

A: Storage ist in der Regel der größte einzelne Beschaffungspunkt und damit enorm wichtig.

- 4) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?

A: Ja. Kontakt besteht zu Outsourcing-Dienstleistern wie HP, T-Systems, IBM, Atos, Infosys, TecMahindra sowie allen großen Herstellern: HP, IBM, EMC, etc.

- 5) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?

A: Fokus sind Managed Service Deals respektive die Sourcing-Beratung, Vertragsmanagement (Contract Management) sowie Roll-out Projektmanagement für DAX Unternehmen und ausgewählte Kunden des gehobenen Mittelstandes. Wir beraten dabei u.a. im Bereich Datacenter, Mobile, WAN, etc. USP zu anderen Beratungsunternehmen ist das technische Verständnis der Gesamtlösung, was eine langfristig erfolgreiche Beratung ausmacht.

- 6) Bezeichnen Sie sich selbst als „neutraler Berater“?

A: Die Retis Consulting Group ist eine Unternehmensberatung für dem Fokus IT und IT Infrastruktur. Wir beraten Kunden Herstellerneutral(vgl. Geschäftsmodell)

- 7) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?
- Falls ja, von wem?
 - Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

A: Nein

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

- 8) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?

A: Aufgrund unseres Geschäftsmodelles antworten wir nicht auf Ausschreibungen sondern initiieren diese mit unseren Kunden. Unsere Leistungen basieren

zu 100% auf Empfehlungen anderer Kunden. Daher sprechen uns Kunden direkt an, die einen Bedarf in der Vertragsausarbeitung des Outsourcings haben.

- 9) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.

A: In der Regel sind wir zwei Jahre vor der eigentlichen Ausschreibung beim Kunden und diskutieren die Übernahme des gesamten Vertragswerkes eines Outsourcings. Storageausschreibungen sind in diesem Falle allenfalls Teil der Anbieter, die wiederum sicherstellen müssen, die angeforderten SLAs bzw. Performance- und Kapazitätsanforderungen umzusetzen. Eine andere Variante ist die Beratung von Projektgruppen in der Roll-Out Phase die eine Storageausschreibung zu Folge hat.

- 10) Welche Personen waren daran beteiligt? (Selling Center)

A: CFO, CTO, Projektgruppe

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

- 11) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: In allen großen Outsourcing-Deals ist in der Regel die Technik und das Pricing voneinander getrennt. Der Technik kommt dabei wenig bis keine Bedeutung zu. Wir sehen es u.a. als unsere Aufgabe an, eine gewisse Transparenz von Technik und dem Pricing herzustellen um über die Gesamtlaufzeit (5 Jahre inkl. Wachstum) den bestmöglichen Anbieter auszuwählen. Dabei kann ein geringer Anschaffungspreis über die Laufzeit und Ausmultiplikation schnell ins Negative kippen.

- 12) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)

A: Für gewöhnlich werden in den Deals zwei große Anbieter und ein Herausforderer (Inder) ausgewählt, die dann neben dem besten Preis auch die beste

Technologie anbieten sollen. Der Rückkanal dieser Anbieter bietet zumeist eine verlässliche Quelle von innovativen Ideen, die teilweise mit anderen Anbietern geteilt werden und damit in eine mögliche Ausschreibung einfließen. Darüber hinaus werden mit dem Kunden mehrere Gespräche geführt, in denen die Anforderungen definiert und verfeinert werden bzw. welche Innovationen einfließen sollen.

13) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Im Falle der Projektgruppen unsere Consultants. Im Falle von Managed Service Deals der jeweilige Anbieter. Wobei wir Einfluss auf die technischen Anforderungen, die Long List und die Lose nehmen. Damit nehmen wir indirekt Einfluss auf den Storage Anteil.

Für die meisten Kundenansprechpartner ist es das erste Mal, dass sie ein Teil eines Outsourcing-Deals sind. Solche Ausschreibungen finden in der Regel nur alle 5 Jahre statt. Selbst wenn es einen zweiten Ausschreibungszyklus gibt, haben sich in der Zwischenzeit die meisten Ansprechpartner verändert. Daher ist unser Einfluss auf die Kunden enorm hoch.

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

14) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?
a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Kunden möchten in den Ausschreibungen keine einfachen TB Zahlen angegeben haben, sondern vielmehr innovative Konzepte umgesetzt bekommen, die sie in der Lage versetzt, einen Wettbewerbsvorteil zu generieren und vor allen Dingen Kosten zu senken. Der Fokus liegt jedoch auf letzterem. Der Fokus in Outsourcing Deals liegt auf einem extrem abstrakten Level. Welche Top 3 Funktionalitäten seitens NetApp können einen Deal auf dem Preislevel signifikant beeinflussen? Wo liegt das größte Einsparpotential?

15) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?

I: Siehe Frage 12

A: Neue Technologien sind darüber hinaus nur dann wirklich relevant, wenn sie eine große Auswirkung auf die Kosten des Gesamtprojektes haben. Outsourcing-Deals unterscheiden sich von normalen Storage-Ausschreibungen dahingehend, dass hier der €/GB Preis entscheidend ist. Erst wenn eine Technologie diesen signifikant senken kann, findet sie Berücksichtigung im jeweiligen Deal. Dies zeigt sich durch die Ausmultiplikation der Gesamtmenge an Speicher.

16) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige
- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):
 - i. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
 - i. Welcher Art: Direkt / Indirekt

A: Direkt mit den jeweiligen Anbietern (Outsourcing Anbieter)

- ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?

A: Der Outsourcing Anbieter bringt jede Menge Know-How mit in die Vertragsverhandlung, die schon mal 12 Monate andauern kann. Hier werden verschiedenste Lösungen ausgetauscht. Technische wie auch Nicht-technische Informationen.

- iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?

A: Nein, unsere Gespräche belaufen sich meist auf einem informellen Level.

- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?
 - d. Messen und Tagungen: aktiv, passiv
 - e. Intern: Buying Center
- 17) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

A: Nein!

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme	Teils /	Stimme	Stimme
-----------	--------	---------	--------	---------------

eher zu Teils eher nicht
zu

5) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu Stimme
eher zu Teils /
Teils Stimme
eher nicht
zu **Stimme
nicht zu**

A 16: Partner Expert Interview: P₃

Performed on 08.12.14 (13:00 – 13:16 Uhr)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: PreSales Storage Consultant und Brand Manager

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Des war noch vor XXX, als ich noch Admin war in nem Unternehmen. Bei XXX war ich Consultant Storage. Und vorher für Virtualisierung. Ich hab also 10 Jahre Erfahrung in der Storagebranche.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

A: Insgesamt Ausschreibungen von der XXX >400. Storageausschreibungen sind 20%

4) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?

A: Ja nur zu XXX als Hersteller, aufgrund meiner Tätigkeit und Anforderungen des Jobprofils. Ich stehe nicht im Kontakt zu Beratungsunternehmen.

5) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?

A: Das kommt je nach Anforderungen vom Kunden darauf an. Es gibt durchaus Beratungen beim Kunden die herstellernerneutral angehen, gegen Bezahlung. Das ist dann aber auch schon die Anforderung beim Kunden wo wir entsprechend auf so ein Thema angesprochen werden und da werde ich natürlich entsprechend beraten. Ansonsten im Rahmen von unseren ganz normalen Reselling-Abkommen.

6) Bezeichnen Sie sich selbst als „neutraler Berater“?

A: Ja, also man versucht natürlich immer Herstellerneutral zu beraten. Wir haben ja drei Hersteller im Portfolio: XXX, XXX und XXX und in diesem Bereich wird sich die Beratung dann bewegen.

I: Glaubst du, dass diese Reselling-Abkommen für XXX, XXX und XXX die Neutralität eurer Beratung beeinflusst?

A: Ja auf jeden Fall. Des ist dann nicht mehr abhängig vom Berater des jeweiligen Brands der entsprechend dann auch betreut, dadurch denk ich dass es da immer irgendwelche Vorzugsthemen gibt, beim jeweiligen.

7) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?

a. Falls ja, von wem?

b. Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

8) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?

A: Durch den Vertrieb. Der erfährt es durch den Hersteller oder den Kunden.

9) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.

A: Klar Erstkontakt, entsprechende die Anforderungen mit dem Kunden diskutieren, aufnehmen. Dann entsprechende Konfigurationen der jeweiligen Anforderungen vornehmen. Die Angebotspräsentation mit dem Vertrieb begleiten. Bei Erfolg Übergabe an das Projektteam.

10) Welche Personen waren daran beteiligt? (Selling Center)

A: Kunde, hier die Projektverantwortlichen. Dann klar der Partner entsprechend von der XXX die Projektleiter oder die Architekten, die wir auch haben. Fachbereich. Und die Unterstützung vom jeweiligen Hersteller.

