IWI Discussion Paper Series
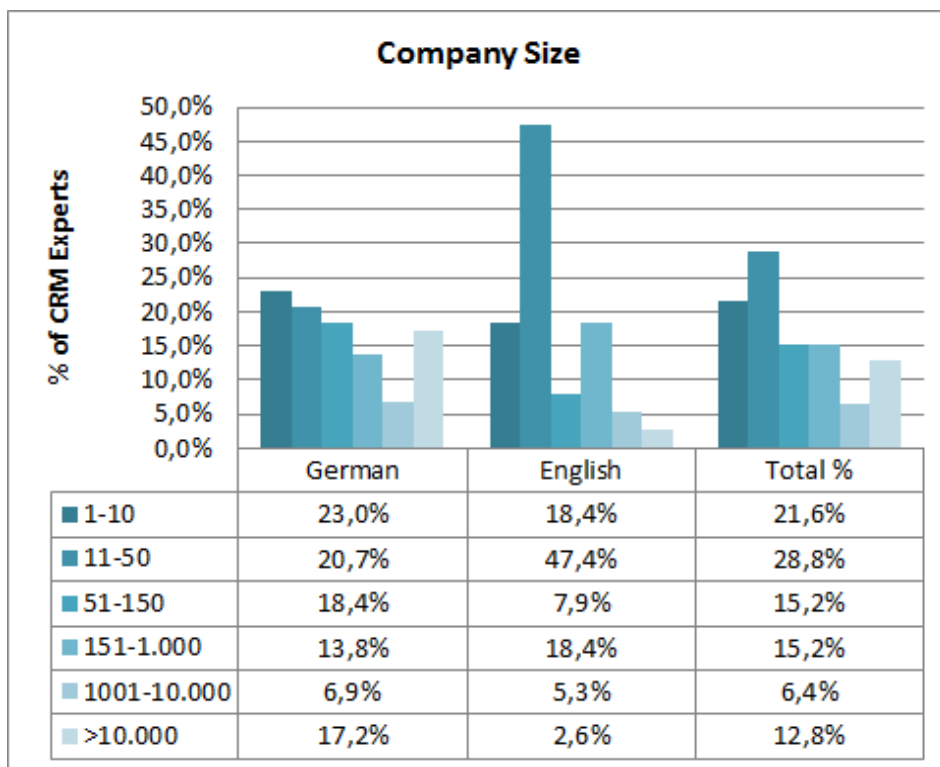# # 44 (November 15, 2010)[1]

Discussion of a CRM System Selection Approach with Experts: Selected Results from an Empirical Study

Ina Friedrich[2], Jon Sprenger[3] and Michael H. Breitner[4]

Company Size

	German	English	Total %
■ 1-10	23,0%	18,4%	21,6%
■ 11-50	20,7%	47,4%	28,8%
■ 51-150	18,4%	7,9%	15,2%
■ 151-1.000	13,8%	18,4%	15,2%
■ 1001-10.000	6,9%	5,3%	6,4%
■ >10.000	17,2%	2,6%	12,8%

Table of Contents

Abstract

Due to the high failure rate, the costs and the long project duration of CRM implementation projects, it is crucial to evaluate software solutions before making an investment decision. A methodological approach is required in order to make these decisions more effectively and efficiently. On the basis of the results of a comprehensive, structured literature review, a new CRM system selection approach for selecting suitable packages was developed in prior work. This approach must be evaluated by experts. In this paper, the results of an initial reality check are presented. The intention is to verify feasibility of the proposed approach with CRM experts who have practical experience with the selection of different systems. This is done by an empirical study that is subdivided into qualitative expert interviews and a quantitative online survey. Both surveys are described in detail relating to research design and results. The core results demonstrate that the approach is a valid method for evaluating CRM software applications.

Keywords

Customer Relationship Management, CRM System Selection, Empirical Study, Expert Interviews, Online Survey.

Introduction

In order to get an overview of the current status of CRM system selection the authors performed a comprehensive, structured review of the literature concerning the topic of CRM evaluation and identified a deficiency in this area in prior work. On the basis of the results of this analysis, a new CRM system evaluation approach for selecting suitable packages was developed (FRIEDRICH ET AL. 2010). This approach covers the whole process of selecting packaged CRM systems, once a CRM strategy has been defined, and before the implementation project begins.