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung**...
Zunächst ein paar allgemeine Fragen dazu:

11) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Qualifizierung vom Leistungsspektrum das oft angefragt wird. Und da entsprechend gegenprüfen ob der jeweilige Storage Part für XXX entsprechend passt oder nicht. Das ist dann aber eher schon wenn die Ausschreibung rausgekommen ist. Vorher bekomme ich nichts mit von der Ausschreibung. Das sind dann eher die Kollegen vom jeweiligen Architekten Team, die vorher dann einfach das breitere Spektrum abdecken, mit Storage Backup und so weiter. Wir kommen dann erst später rein, wenns dann detaillierter wird. Oft ist natürlich so dass eine Ausschreibung vorqualifiziert wird, dann weiß man schon in welche Richtung es geht und dann kommt es zum jeweiligen der entsprechend dann drüber schaut.

12) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)

A: Also bei den Partnern sind es Architekten die das ganze beeinflussen können. Der Vertrieb selber natürlich. Der Partner- oder Herstellervertrieb.

13) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Ich denke die Administration, also der Fachbereich.

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

14) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: 1. Preis, 2. Innovation 3.Support

15) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?

A: Ja das ist schwierig ob man dann immer abweicht, von dem was angefragt ist, einfach um mehr Features entsprechend reinzubringen. Aber vor der Ausschreibung weiß ich nicht, was ich nicht involviert.

16) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Ich denke Gartner spielt sicher eine große Rolle, und dann Hersteller Dokumentationen

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Das spielt auf jeden Fall auch mit rein. Partner und private Kontakte spielen hier am meisten mit rein.

- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):

- i. Welcher Art: Direkt / Indirekt

A: Ja ich hatte aktuell einen Fall wo der Kunde herstellerneutral beraten werden möchte und mehrere Lösungsansätze von jeweiligen Herstellern sehen möchten. Der Kontakt zum Hersteller läuft dann über uns als Partner. Hier wurden

dann detaillierte Angebotslösungen eingeholt, auch mit Preisangaben und so weiter. Wir haben auch schon Hersteller direkt um Unterstützung der Ausschreibungserstellung gebeten. Nicht durch ein RFI sondern bei der technischen Analyse von der Ausschreibung. Im Netapp Umfeld sind wir auch mit diversen Kollegen schon mal im Gespräch gewesen.

- ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
- iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?
- iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?

d. Messen und Tagungen: aktiv, passiv

A: Ja

e. Intern: Buying Center

17) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

A: Ja ich denke das ist XXX, aufgrund der Historie.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stimme zu	Stimme	Teils /	Stimme	Stimme
-----------	--------	---------	--------	---------------

- | | eher zu | Teils | eher nicht
zu | nicht zu | |
|--|------------------|-------------------|--------------------------|----------------------------|--------------------|
| 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems. | Stimme zu | Stimme
eher zu | Teils /
Teils | Stimme
eher nicht
zu | Stimme
nicht zu |
| 4) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe. | Stimme zu | Stimme
eher zu | Teils /
Teils | Stimme
eher nicht
zu | Stimme
nicht zu |
| 5) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme. | Stimme zu | Stimme
eher zu | Teils /
Teils | Stimme
eher nicht
zu | Stimme
nicht zu |

A 17: Partner Expert Interview: P₄

Performed on 15.12.14 (11:10 – 11:57 Uhr)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Phone call
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: Geschäftsführer von XXX

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Ich war von 1997 bis 2007 Angestellter im Systemhaus, und hab da auch dementsprechend Schulungen mitgemacht, von XXX, hieß das damals noch, von XXX von XXX um halt als Presales Consultant Storage-Systeme entsprechender Weise. Da ich halt Kunden und Industrie Supporten musste. Ab 2000 hab ich mich auf Supporten konzentriert, und da die natürlich auch Storage Systeme einsetzen kam des auch immer wieder zu Einsatz, so dass ich das halt, ja, nutzen konnte sag ich jetzt mal, und auf dem aktuellen Stand blieb. Das sind dann in Summe bei 17 Jahren. Und da davor hab ich halt normale Firmen gehabt, bin halt 2000 in die Behörden reingerutscht. Da haben wir halt ne Akquise gefahren und da hab ich festgestellt dass ich praktisch viel mehr Termine bei Behörden rausbekomme als bei Firmen wenn ich Telefonakquisen mach. Und so kam es halt dann schon zu Beginn des Jahr 2000 viel mehr Behördentermine hatte. Und nach und nach wars so dass ich dann Ende 2001 zu 95% Behördenkunden und nur noch 2-3 Firmen die unbedingt bei mir bleiben wollte, den Rest hab ich halt an Kollegen weitergegeben. Also auch nicht ganz gezielt. Und da kann natürlich auch gleich von Anfang an Herr XXX wir müssen ja ausschreiben. Können Sie das auch unterstützen. So kam ich halt da mit rein. Hab dann auch Schulungen besucht die im Auftrag vom Gemeinde und Städtebund XXX durchgeführt werden. Die Schulen die Vergabestellen wenn

es um XXX oder XXX Schulungen geht. Da bin ich halt auch als praktisch die einzige Firma dort hingegangen, hab mich schulen lassen, und hab diese Schulung seit dem auch alle zwei Jahre wiederholt, einfach um auf dem aktuellen Stand zu bleiben. Und arbeite seit dem halt auch mit dieser Kanzlei zusammen. Das ist so ganz grob einfach nur die Vorgehensweise. Und 2006 hab ich die Nase voll gehabt vom Spagat. Auf der einen Seite ist mein Chef immer unzufrieden wenn ich die Ausschreibungsvorbereitung verkauf, dann darf ich nicht dran teilnehmen, ist blöd, wir hätten ja auch Ausschreibung gewinnen können. Wenn ich sie verschenk ist auch dumm, dann hab ich sie verschenkt. Am liebsten wär mir eben gewesen, ich mach die Ausschreibungsvorbereitung, lass mir das bezahlen und gewinn noch die Ausschreibung, was aber irgendwie ned ging. Aber von diesem Spagat hatte ich dann irgendwann die Nase voll, hab gesagt ich stell mich jetzt auf Seite des Kunden und Schluss. Deswegen hab ich mich Januar 2007 halt selbstständig gemacht.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

A: Also ich hab mal überschlagen ich dürfte in zwischen über 200 Ausschreibungen oder Beschaffungsmaßnahmen oder so, es kann ja auch sein dass es nur mal eine freihändige Vergabe ist. Ähm über 200 Beschaffungsmaßnahmen begleitet haben.

I: Aber nicht in diesem Jahr oder?

A: Nein nein insgesamt. Wie gesagt im Jahr hab ich im Schnitt ein Duzend Projekte von denen ich auch ganz gut leben kann.

a. Davon ca. Storage-Ausschreibungen?

I: Ok sind das alles dann Storageausschreibungen oder? Oder viele wären es wenn Sie es auf Storage runterbrechen müssten?

A: Bei weiten nicht. Es ist merkwürdiger Weise jedes Jahr irgendein anderer Fokus. Also dieses Jahr hat mal wieder Druck und Schulen. Also Drucksysteme allgemeinen für Verwaltung und Schulen bisher viel Anteil hatten. Letztes Jahr waren es viele Stagesysteme. Dieses Jahr waren es nur drei oder so wenn ich es richtig im Kopf hab. Ähm nächstes Jahr weiß ich das wieder ganz viele Serverausstattungen zukommen, also Serverraumausstattung. Weil viele meiner Kunden bei denen ich die Projekte vor 6 oder 7 Jahren gemacht habe jetzt wieder gekommen sind: „Herr XXX nächstes Jahr neuer Serverraum, sie wissen Bescheid.“ Das Zeug ist langsam alt, es muss raus. Des ist ganz komisch, ist je-

des Jahr ein anderer Schwerpunkt. Also ich hab im Normalfall immer 2-3 Ausstattungen von Serverräumen im Jahr, das ist so der typische Standard, wo halt logischer Weise auch Storage mit drin ist. Das ist so die typische Menge.

- 4) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?

A: Zu Herstellern. Beratungsunternehmen definitiv nein und Herstellern definitiv Ja. Weil ich ja im Vorfeld immer abklären muss, ist das Zeug was die verkaufen überhaupt geeignet das Bedürfnis des Kunden zu erfüllen. Also ganz wichtige Frage immer im Vorfeld. Und deswegen stehe ich im engen Kontakt mit verschiedenen Herstellern.

I: Wenn Sie die aufzählen müssten, was sind so die Top Hersteller?

A: Die Tophersteller sind Fujitsu, HP, Netapp des definitiv, Citrix ist viel dabei. Ähm und kleinere sag ich jetzt mal, Sofos hab ich jetzt dieses Jahr mehrere Projekte gehabt. Die aber von Sofos an sich herangetragen wurden, nach dem Motto Herr XXX da muss jemand Ausschreiben nach dem Motto, Sie machen das doch, kucken Sie mal. Und halt so exotische Sachen wie interaktive Tafeln, Firma Smart in dem Fall, Smartboard. Und im Druckbereich arbeite ich relativ viel, wobei das jetzt nicht unbedingt von mir kommt sondern eher vom Kunden, weil die halt sehr weit verbreitet sind, mit der Firma Triumph Adler und der Firma Rico zusammen. Die sind hier relativ weit verbreitet.

- 5) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?

A: Ich bezeichne mich immer als outgesourceten Einkäufer, das heißt meine Aufgabe ist im Endeffekt dafür zu sorgen dass der Kunde das bekommt was er braucht zu einem möglichst günstigen Preis. Das ist so ganz grob umrissen meine Aufgabe. Es funktioniert auch sehr gut. Ich schaffe eigentlich immer Einsparungen beim Kunden. Im Vergleich zu dem was vorher geplant war was man ausgeben müsste, hab ich eigentlich immer geschafft dass wir weniger ausgeben müssen. Also ich hab dieses Jahr allein bei einem Projekt ne viertel Millionen zu vorherigen Kosten (das war ein Drucksystem). Vorher haben Sie 200.000 irgendwas gehabt im Jahr über 5 Jahre hinweg jetzt sind wir bei 160.000 irgendwas, also insgesamt eine viertel Millionen über die 5 Jahre, wo die weniger bezahlen für dieselbe Leistung. Ja des war mal wirklich krass, soviel hab ich sonst nie, da sieht man mal wie viel die vorher bezahlt haben. Und da weiß ich auch genau wenn die wieder ein Projekt haben kommen die garan-

tiert wieder auf mich zurück.

6) Bezeichnen Sie sich selbst als „neutraler Berater“?

A: Ja, ich bin wirklich erbittert neutral, weil in dem Moment wo ich es nichtmehr bin und es kommt raus und es macht die Runde ist mein Geschäft zu. Also da bin ich dann wirklich ganz hart. Wobei ich wirklich sagen muss der Kunde muss es mitziehen, wenn der Kunde natürlich kommt und sagt wir brauchen einen XXX, mir kommt nichts anderes ins Haus, ist meine Neutralität in dem Fall gestorben, weil der Kunde ist König, der braucht dieses System, er hat schon eines im Einsatz, mit dem er es koppeln möchte , und da diskutier ich auch nicht lange mit ihm rum. Ich erwähne es kurz, man müsste das neutral machen und man müsste des so und so nach Vorschrift machen und dann gehen wir zur Realität über.

I: Kommt das denn häufig vor dass der Kunde Ihnen wirklich sagt, ich brauch genau das, ich möchte genau des haben?

A: Im Storage-Bereich definitiv ja. In anderen Bereichen weniger, da ist denen relativ egal wo die PC oder was oder so eine Standardausstattung da ist denen Wurst was da für ein Logo vorne drauf pappt. Aber bei Storagebereich sind inzwischen wirklich auf XXX angefixt. 8 von 10 würde ich jetzt mal sagen gehen von vornherein mit der Anforderung ich will XXX haben rein.

7) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?

a. Falls ja, von wem?

b. Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

A: Nein, ich verkauf weder Hard noch Software noch lang ich irgendein Gerät an um es zu installieren oder einzustellen. Also ich mach nur die Beschaffung

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

8) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?

A: In dem ich mir jedes Frühjahr hier eine Dame hinsetzte die einfach die Liste der Verwaltungen durchtelefoniert, ich hab hier ein paar Exceltabellen in denen ich halt die jeweiligen Ansprechpartner eingetragen hab und die werden stur von oben nach unten durchtelefoniert und da wird einfach gefragt was für

eine Beschaffung haben Sie dieses Jahr vor, dürfen wir Sie unterstützen, fertig. Und ein Großteil der Projekte selbst kommt inzwischen aus Mundpropaganda. Also wirklich Empfehlungen „Sie haben unserer Nachbargemeinde geholfen, können Sie das auch bei uns.“ Natürlich ist das ein Großteil inzwischen. Dieses Jahr war das erste mal dass ich keine Dame hingesetzt habe, weil ich Ende letzten Jahres schon wusste, ich hab so viele Projekte, passt.

- 9) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.

A: Ich hab eine Standardvorgehensweise, die sich seit Jahren taktisch bewährt hat. Das erste Kundengespräch ist immer kostenfrei, weil das brauch ich ja, um überhaupt den Aufwand abzuschätzen, ich muss schauen, wie viel wird beschafft, wie viele Positionen sind es. Dann geht es los mit dem Grobkonzept, das wir einmal kurz umreißen, wie könnt man denn diese Anforderungen erfüllen. Da gibt es meistens verschiedene Lösungsansätze, gerade im Serverraumumfeld; machen wir mit Virtualisierung, Virtualisierung nur auf den Servern oder auch auf den SAN und die ganze Schritte die es halt gibt, und da wird dann klar festgelegt, diese Methode wird verwendet.

Dann kommt das Feinkonzept. Das heißt ich erstell eine Stückliste mit wirklich namentlich genannten Geräten wo ich sag mit dieser Stückliste können Sie diese Anforderungen erfüllen. Lass diese Stückliste dann immer vom Hersteller prüfen, per Augenprinzip, dass ich da nichts vergessen hab. Schnell Filter Pappe und paar Verbindungskabel, das geht ganz fix. Und wenn der Hersteller sagt mit diese Stückliste, das funktioniert; wenn ich das so hinstelle wird das funktionieren, gehen wir in den nächsten Schritt. Meistens sind es ja mehrere Hersteller, dass wir das nicht vergessen. Also da ist ja dann zum Beispiel die Hardware von nem Server, die Hardware von nem Storage system, dann kommt die Virtualisierungssoftware von VMware oder von Citrix noch dazu, und und und. Also des ist schon bisschen mehr Abstimmungsarbeit als es sich auf einen Satz anhört.

Wenn diese Stückliste abgesehen ist, auch vom Kunden, mach ich aus der eine neutrale Leistungsbeschreibung. Im Endeffekt fliegt alles raus was ein Alleinstellungsmerkmal ist oder was einen Namen enthält. Mit Ausnahme des Prozessors. Bei Prozessoren mach ich mit Benchmarks nicht mehr rum, des ist unfug. Ich schreib dann wirklich rein ich möchte ein Intel Celeron Modell XY oder vergleichbar. Fertig

I: Jetzt hatten sie ja eben gesagt, manche Kunden sagen Ihnen ja im Prinzip, ich

will eine XXX haben, wenn Sie dann die ganzen USPs rausschmeißen wird's ja schwierig oder?

A: Nein, wenn die ne XXX haben wollen, schreib ich auch XXX dediziert aus. Da steht der Name und die Herstellernummer drin. Da geht nichts anderes. Ich mach jetzt erst mal die Standardvorgehensweise fertig... Wie gesagt, das Leistungsverzeichnis wird erstellt. Das Leistungsverzeichnis wird vom Kunden veröffentlicht und ausgegeben. Das mach nicht ich, darf ich gar nicht. Dann helf ich bei Beantwortung der Bieterfragen. Des ist meistens eh nur ganz wenig. Und meistens damit beantwortet: Auf Seite 6 steht das alles, kucken sie mal zweiter Absatz, alles erklärt; können Sie nachlesen. Dann kommen die Ausschreibungsunterlagen, die Angebote rein. Ich hab in der Zwischenzeit eine neutrale Bewertungsmatrix erstellt. Das heißt jedes Kriterium, das wir da drin stehen haben ist mit Punkten versehen worden. Gibt eine große Excel Tabelle und dann guck ich halt nach, ist es erfüllt, ja/nein. Bei Nein gibt es die Punkte eben nicht. Wenn es ein Ausschlusskriterium war fliegt er auch gleich raus. Wir arbeiten aber mit sehr wenigen Ausschlusskriterien, weil es immer zu massiven Stress führt wenn man da jemand rausschmeißt. Ist einfach so. Und dann wie gesagt, gibt es die Punkte und dann zeih ich einen Stich unterdrunter. Wer die meisten Punkte hat hat ein wirtschaftliches Angebot. Der Preis ist ebenfalls ein Punktekriterium. Wer den höchsten Preis hat bekommt die volle Punktzahl. Was weiss ich 5000 Punkte, wer 10% teurer ist kriegt 10% Punkte abgezogen. Das heißt er kriegt halt nur 4.500 Punkte. So kann man des dann schön ausdrücken. Und dann geb ich eine Vergabeempfehlung ab. Und zu 95% sag ich mal folgt man der auch. Dann gibt es meistens noch eine Ratsitzung in die ich auch mit reingehe um die 2-3 ehrenhalber gestellte Fragen zu beantworten. Und dann wars des, das ist so der Standard.