The proposed approach must be evaluated by experts to verify its practicality and to refine the model. Therefore, the authors conducted an empirical study. This study was performed in two parts in order to combine qualitative and quantitative research methods (more precisely the research findings were combined, but not the methods and data). The qualitative research (expert interviews) was primarily used to explore the topic whereby the quantitative research (online survey) focused on testing the approach (MILES AND HUBERMAN 1994). Following GLÄSER AND LAUDEL (2006), the amendment of the literature-based findings with empirical data enables additional results.

Summarized, the empirical study was carried out to confirm the literature-based perceptions, achieve improvements, and ensure the practical relevance of the approach. The results are presented within this paper.

Research Design

2.1 Expert Interviews

At early stages of research qualitative methods are useful in order to get a professional perspective based on long-standing experiences (BECKER ET AL. 2009, MILES AND HUBERMAN 1994). Therefore, focused one-to-one expert interviews (YIN 2009, MERTON ET AL. 1990) with partly standardized interview guidelines (FIELDING 2001) were chosen as a suitable qualitative research method (PUNCH 2005, KLEIN AND MYERS 1999). To capture the full range of impressions on the proposed approach, the interview guideline was not applied restrictively and the results were analyzed according to guidelines from KLEIN AND MYERS (1999).

165 experts (persons with specific knowledge in the broader topic, GLÄSER AND LAUDEL 2006) were identified via business networks such as *www.xing.com*, *www.competence-site.de*, and *www.crm-expert-site.de.* These potential participants were invited to participate.

In addition to the interview invitations, the partly standardized interview guideline (Table 1) was sent to the potential participants. Finally, 18 experts were interviewed.

The interviews were conducted via phone between March and April 2010 with an interview length between 15 and 45 minutes.

The majority of the CRM experts was working in the consulting industry and had been involved in multiple CRM evaluation and implementation projects. Only two interviewees experienced CRM evaluation from a client's point of view. Two CRM experts worked for a CRM system manufacturer.

Due to the relatively small number of participants and the nature of qualitative data, a qualitative content analysis was conducted.

Table 1: Expert Interview Guideline

Section 1: Personal Questions

Questions:

- Name and position of the interviewee?
- Name and industrial sector of the interviewees' company?
- In which way do you already took part in a CRM system selection process?

Section 2: Questions about the process models method

Questions:
- How do you rate the process model with regard to the sequence of the phases?
- How do you rate the content of each phase? Are there essential additions?
- Which approach have you experienced/are you familiar with?
- How good does the proposed model fit the idea of CRM evaluation?

Information:

1. "Demand Analysis": The conceptual framework is established by determining the main functional processes, system requirements and underlying IT-landscape. This includes interfaces that depend on the 'as-is' situation, as well as the future strategic orientation. All relevant interest groups should be involved throughout this phase. Especially the top management needs to communicate their sponsorship to gain quick and efficient involvement and commitment of all stakeholders. The defined scope specifies high-level requirements to deduct future to-be requirements and for preparing a vendor selection. Due to constant changes in the market, a detailed search for currently available solutions is required.

2. "Detailed Requirement Specification": Target processes need to be specified in order to derive mandatory functional criteria. The outcome helps to narrow the list of potential vendors down to a maximum of four to six candidates (referred to as 'short list'). In addition, the proposed evaluation techniques can be filled with the estimation metrics. A project summary and company-specific application cases for demonstration purposes, along with required costing factors, are then transmitted to the selected vendors. A criteria catalog and feedback forms are developed for internal use during pre-project sessions with potential vendors.

3. "Vendor Presentations": Workshops that focus on obtaining a deeper insight on the degree of scope coverage are scheduled. The vendors are asked to present their individual solutions for the pre-defined use cases during the sessions. Furthermore, functional and system requirements that are mandatory for vendor-specific solutions are discussed and modified. Each party fills out a feedback-form that later provides evaluators with a sense of the individual "look and feel" of the proposed software solution. Subsequently, all materials can be analyzed to evaluate and prioritize different vendors. In addition site visits might be conducted. Based on the findings iterations might be required by shaping functional criteria and target processes. This may result in further vendor workshops.

4. "Decision": The results are summarized and documented before the presentation to the interest groups. Using this approach, the decision toward a specific solution can be justified and demonstrated before the negotiation with the vendors begins. Before the first presentation it is necessary to begin contract negotiations to eliminate unqualified vendors in the result presentation.