Wenn jetzt jemand kommt wie die Kreisverwaltung in XXX, und sagt: „ Wir brauchen XXX“, nichts anderes, dann weichen wir von Standard ab, in dem wir vom Erstellen des Feinkonzeptes eine technische und juristische Analyse fahren. Das heißt ich muss technisch feststellen dass nur ein Gerät der Firma XXX in dem Fall die Anforderungen des Kunden erfüllen kann; Alle anderen können das nicht. Das funktioniert eigentlich nur wenn bereits eine XXX vorhanden ist, und die mit in das ganze Konglomerat mit eingebunden wird. Weil dann kann ich sagen, XXX spricht nur mit XXX, fertig. Des wird von mir technisch verschriftet. Der Herr XXX macht eine juristische Betrachtung von seiner Seite aus. Dass es halt auch aus seiner Sicht juristisch machbar ist weil Oberlandesgericht xy hat es entschieden so und so und dann schreiben die dediziert XXX aus. Da steht wirklich drin, Ausschreibung eines XXX Speichersystems wir möchten eine XXX, Modell XY, Herstellernummer, Stückzahl. Es gibt

nichts anderes.

I: Aber wenn Sie das jetzt oberhalb des EG Schwellenwertes also auf EU-weite Ausschreibungen schauen, machen Sie das dann da auch?

A: Ja, das war ja in XXX.

I: Ah ja, ich wusste nicht genau ob das jetzt Oberhalb vom Schwellenwert war, drum frag ich nochmal explizit.

A: Allerdings haben die die Ausschreibungsunterlagen selbst erstellt, was dazu geführt hatten dass die Bieter überhaupt keine Lust hatten das selber auszufüllen. Weil man zu viel ausfüllen sollte, und sehr verwirrend alles gemacht war. Aber das war mir egal. Aber hier wurde Europaweit ausgeschrieben und mit der Summe dürfte man auch weit oberhalb liegen.

I: Und das war dann sozusagen mit der Begründung einer Erweiterung.

A: Ja genau, Erweiterung des bestehenden Systems, obwohl Sie die alte XXX eigentlich gar nicht brauchen, weil die haben ja jetzt ein neues Backup-System gekauft, aber aus juristischer Sicht war das eine Erweiterung des bestehenden Systems. Wir haben noch andere Möglichkeiten zu tricksen. Es gibt auch die Möglichkeit aus wirtschaftlichen Gründen dediziert auszuschreiben. Das mach ich zum Beispiel: Ich hab eine Stadtverwaltung, die setzt schon immer XXX - Server ein. Und immer. Da hat man auch mal ne Zeit lang des Rechenzentrum outgesourced mit 50% XXX, 50% Stadt, habens dann wieder reingeholt. Und bei denen ist immer die Begründung, die Überwachungssoftware funktioniert nur mit XXX -Geräten und die Schulung der Mitarbeiter (des sind immerhin 40 Leute insgesamt, wobei 12 ungefähr Administratoren bei den Servern sind) ist auf XXX. Das heißt man müsste die umschulen, wenn andere Firmen da rein kommen. Da haben wir mal hochgerechnet was eine Schulung für XXX - Server, XXX -Server und und und kosten würde. Da kommt halt dann, ich mein wir rechnen des ja ned niedrig sondern mir rechnen des ja dann sehr hoch, und da kommt natürlich dann ne Zahl raus wo mir sagen, oh, für des Geld können wir ja fast eine gesamte Server-Hardware kaufen. Aus deshalb ist es aus wirtschaftlichen Gründen dort von mir immer wieder empfohlen worden XXX zu kaufen. Die Möglichkeit gibt es auch. Das nutzt XXX auch in dem es denen jedes Mal die Serverschulung schenkt. Da ist dann ein Mitarbeiter von XXX vor Ort und macht einen Tag lang eine Schulung für die Leut. Zeig Ihnen wie die neue Management Konsole aussieht, wie und wo sie hinklicken müssen, fertig.

Wir bieten dann gar keine Option für einen neuen Hersteller, wir schreiben dediziert XXX Geräte aus. Wir schreiben auch ganz klar rein, wir akzeptieren keine Angebote wo nicht genau das drin ist was wir ausschreiben. Das oder Garnichts. Wir müssen zwar die Begründung, warum wir des machen ver-

schriften, aber diese Verschriftung müssen wir nicht den Teilnehmern der Ausschreibung zur Verfügung stellen. Da haben die Juristen sich irgendwie ein Eigentor geschossen, sag ich mal. Wir erwähnen des in zwei Sätzen, das des aufgrund einer Wirtschaftlichkeitsbetrachtung so und so ist, mehr nicht. Und das auch bei anderer. Deshalb ich jetzt auch schon bei einem Grossdrucksystem von XXX schon gehabt, und das geht auch mit XXX. Wenn die auf dem System geschult sind und wir sagen wir können nur XXX und des würd dann nochmal was weiss ich 3 Tage Schulung für 4 ½ Tausend Euro kosten. Das hab ich also relativ oft, das dann der Hersteller sagt, wir schenken den Administratoren die Schulung, dann kriegen die die, und dann haben die schon mal die Schulung dafür und dann haben wir nämlich dieses Argument auf einmal künstlich geschaffen. Weil andere müsste man ja noch Schulen. Da muss man aber aufpasse, die Kosten der Schulung müssen signifikant sein. Also es bringt nichts, wenn es jetzt 4000 € Schulungskosten sind bei einer Europaweiten Ausschreibung. Das fällt hinten runter. Aber bei einer normalen Beschaffung von einer kleinen XXX von was weiss ich, 40 000 €, 4500 € Schulungskosten, sind bei 10%, da kann man des dann machen.

10) Welche Personen waren daran beteiligt? (Selling Center)

I: Sie hatten ja eben von dieser Beschaffung in XXX gesprochen, können Sie nochmal sagen, welche Personen so klassischer Weise beteiligt sind wenn Sie da unterwegs sind? Also wir hatten ja Sie und?

A: Da ist klassischer Weise die EDV-Führung beteiligt. Dann die Vergabeabteilung. Bei denen ist die Vergabeabteilung wirklich ein bisschen schwierig. Und bei so einer Analyse im Vorfeld ist auch immer ein Anwalt dabei. Weil wir müssen das Wasser dicht machen bei einer EU-Ausschreibung und des geht ohne Jurist gar nicht.

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

11) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

I: Das haben Sie mir ja gerade schon beantwortet, wenn es geht, es nicht zu einer Ausschreibung kommen lassen. Ansonsten stehen Sie mit Rat und Tat zu Seite

12) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)

A: Also es gibt eigentlich immer einen Lieferanten, der seit Jahr und Tag in der Verwaltung drin ist, der natürlich da auch gewissen Einfluss nimmt, der weiss ja wann seine Geräte entsprechend Alt sind, die er des letzte mal geliefert hat. Dem sein Techniker ist da was weiss ich alle Woche oder alle zwei Woche vor Ort, bekommt des also alles mit. Der nimmt natürlich auch Einfluss. Der nimmt vor allen insofern Einfluss, dass er sich des Projekt greift und blockiert. Was bei einer dedizierten Ausschreibung übrigens ein riesen großes Problem ist! Muss ich extra nochmal ansprechen. Da sollte man nachher nochmal gewaltig drüber reden. Das hatte ich vorkurzen erst, zum Glück bei Smartwatch, da kommt dann also ganz schnell das Kartellamt aufs Tablett.

I: Weil er in der direkten Interaktion mit dem Kunden ist oder woher kommt das?

A: Nein, nein, nein da ist es unkritisch, nur wenn wir dediziert XXX ausschreiben und XXX vergibt das Projekt an einen Partner, ist das kein freier Wettbewerb mehr. Sondern der Hersteller XXX beschränkt den Wettbewerb. Es gibt ausdrücklich ein Gesetz gegen Wettbewerbsbeschränkung. Des ist also nicht nur ein Verstoß gegen die Vergabeverordnung, des ist ein Gesetzesverstoß. Und wenn sowas bekannt wird, sind die Prüfümter ganz geil drauf. Entschuldigung dass ich das so sagen muss weil es gibt wirklich nicht schlimmeres als eine Wettbewerbsbeschränkung. Und wir haben natürlich als ausschreibende Stelle das Problem, wir kriegen am Schluss nur ein Angebot weil, die anderen sagen, das Projekt ist ja schon fort. Wenn wir nur ein Angebot haben müssen wir die Ausschreibung grad nochmal machen. Wenn dediziert drin steht wir wollen nur XXX, nur dieses Gerät, wär es gut wenn die Firma XXX mehreren Partnern dieses Projekt öffnen würde damit ein Wettbewerb der Partner untereinander stattfinden kann. Weil wenn das einmal geprüft wird, ein einziges mal, wie jetzt bei der Firma XXX, wo es ganz kurz davor war, dann haltet die Prüfstelle (es gibt ja immer eine Prüfstelle fürs Vergaberecht) die schalten sofort das Kartellamt ein. Und die stürmen mit zwei Dutzend Leuten ihre Büros, um nachzuprüfen, dass das so ist. Das ist kein Scherz. Wenn die das machen, machen die Ihren Laden dicht. Und Sie verkaufen danach keine Schrauben mehr in einer Ausschreibung. Sie kommen auf die Liste der nicht vertrauenswürdigen Lieferanten, das wars. Eine Ausschreibungsstelle darf sagen, ich schicke Ihnen noch nicht einmal die Unterlagen zu, weil Sie sind nicht vertrauenswürdig. So krass ist das und das geht ganz schnell. Also das ist jetzt bei einer neutralen Ausschreibung wo auch eine XXX oder eine XXX abgeben können, ist

des nicht so schlimm, weil da ist ja ne Konkurrenz unter den Herstellern. Aber wenn es nur einen Hersteller gibt, der des machen darf, dann darf der Hersteller da nicht nur auf einen einzelnen Partner beschränken (muss der Partnerwettbewerb da sein). Das ist ganz ganz gefährlich und grad EU-weit, die zahlen so viel Geld, das möchten Sie gar ned wissen. Also die Strafe die dann kommt ist richtig hoch.

13) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: Meistens ich.

Der bisherige Lieferant der will natürlich das verkaufen was er auch liefern kann. Der guckt auch gar nicht über den Tellerrand und sagt, nehmen sie doch mal das Produkt xy, das ist ganz toll, hab ich zwar nicht im Portfolio aber ist viel besser als des was ich hab. Das ist irgendwo klar.

Und ich hab den Vorteil das ich auch, so 60-65 Kunden dürfte ich inzwischen haben, wo alles einmal querbeet eingesetzt wird, von ganz klein zu ganz groß. Und ich auch wirklich sagen kann, ist kein Problem, rufen Sie doch mal bei der Kreisverwaltung xy an, die haben ein System von dem Hersteller, fragen Sie mal wie gut des läuft. Da mach ich den Kontakt direkt zwischen den Anwendern quasi auf. Des passiert auch immer. Also die rufen da wirklich an, reden mit denen und das was der dann sagt ist für den eigentlich das Ausschlaggebende.

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

14) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Ausschließlich Preis und technische Leistung. Standort dürfen wir ausdrücklich nach Vergaberecht nicht einfließen lassen. Standort ist irrelevant. Marktführerschaft ist auch irrelevant. Weil zum einen, wo krieg ich denn die Zahlen her, die das 100% Wasserdicht machen. Außer vom Hersteller der behauptet er ist Marktführer. Ja ich hab jetzt nichts davon dass der Marktführer ist oder nicht. Innovation, des ist dann wieder im technischen Bereich drinnen. Wenn der technisch mehr leistet als der andere weil der halt technisch schon weiter

ist; wunderbar. Muss ich aber aufpassen, weil bei einer neutralen Ausschreibung darf ich nur das reinschreiben, was die anderen auch können. Es sei denn es käme halt raus, wir brauchen diese Funktion. Wie jetzt bei der Verbandsgemeinde in XXX, die brauchen dringend Deduplizierung, da gibt es nichts zu diskutieren.

Wir haben des ganze angeguckt und haben gesagt der will unbedingt ne XXX haben mit Backup, seine erste, er hat also noch keine. Da hab ich dann auch gesagt wir schreiben jetzt XXX aus, ist ne kleine Ausschreibung, eine nationale, da wird sich Keiner beschweren fertig. Aufgrund der Deduplizierung, die wird zwingend erforderlich sein, und damit ist das Thema durch. Und die läuft jetzt, ich hab auch bisher keine Beschwerde von irgendeinem anderen Hersteller bekommen, deswegen sind wir da gut weggekommen.

I: Wenn Sie des jetzt auf EU Ebene hätten machen müssen, so eine Geschichte, also wenn man sozusagen den USP beschreiben will?

A: Wenn es einen unique Selling point gibt, und nur einer den erfüllt, dann schreib ich gleich einen aus. Dann gibt es keine neutrale Ausschreibung, dann eiere ich nicht rum um diesen Punkt da zu beschreiben. Ich schreib gleich rein des ist eine XXX. Ende der Diskussion. Es gibt ja nichts anderes. Und warum das so ist ist in der Begründung die in den Akten ist ausführlich definiert, die bekommt aber keiner der Anbieter zu Gesicht. Weil mein Jurist sag dann immer so schön, Herr XXX, wenn Sie da was schreiben und sich da erkünsteln, die anderen haben auch Juristen, XXX und wie sie alle heißen, die nehmen Ihnen des auseinander, und das ist ganz ganz gefährlich dann.

15) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?

I: Ich hab mit Kunden immer wieder die Diskussion, dass Sie sagen, sie wollen sicher stellen dass Sie State-of-the-Art bleiben. Das Sie nicht den Anschluss verlieren. Was würden Sie sagen, wie können Sie sicherstellen dass neue Technologien und Methoden einen Weg in die Ausschreibung finden?

A: Eigentlich nur in dem im Vorfeld bei der technischen Analyse festgestellt wird, dass diese Methode ein massiver Vorteil für die Verwaltung ist, und deswegen unbedingt eingesetzt werden sollte. Und dann machen wir eine neutrale Ausschreibung, wo die Methode mit drin ist, die mehrere vielleicht erfüllen, und gepunkten diese Methode massiv nach oben.

I: Ah ok also über die Bewertungsmatrix dann.

A: Ganz genau. Ich arbeite mit 10.000 Punkten immer, also 100,00 %. Nur mit Prozent in Exceltabellen ist immer ein bisschen spaßig, drum mach ich immer

eine Ziffer draus und dann bekommt das Ding halt 1000 Punkte.

I: Und wenn das jetzt eine Methode ist, die so neu ist, das nur ein Hersteller sie aktuell erstellen kann dann wär bei dem Punkt dann gar keine offene Ausschreibung definiert?

A: Wenn ich nur einen hab brauch ich mir keinen Kopf machen. Die erforderliche Technik ist nur bei einem da. Wir brauchen die. Dann Schluss aus und fertig.

16) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Also Marktforschungsunternehmen und Fachzeitschriften spiele für mich keine Rolle. Bei Fachzeitschriften ist es meistens so undetailliert. Das es nur angekratzt wird. Das bringt mir gar nichts. Und um Marktstudien zu lesen hab ich keine Zeit. Ich guck auf der Herstellerseite nach, ich hol mir da Whitepapers ab, ich rede mit dem Hersteller direkt. Ich hab bei jedem großen Hersteller einen Ansprechpartner, wo ich ein Projekt reinkippen kann. Wo ich sagen kann hör zu, Kreisverwaltung xy wird die und die Beschaffung machen, block das Projekt noch keinem Partner. Also dann ist das Projekt noch nicht geblockt. Ich brauch Infos. Wie würdet ihr das handhaben. Und dann schick ich dem mal meine Stücklistenüber und der schickt mir die Stückliste überarbeitet rüber und sagt hör zu, wir haben neue Geräte, der xy ist Vergangenheit, der neue kommt in 2 Monaten raus, genau wenn die Ausschreibung ist. Und dann stimm ich des halt entsprechend ab. Ich sag immer, der Hersteller kennt seine Produkte am besten. Und deswegen gehe ich auch gerne auf Veranstaltungen wie jetzt dann auf das XXX. Weil ich dann auch wirklich seh, was für Kunden sitzen da, wie präsentiert der Hersteller seine Produkte. Auf was legt der Hersteller besonders viel Wert .

I: Also holen Sie da direkte Informationslösungen ein?

A: Ja genau richtig.

I: Hatten Sie je das Gefühl das ein Hersteller Sie in der Vergangenheit versucht hat zu beeinflussen?

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)
- c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):
 - i. Welcher Art: Direkt / Indirekt
 - ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?
 - iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?
 - iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?

A: Nicht nur in der Vergangenheit. In der Gegenwart sogar. Der Hersteller versucht immer die Ausschreibung zu beeinflussen. Man bekommt dann von einigen Herstellern so Mustervorlagen für Ausschreibungen. Und ich werde darauf hingewiesen, schreiben Sie unbedingt das und das mit rein. Da ist meine Antwort jedes Mal: Wir machen eine neutrale Ausschreibung, wenn ich des reinschreibe dann stehen wir zwei Wochen später vorm Kardi, bezahlen sie des? Und des ist eine sehr teure Angelegenheit inzwischen, seit dem das Ausschreibungsrecht renoviert wurde vor ein paar Jahren, haben wir Schadensansprüche bei den Anbietern in Erfüllungshöhe. Das heißt jeder der ein Angebot abgegeben hat kann in derselben Höhe seinen Schadensersatz geltend machen. Und das bei einer EU-weiten Ausschreibung, jedes Angebot ist 200.000. Dann wissen Sie über welche Summe wir dann reden. Und äh brauch ich nicht. Ist mir zu heikel.