- The pre-phase "CRM Strategy" and "CRM Implementation" are not in scope.

Section 3: Questions about the process models criteria

Questions:
- Is the classification of quality, costs and functionality coherent?
- Which sub criteria is not relevant/should be deleted?
- Which sub criteria should be added?
- Which criteria is the most important for CRM package selection?

Information:

Quality:
- Portability
- Usability
- Data Integration
- Maintainability
- Resources
- Training & Support
- Reliability
- Performance
- Security
- Timeliness
- Popularity

Costs:
- License costs
- Installation costs
- Maintenance costs
- Resources
- Training & Support
- Upgrade costs

Functionality:
- Operative CRM
- Contact Mgmt
- Lead Management
- Sales Management
- Customer Service
- Relationship Mgmt
- Communicative CRM:
- Account Mgmt
- Field Service
- Call Center (CIC)
- Campaign Mgmt
- Internet
- Analytical CRM:
- Reporting

Section 4: Questions about the evaluation technique

Questions:
- Did you use AHP for any IT selection project?
- Is this a relevant technique for companies?
- Which technique is your company using?
- In case of "Other" which are you using?
- How do you proceed in CRM evaluation?

Information:

Analytic Hierachy Process (AHP): Method to support multi criteria deci-sion problems. A decision is refined with the goal of selecting criteria and subriteria as possible alternatives. By comparing pairs of criteria and weighting the results a prioritization of alternatives is achieved (in this case CRM systems)

2.2 Online Survey

In the second step a normative online survey was conducted. This quantitative research present a suitable way of connecting research questions with more data (PUNCH 2005). Moreover, it enables an overall assessment of the proposed approach in a systematic and comparable way and conceptualizes reality (MILES AND HUBERMAN 1994).

The search for experts was expanded for this part of the empirical study. In addition to the expert networks mentioned in section 1.1 of this paper, the search was conducted via GOOGLE (using the search terms *CRM expert*, *CRM software expert*, *CRM software selection*, *CRM systems* and *CRM*), via listed authors in CRM related articles/books and via named authors in case studies on CRM vendor websites (SAP©, Microsoft©, Sage©, Oracle© and Salesforce©).

Invitations to participate in an online survey were sent out in three cycles (Table 2) to a total of 1435 potential respondents in various countries (Table 3). The online survey was carried out using the web-based survey management system EVASYS by ELECTRIC PAPER GMBH. In total, 125 (8.7%) experts took part in the online survey.

The experts were asked predominantly closed questions in order to evaluate single aspects of CRM system selection and the proposed approach (Figure 1-4). The findings were evaluated in two ways. EVASYS itself calculates percentages and other descriptive statistics for closed questions whereas replies to open questions were clustered to draw conclusions. Dependencies between certain characteristics were not analyzed within this work.

Table 2: Online Survey Cycles

Survey Cycle	Date	Number of CRM Experts Contacted	Number of Responses
1	2010-06-17	836	53
2	2010-06-24	210	17
3	2010-06-30	389	55
Total		1435	125

Table 3: Country Allocation CRM Experts

Country	Number of Contacted CRM Experts
Germany	844
USA	365
U. K.	43
Switzerland	27
India	24
Australia	23
Austria	23
China	12
Other	CRM experts from countries with numbers below 10.

Figure 1: Online survey (1/4)

Which product do you sell?

Was your CRM evaluation project successful?

○ Yes   ○ No

What was the most important success factor of your CRM evaluation project?

Which changes would have made the selection successful (in case CRM evaluation was not satisfying)?

CRM Evaluation

In your point of view, how important is CRM evaluation generally for your business?   very important ○ ○ ○ ○ ○ not necessary

Figure 1: Process model for CRM evaluation

CRM Strategy	Demand Analysis	Detailed Requirement Specification	Vendor Presentations	Decision	CRM Implementation
	• Scope Definition (Conceptual Framework) • Functional / Process / System Requirements & Restrictions • Interfaces (Involving all Interest Groups) • Software Market	• Target Processes • Functional criteria definition • Vendor identification • Creation & Transmission of Material	• Workshop • Completion & Evaluation of Collected Material	• Presentation of Results to all Interest Groups • Selection of Final Vendor	

How good does the proposed model fit your idea of CRM evaluation?   very good ○ ○ ○ ○ ○ very poor

How do you rate the practical relevance of the proposed process model for CRM evaluation?   very relevant ○ ○ ○ ○ ○ not applicable

Do you think the support of a consulting company to perform a CRM system evaluation is necessary?