- d. Messen und Tagungen: aktiv, passiv
- e. Intern: Buying Center

17) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

A: Nein, nur insofern, dass ich sag viele Kunden habe dieses Produkt im Einsatz und sind sehr zufrieden damit. Oder dass ich sag ich kenn dieses Produkt eigentlich nur dass es vom Kunden abgelöst wird durch ein anderes. Das hab ich jetzt beim Thema Firewall grad. Momentan löst jeder seine Watch-Card ab, warum auch immer. Des ist jetzt wo ich jetzt momentan sag, die stellen sich jetzt alle Sofos hin, weils einfach ne Ecke günstiger ist und des selbe macht.

Hm so. Aber wenn des nächstes Jahr dann wieder kippt weil die Watch-Card dann sagt wir machen eine Behördenkonditionen, dann ist es halt wieder gekippt. Also von mir gibt es eigentlich keine Präferenz.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A: Definitiv ja, weil die wollen dann wissen, wie wählt man so was aus. Wobei das dann immer im Prozess schon drin ist. Also die kommen nicht zu mir und stellen diese Frage, wie wählt ich des aus. Sondern die kommen zu mir und fragen Herr XXX machen Sie die Beschaffung für uns? Und dann im Rahmen dieser Beschaffung setzten wir uns zusammen und sagen welche Kriterien haben wir und aufgrund welcher Kriterien wählen wir das Ganze aus. Also das ist halt mit drin irgendwo.

- 4) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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5) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A: Definitiv ja. Wobei ich des über dritte mach, dass ich sag, hör zu, Storage von XXX hab ich bei der Verwaltung, Storage von XXX steht bei der Verwaltung, rufen Sie doch einfach mal an. Und dann fragen die mich ja immer, Herr XXX was würden Sie denn machen. Und im Storage ist die Antwort XXX, da brauch ich nicht diskutieren. Wenn genug Geld da ist, nehmen wir ne XXX. Das ist definitiv so. Und in diesem Jahr hab ich nur XXX Storagesysteme beschafft. Nichts anderes, auch bei Kunden die vorher noch nichts hatten.

A 18: Partner Expert Interview: P₅

Performed on 04.12.14 (15:45h – 16:08h)
Interviewer: Stefan Ebener
Interviewee: XXX
Kind of interview: Face-to-Face
Interview language: German
Recording exists; Written minutes below:

Zum Einstieg ein paar Fragen zur Demographie Ihres Unternehmens und Ihrer Person:

1) Welche Position bzw. Stellung haben Sie im Unternehmen?

A: IT Consultant. Ist offizielle Position. Und dann ist es bei mir so nen bisschen Hybrid, das heißt klassisch System Engineer und wachse in diesen Beratungszweig grad noch nen bisschen rein mehr, ne.

2) Wo haben Sie Ihre Erfahrung in der Storage-Branche erworben?

A: Hersteller XXX-seitig mal ursprünglich für XXX. Und dann weiter über Support-Schiene bei der XXX, dann war es im Prinzip Systemhausgeschäft.
I: Und wenn du das zusammenziehen müsstest in wie viele Jahre von Erfahrung kommen da zusammen mittlerweile?
A: Mh, 12.
I: Wow. Ok. Ganze Menge. Genau.

3) Wie viele Ausschreibungen werden ca. jährlich von Ihrem Unternehmen begleitet?

a. Davon ca. Storage-Ausschreibungen?

A: Das kann ich schwer abschätzen. Ich schätze mal so zweistelliger Bereich, dreißig, vierzig, die wirklich ernsthaft beantwortet werden im Storage-Bereich.
I: Ok, das ist schon für Storage-Bereich.
A: Würd ich jetzt schätzen mal einfach global.
I: Und darüber hinaus? Also wenn du jetzt alle nimmst?
A: Kann ich ganz schwer abschätzen, weil die hauptsächlich im Innendienst be-

antwortet werden. Klassisch hier so: Wir brauchen 20 Server und sowas. Sowas macht der Innendienst, da sind wir gar nicht mit drin. Da kriegst du manchmal gar nix mehr mit.

I: Ok, aber Storage 30-40. Ok.

4) Stehen Sie in engen Kontakt zu Herstellern und anderen Beratungsunternehmen?

A: Hersteller auf jeden Fall.

I: Welche wären das?

A: Das wäre erststellig natürlich XXX, dann ist es ja XXX war mal kurzzeitig, dann wieder ruhig. Comvault bisschen im Aufbau. Mh. Ja das ist es eigentlich. Ursprünglich war es auch mal VMware, aber eigentlich gar nicht mehr.

I: Ok, ja ich schreib mir das nochmal mit dazu. Noch irgendwelche Storage-Hersteller?

A: Also jetzt aktuell im engen Kontakt, nein.

I: Andere Beratungsunternehmen?

A: Mh. Ich sag mal man hat die typischen Bekannten aus der Herstellerschiene wo man sich mal mit unterhält, aber jetzt nicht explizit aufs Thema Ausschreibungen. Also es ist mehr so persönliche Kontakte als dass es dann um Geschäftsbeziehungen wäre. In der Vergangenheit gab es da so mehr Kontakte zu SAP, also so mal ne Lynx zum Beispiel mal. Hab ich auch schon mal mit gearbeitet. Das kann immer mal wieder nen Fall sein.

5) Wie würden Sie Ihr Geschäftsmodell hinsichtlich einer Ausschreibungsberatung beschreiben?

A: Ausschreibungsberatung wird bei uns ausschließlich aus dem Bereich Consulting beantwortet. D.h. es ist nen Team von aktuell sechs Leuten. Da gibt es zwei Personen, die fokussiert auf dem Thema sind. Und läuft dann meistens so ab, dass Kunden auf uns zukommen z.B. oder wir durch Erstkundentermine das Thema Beratungsansätze vorstellen, dann die Ausschreibungen reinlaufen und dann meistens einer aus diesem Consulting-Team das federführend macht und sich die Kollegen aus dem Systemhausgeschäft dazu holt. Also aktueller Fall ist grad XXX, da bin ich jetzt mit drin, guck mir die Systemlandschaft an und dann wird das in ner Ausschreibung verpackt.

I: Sind die beiden Organisationen voneinander getrennt?

A: Ja.

I: Ok, das heißt von der Berichtslinie als auch von internem Reporting, Zahlen,

etc.

A: Genau, also beide haben eigene Bereiche, eigene Bereichsleitung mit entsprechendem Reporting dahinter. Das sind wirklich zwei Bereiche, die noch getrennt sind.

I: Ok, wunderbar.

6) Bezeichnen Sie sich selbst als „neutraler Berater“?

A: Ähm, ja da halt die Ausschreibung auch überschwänglich von den Leuten geschrieben wird, die jetzt z.B. technisch gar nicht in Herstellertiefen drinstecken. Da es wirklich Leute sind, die aus nem klassischen Consulting kommen und Ausschreibungen dann auch einen Tag für Storage machen, einen Tag für Server und an nächsten Tag vielleicht auch bei ner ERP-Auswahl oder Ähnlichem stehen könnten. Deswegen sich dann Spezialisten dazu holen.

7) Sind Sie ein aktiver Reselling Partner eines bestimmten Herstellers?

a. Falls ja, von wem?

A: Fokuspartner sind storage-technisch NetApp, EMC und HP. Zusätzlich im Storage-Bereich können wir NetApp anbieten, können Fujitsu anbieten, wir können nen DataCore anbieten, wir können FalconStore anbieten, also schon relativ breites Spektrum. Serverseitig geht es quer durch, also was mittlerweile raus ist, ist IBM, zum Beispiel als Hersteller nicht mehr drin. Hitachi können wir nicht. Das ist vielleicht nen bisschen einfacher wenn wir in die Bereiche reingehen.

b. Inwiefern beeinflusst dies Ihre Neutralität in der Beratung?

A: Ähm, es beeinflusst sicher die Neutralität, gerade wenn jetzt die Fokushersteller im Raum sind und daraus die Unterstützung aus dem Systemhausgeschäft kommt. Dass natürlich jeder gerne so nen bisschen sein präferiertes Produkt mit platziert. Das versuchen wir dadurch abzufangen, also jetzt bei meinem akuten Beispiel, dass ich jetzt die Aufnahmen gemacht hab von der XXX-Umgebung und mich mit nem Kollegen oder mit zwei Kollegen auseinandersetze, die das dann nochmal gegen ihren Fokuspartner, also XXX, XXX und so weiter nochmal gegenmatchen, dass es wirklich so passt, dass es neutral ist oder nicht.