○ Yes   ○ No   ○ Case-based

If anything, what would you change in the proposed approach?

Figure 2: Online survey (2/4)

CRM Criteria

Figure 2: CRM criteria

Quality criteria:	Cost criteria:	CRM functionality:
• Portability • Usability • Data Integration • Modifiability & Maintainability • Resources • Training & Support • Reliability & Robustness • Performance & Practicability • Security • Timeliness • Popularity	• System costs (hardware/software licenses) • Preparation and installation costs • Maintenance costs • Resources (consulting, internal) • Training and support • Upgrade costs	• Reporting • Contact Management • Campaign Management • Call Center • Relationship Management • Field Service • Sales Management • Lead/Opportunity Management • Customer Service • Internet • Account Management

Do you agree with the classification of quality, costs and functionality?

◉ Yes   ◉ No

Which sub criteria would you delete as unnecessary?

- ☐ Quality: Portability
- ☐ Quality: Usability
- ☐ Quality: Data Integration
- ☐ Quality: Modifiability & Maintainability
- ☐ Quality: Resources
- ☐ Quality: Training & Support
- ☐ Quality: Reliability & Robustness
- ☐ Quality: Performance & Practicability
- ☐ Quality: Security
- ☐ Quality: Timeliness
- ☐ Quality: Popularity
- ☐ Costs: System Costs
- ☐ Costs: Preparation & Installation Costs
- ☐ Costs: Maintenance Costs
- ☐ Costs: Resources
- ☐ Costs: Training & Support
- ☐ Costs: Upgrade Costs
- ☐ Functionality: Reporting
- ☐ Functionality: Contact Management
- ☐ Functionality: Campaign Management
- ☐ Functionality: Call Center
- ☐ Functionality: Relationship Management
- ☐ Functionality: Field Service
- ☐ Functionality: Sales Management
- ☐ Functionality: Lead/Opportunity Management
- ☐ Functionality: Customer Service
- ☐ Functionality: Internet
- ☐ Functionality: Account Management

Figure 3: Online survey (3/4)

Which 1-3 sub criteria would you add?

In your opinion, which criteria are the most important for CRM system evaluation?

- ☐ Quality: Portability
- ☐ Quality: Usability
- ☐ Quality: Data Integration
- ☐ Quality: Modifiability & Maintainability
- ☐ Quality: Resources
- ☐ Quality: Training & Support
- ☐ Quality: Reliability & Robustness
- ☐ Quality: Performance & Practicability
- ☐ Quality: Security
- ☐ Quality: Timeliness
- ☐ Quality: Popularity
- ☐ Costs: System Costs
- ☐ Costs: Preparation & Installation Costs
- ☐ Costs: Maintenance Costs
- ☐ Costs: Resources
- ☐ Costs: Training & Support
- ☐ Costs: Upgrade Costs
- ☐ Functionality: Reporting
- ☐ Functionality: Contact Management
- ☐ Functionality: Campaign Management
- ☐ Functionality: Call Center
- ☐ Functionality: Relationship Management
- ☐ Functionality: Field Service
- ☐ Functionality: Sales Management
- ☐ Functionality: Lead/Opportunity Management
- ☐ Functionality: Customer Service
- ☐ Functionality: Internet
- ☐ Functionality: Account Management

CRM Evaluation Technique

Which technique does your company use for CRM system evaluation?

- ☐ AHP (Analytic Hierarchy Process)
- ☐ TCO (Total Cost of Ownership)
- ☐ Fuzzy-based approach
- ☐ no method
- ☐ Weighted Scoring Method
- ☐ SWOT-Analysis
- ☐ others

Which **other** technique(s) uses your company for CRM system evaluation?

Do you know the AHP (Analytic Hierarchy Process)?

- ☐ Yes
- ☐ No

If yes, do you think the AHP is applicable for CRM system evaluation in praxis?

- ☐ Yes
- ☐ No

Closure

Thank you very much for taking the time to complete our survey.

Figure 4: Online survey (4/4)

Research Results

3.1 Expert Interviews

Overall Rating and Feasibility of the Approach: About two thirds (67%) of the CRM experts rated the overall CRM system selection approach as excellent. They highlighted that the sequence is logically structured and therefore should be applicable in practice. Almost half of the respondents (44%) thought that application would be feasible in practice. Only three interviewees declared that they do not think that the proposed approach is realistic because too many aspects were missing in each process phase.

The core critical point was the narrowed focus on the main functional processes in the evaluation. According to their experience, a full requirement specification should be conducted earlier in the analysis phase of the evaluation, instead of later during the implementation of the software. Using the proposed approach, the experts thought it might be possible to define a quantity structure that could be taken as input for a cost calculation. Another important suggestion for improvement was limiting the number of vendor presentations to a maximum of two to four candidates. Further it was noted, that the approach might generally not be applicable without an external consulting company.

Criteria Evaluation: Most of the CRM experts (89%) agreed with the overall criteria catalog sometimes limiting their approval with specific remarks. The participants were asked to discard or to add sub-criteria to the quality, cost, or functionality compounds of the criteria groups.

Eight interviewees recommended eliminating popularity. However, five CRM experts determined that all sub-criteria of the catalog were necessary. Three participants suggested eliminating portability.

The most frequently named sub criterion to be added was ROI calculation (four interviewees). In addition, other financial ratios such as CAPEX and OPEX were mentioned. Some specific functions, such as checking for duplicates, a help desk, and web integration were also proposed. Six interviewees could not select the most important criterion per se as they thought it depended on the individual situation of a specific customer. Usability (e.g. improvement customer satisfaction, easy system usage) and user acceptance (e.g. system usage in various areas of daily work) were considered most important for an evaluation (four and three CRM experts, respectively).

Evaluation Technology: None of the interviewees had used AHP as an evaluation technique when conducting a CRM evaluation, although two had heard of it. Five CRM experts commented on using a similar technique after learning about AHP. Four experts did not use any kind of technique to verify their CRM system selections because they rely on 'gut instinct'. However, 80% named a technique they had used, with the Weighted Scoring Method (five CRM experts) being the one most commonly used for CRM evaluation. Overall, most CRM experts agreed that CRM system decisions need to be made based on both experience and evaluation results.

3.2 Online Survey

Participating CRM Experts: 50.4% of the participating CRM experts work in small and medium-sized enterprises (SME) with less than 50 employees. Only 12.8% are employed in companies larger than 10,000 employees (Figure 5). Almost 90% have experience in CRM selection. One third of these participated in more than 20 CRM system selection projects. Only 8.2% have performed just one CRM selection.
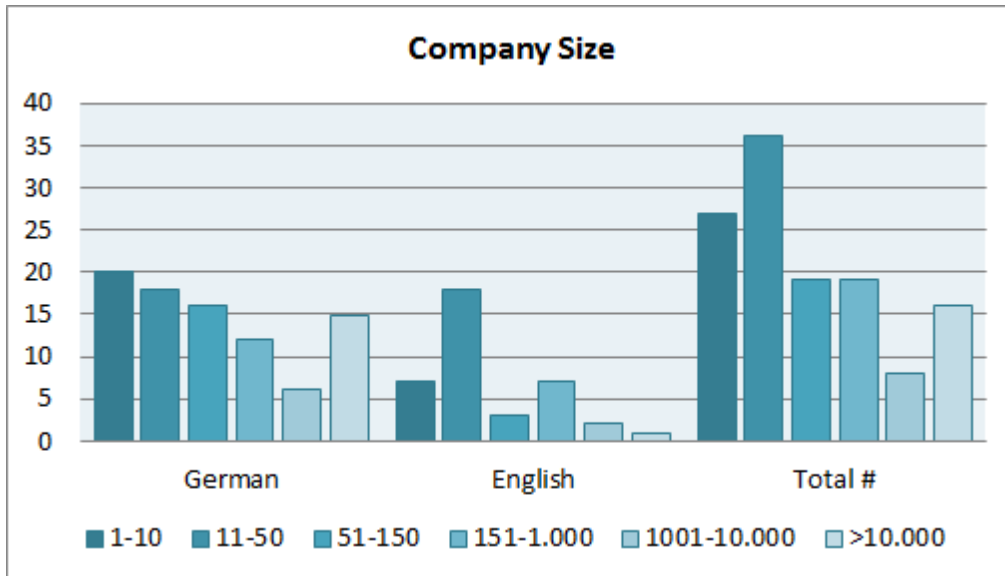
Figure 5: Company Size

The highest response rate was achieved in the consulting sector. Customer experience had a smaller response rate compared to vendor and consultant feedback.