I: Mhm, ok. Ok, wunderbar.

Denken Sie nun an den **Beratungszeitraum zur Beschaffung eines Storage Systems** Ihres Kunden am Beispiel der Öffentlichen Hand...

8) Wie erfahren Sie von ausschreibenden Unternehmen/ Bedarf im Markt?

A: Ähm, teilweise vielleicht durch bestehende Beziehungen zum Kunden. Also kann heißen, man hat vielleicht mal nen Termin beim Kunden gehabt und der meldet sich jetzt wieder: Ich hab jetzt wirklich nen Thema Ausschreibung. Kann auch sein, dass nen Kunde durch Mund-zu-Mund-Propaganda auf uns zukommt. Und das nächste ist sicher Lead Management. Also wir haben nen eigenes Lead-Management, die auch aktiv Kunden zu Themen anrufen und abfragen und dadurch versuchen, neue Kunden aufzudecken.

9) Skizzieren Sie bitte Ihre Beratung zur Beschaffung vom ersten Kontakt des Kunden über die Erstellung der Ausschreibung bis hin zur finalen Entscheidung.

A: Grundsätzlich erstmal Aufnahme was hat der Kunde für ne Systemlandschaft sprich was sind die Anwendungen die er hat, wofür braucht er Storage, für welches Szenario. Dann Aufnahme was hat er momentan im Einsatz. Dann mal Aufnahme was sind denn aus seiner Sicht Anforderungen an ein Storage-System und vielleicht auch nochmal Abgleich mit dem was er aktuell an Funktionalitäten hat und Hinterfragen ob er die wirklich einsetzt oder nicht.

I: Sonst noch irgendwelche Dinge, die du da noch machst?

A: Kann halt sein, dass wir unter Umständen nen grobes Sizing erstellen für die Ausschreibung, dass man halt da schon Teilbereich festlegt, wenn nen Kunde sagt, ich muss unbedingt so und so die Konfiguration haben. Dass man das dann festlegt. Was auch sein kann, wenn nen Kunde z.B. aktuell in ner Situation sagt, ich müsste theoretisch europaweit ausschreiben, dass man dann auch Kriterien gemeinsam mit dem Kunden sucht, um die Auswahl der möglichen Anbieter einzuschränken.

I: Ah ok, auf was erfolgt das dann?

A: Klassisch jetzt mal Beispiel XXX, dass man z.B. gewisse Zertifizierungslevel anfordert. Anzahl ausgebildeter Leute, zertifizierter Leute, Größe des Unternehmens oder auch so Sachen deutschsprachiger Support, deutschsprachige Dokumentation und bestimmte Zusatzleistungen wie z.B. dass man sagt hier, es muss nen vierteljährlicher Zusatzcheck oder vor Ort Onsite etwas passieren, um so halt nen bisschen einzugrenzen, dass das Ganze zu sehr ausartet in ner Ausschreibung.

10) Welche Personen waren daran beteiligt? (Selling Center)

A: Kundenseitig ist es häufig die IT-Leitung, die das ganze vielleicht initiiert, zusammen mit der Administration dann vorbereitet mit uns. Natürlich ist auch so nen Einkauf mal schnell eingebunden, um solche Parameter mal mit aufzunehmen, was deren Ausschreibungskriterien sind. Auf unserer Seite ist es dann häufig Vertrieb, der ursprünglich das Ganze initiiert, geht dann über den Consultant, der es federführend leitet und je nach Themengebieten entsprechend die SE's aus den einzelnen Fraktionen. Also typischerweise Projektteam von vier Leuten. Vertrieb, ein Consultant und mindestens zwei wahrscheinlich aus dem SE-Umfeld.

Denken Sie nun bitte an die **Erstellung einer Öffentlichen Ausschreibung...**
Zunächst ein paar allgemeine Fragen dazu:

11) Welche Rolle spielten Sie/Ihr Unternehmen im Prozess der Ausschreibungserstellung?

A: Würd ich sagen als Fachperson sprich zu einem Thema, nicht als Generalist und dann natürlich mit dem technischen Hintergrund, dass man da gerade in den Bereich von technische Anforderungen einsteigt für das Fachgebiet in dem Fall XXX oder Storage global unter Umständen auch. Dann aber mit Abgleich durch nen Dritten.

12) Welche anderen Personen nehmen Einfluss auf die Ausschreibungserstellung? (auf Partner-/ Kunden-/ oder Herstellerseite, sonstige Einflüsse)

A: Bei uns ganz klar kann das getrieben sein durch den Vertrieb, dass er natürlich versucht, Einfluss zu nehmen unter Umständen. Einfluss nehmen können natürlich auch die Teilnehmenden im Projektteam, ganz klar. Gerade so die Fachexperten, die dann in der Runde sitzen, versuchen das durchzudrücken. Auf Kundenseite ist es denk ich vor allen Dingen die Administration, also die wirklichen Anwender, dass sie Präferenzen vielleicht schon im Kopf haben.

I: Ok, alles klar. Herstellerseite?

A: Herstellerseite würd ich sagen ich bei uns so, dass wenn ein Hersteller mitkommt, wir sind in ner Ausschreibungsvorbereitung, dass man versucht uns damit zu beeinflussen, speziell wenn vielleicht eine Ausschreibung besteht

und wir bei der Ausschreibungsauswertung oder Bearbeitung mit unterstützen, dass man da versucht, Einfluss zu nehmen. Wobei ich sagen würde, dass das eigentlich durch den zentralen Ansprechpartner aus dem Consultingbereich bei uns herstellerneutral erfolgt, d.h. da ist relativ wenig Einfluss. Also durch Personen des Herstellers, ne.

13) Was glauben Sie, wer hat den größten Einfluss während der Ausschreibungserstellung des Kunden?

A: A: Ich würde fast behaupten die IT-Leitung. Also sagen wir mal so, Administration versucht IT-Leitung zu beeinflussen, Einkauf geht auf IT-Leitung, so dass die im Prinzip so nen bisschen Dreh- und Angelpunkt sind.

I: Ok, wunderbar.

Denken Sie nun an Ihre **Beratungsleistung einer inhaltlichen Gestaltung** einer Storage-Ausschreibung:

14) Welche Kriterien spielen bei der Ausarbeitung für Sie eine wichtige Rolle?

- a. Standort des Herstellers, Marktführerschaft, Betreuung, Technische Funktionalitäten, Preis, Innovation, etc.

A: Also für mich würde ich sagen technische Funktion, da ich daran ne Systemauswahl treffen kann und versuche zu erkennen, was vielleicht für nen Hersteller abgefragt wird.

I: Sonst noch irgendwas?

A: Mh, Standort des Kunden ist mir eigentlich relativ. Vielleicht Gegebenheiten des Kunden also Standortthematiken, sprich wie sieht's beim Kunden aus, was hat er für Standortkriterien einfach bei sich selber. Wie kann das da aussehen, ein Rechenzentrum, zwei Rechenzentren, gar kein Rechenzentrum.

I: Es geht mehr um die inhaltliche Gestaltung, also Kriterien die du versuchst in die Ausschreibung reinzubringen.

A: Würd ich schon sagen sind es größtenteils technische Anforderungen, was für Funktionen will er da an der Stelle haben.

I: Ok, genau.

15) Wie stellen Sie sicher, neue Technologien und Methoden in der Ausschreibung zu berücksichtigen?

A: Ich sag jetzt mal zum Beispiel, ihr meint ja sowas wie zum Beispiel Flash-Technologie oder ähnliches mit reinkommt.

I: Ja gut, ich sag mal so, es geht ja darum, Technologien verändern sich ja m Laufe der Zeit.

A: Also, dass jemand Cloud mitbetrachtet in ner Ausschreibung.

I: Ja. Jetzt bist du ja in ner Diskussion mit dem Kunden und jetzt muss ja irgendwie sicherstellen, dass er natürlich auch, sagen wir mal, state-of-the-art bleibt und jetzt nicht Basis-Funktionalitäten nur ausschreibt, die von vor 20 Jahren sind.

A: Also grundsätzlich würd ich sagen, versuchen wir das über ne klassische Beratung, d.h. wenn wir jetzt mit der Aufnahme durch sind wie eben beschrieben, dass wir dann natürlich mal skizzieren, wie könnte eine zukünftige Lösung aussehen und welche Vorteile könnte das für ihn bedeuten. Und halt auch ne Zukunftssicherheit der Lösung sicherzustellen mit der Argumentation vor allen Dingen.

16) Welche Informationen werden von Ihnen während des Ausschreibungsprozesses aber vor Veröffentlichung herangezogen um Ausschreibung zu formulieren?

- a. Medial: Konkrete Quellen (Foren, Fachseiten/Zeitschriften, Material von Anbietern, Meinungsführer im Internet, Marktforschungsunternehmen), sonstige

A: Aso mediale Quellen auf jeden Fall, klar. Gerade so herstellerseitige Informationen, Fachzeitschriften, irgendwelche Berichte irgendwelcher Art. Ich persönlich weniger im Bereich IDC, Gartner, das eher weniger. Und versuche das vor allen Dingen weniger das durch nen persönlichen Kontakt rauszubekommen an der Stelle.

I: Persönlicher Kontakt zum Hersteller?

A: Zum Hersteller, richtig.

I: Da wären wir jetzt gleich noch drauf gekommen, genau.

- b. Extern: Neutrale Instanzen (Beratung, Partner, Unternehmen, private Kontakte):

- i. Wurde jemals ein anderer Partner / Berater zur Unterstützung im Ausschreibungsprozess engagiert? (Welcher?)

A: Private Kontakte vielleicht, wenn ich jetzt überlege, ich hab vielleicht irgend-

welche Ansprechpartner, die nicht beim Hersteller positioniert sind und ich weiß, dass sie mit den Produkten vertraut sind was vielleicht Thema ist und ich mich nicht mit auskennen, dann könnte es sein, dass man mal nen Dozent aus irgendeiner vorherigen Schulung oder jemand, der vielleicht auch das Unternehmen gewechselt hat und dadurch die Information haben könnte, da das Systemhaus mit den Produkten arbeitet, aber eher weniger.

c. Extern: Nicht neutrale Instanzen (vorheriger Hersteller, potenzielle Hersteller):

i. Welcher Art: Direkt / Indirekt

A: Also zu Personen anderer Firmen meinst du jetzt?

I: Ja genau, zu Herstellern speziell.

A: Hersteller würde ich sagen im Rahmen von Ausschreibungen haben wir keinen direkten Kontakt, weil ich versuche, das keinen direkten Kontakt zu kriegen, dass man da auch nicht versehentlich oder irgendwie Informationen fallen lassen könnte oder so was.

I: Ok. Indirekt dann aber schon?

A: Mh. Ja gut ist indirekt jetzt über mediale Produkte? Ne, also persönlichen Kontakt wirklich gar nicht versuchen hinzukriegen.

I: Wegen der Neutralität?

A: Also wirklich, damit auch keine Informationen beim Hersteller landen, dass wir jetzt für eine Ausschreibung zukünftig oder gerade aktuell aktiv sind. Weil ich da auch schlechte Erfahrungen mit gemacht hab, wenn nen Hersteller weiß, wer die Ausschreibung gemacht hat, dann versucht man auch einfach wieder zu beeinflussen.

ii. Was wurde eingeholt: Information zur Lösung? Zum Anbieter an sich?

iii. Haben Sie den Hersteller direkt um Unterstützung zur Ausschreibungserstellung gebeten? Z.b durch RFI?

A: Es kann ja ne eingeschränkte Ausschreibung sein, der Hersteller ist wirklich formuliert worden. Das kann ja durchaus auch mal der Fall sein, dass ich ne eingeschränkte Ausschreibung machen darf und da kann es natürlich auch sein, dass ich wirklich mit dem Hersteller schreibe und zum Beispiel auch ne Konfiguration bekomme mit entsprechenden Budgetangeboten, damit man weiß, ok, können wir die so eingeschränkt ausschreiben, das kann natürlich

sein. Aber eigentlich nur dann, wenn auch wirklich vom Kunden gesagt wird, ich will jetzt z.B. XXX einsetzen und wir reden wir hier von ner kleinen XXX Maschine, die vielleicht unter 50.000€ liegt, die nicht offiziell ausgeschrieben werden muss, sondern er auf Sicherheit vielleicht auch ausschreibt.

iv. Hatten Sie in der Vergangenheit schon einmal das Gefühl, das ein Hersteller versucht eine Ausschreibung zu beeinflussen?

A: Ja.

d. Messen und Tagungen: aktiv, passiv

A: Auf jeden Fall würde ich sagen. Jetzt vielleicht nicht immer konkret, dass man zu ner Messe oder Tagung geht um für ne Ausschreibung was zu bekommen, aber als allgemeine Informationsquelle auf jeden Fall. Also das garantiert.

e. Intern: Buying Center

17) Glauben Sie, dass in Ihrem Unternehmen eine Herstellerpräferenz existiert?

A: Generell jetzt oder innerhalb von Ausschreibungen, dass die da schnell entstehen?

I: Nene, bei euch ganz generell.

A: Generell würd ich sagen gibt es schon gewisse, also mehrere Herstellerpräferenzen. Sonst wären es ja auch sag ich mal keine Fokuspartner unter Umständen.

I: Dann müsst ich jetzt nochmal...Hast du mir die Fokuspartner vorhin schon gesagt?

A: Fokuspartner sind 6-7 Stück aktuell. Also im Storagebereich EMC, HP, NetApp.

I: Ja gut es geht nur jetzt um die...

A: Storage, ne?

I: Genau.

Zum Abschluss ein paar kurze Fragen zu Ihrer Person:

- 1) Meine Meinung zu Storage-Systemen zählt bei Kunden in der Ausschreibungserstellung nicht.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 2) Wenn meine Kunden eine Ausschreibung für ein Storage-System vorbereiten, fragen sie mich nicht nach Informationen zu Herstellersystemen.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 3) Es kommen Kunden zu mir und fragen mich nach Informationen zur Auswahl eines Storage-Systems.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 4) Kunden kaufen oft die Storage-Systeme, zu denen ich Ihnen geraten habe.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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- 5) Oft beeinflusse ich die Meinung von Kunden über Storage-Systeme.

Stimme zu	Stimme eher zu	Teils / Teils	Stimme eher nicht zu	Stimme nicht zu
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A 19: List of Forums and Blogs for the Data Repository

Blog/ Forum/ Group	Platform	Number of Entries w/ Comments	Members/ Visits per Month	Language	Description
Storage Insider	Xing	345	2.723 M.	German	The Forum for all interested and responsible people for the topic of storage!
NetApp Storage Effizienz	Xing	207	1.429 M.	German	The NetApp Storage Efficiency Group: All NetApp partners, customers and Fan's can meet to exchange experiences
Storage Solutions	Xing	2.838	5.229 M.	German	Everything about the topic Storage
High End Storage	Xing	51	96 M.	German	High End Storage user meeting
DataCenter-Insider	Xing	594	2.764 M.	German	The Forum for all interested and responsible people about Data Center!
IT-Connection	Xing	70.637	82.175 M.	German	Platform for IT specialists and online / offline networking
http://forum.storage-und-backup.de/	Forum	167	N.A.	German	Provider of solutions in the field of storage, backup and virtualization
http://www.storage-insider.de	Forum	1.657	~50.000 V.	German	Information about Storage, Backup, Security etc.
http://www.it-novum.com/blog/	Blog	198	~99.100 V.	German	IT Novum is the leading IT consulting company for Business
http://community.netapp.com	Blog	>100	N.A.	German	Open Source in the German market
http://blog.experton-group.de	Blog	>200	N.A.	German	NetApp Blog to new products, tips and tricks
http://mynetapp.de/	Forum	674	N.A.	German	Blogs from Analysts to several topics
http://www.fum.de/service/blog	Blog	~50	N.A.	German	The only German Netapp community
https://blog.dunkel.de/	Blog	79	N.A.	German	Read interesting blog posts of our staff and learn about interesting topics to F&M and the world of IT
http://www.speicherguide.de	Forum	N.A.	~31.100 V.	German	We offer IT as a service
http://blog.orbit.de	Blog	48	N.A.	German	The Storage magazine is since 2003 the web magazine about Storage in German-speaking countries.
http://www.theregister.co.uk/data_centre/storage/	Forum	N.A.	~4.624.100 V.	English	Blog of ORBIT Society of applications and information systems
http://it.toolbox.com/blogs/it-blogs/	Blogs	N.A.	~1.333.700 V.	English	Datacenter & Storage deep dives
Storage Professionals	LinkedIn	13.956	64.822	English	ITtoolbox Blogs are written by CEOs, CIOs, project managers, technical gurus, and other business professionals worldwide
Storage & Backup/Recovery Professionals	LinkedIn	4.235	7.392	English	Data Storage Professionals: SAN, NAS, DAS, Cloud Computing
NetApp	LinkedIn	4.488	24.548	English	Interested people in storage solution can share their opinions
Storage Experts	LinkedIn	9.097	10.308	English	User Forum: NetApp creates innovative storage management solutions. Storage Experts: provides industry experts the ability to collaborate on all types of data storage solutions

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