73% overall rated the significance of CRM selection projects as being very important. 22.9% believe it to be important, and none stated it is not necessarily required or even not required at all (Figure 6). All experts stated that their CRM projects were successful.
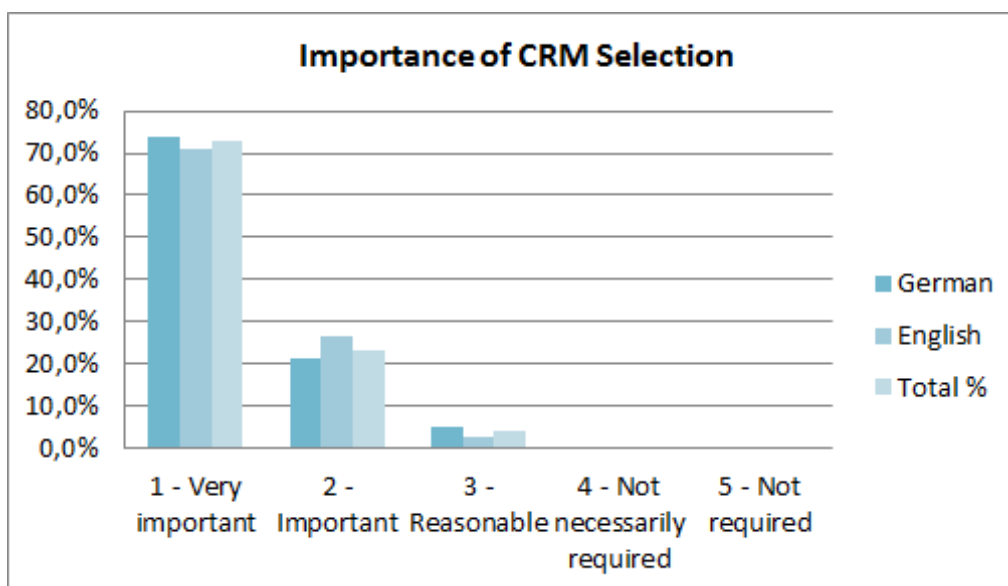
Figure 6: Importance of CRM Selection
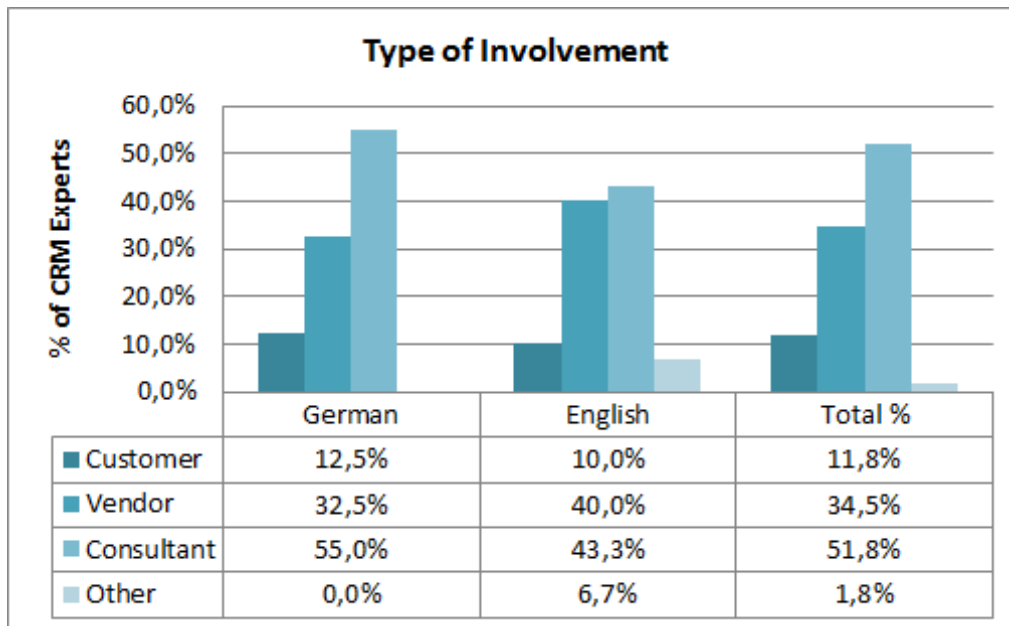
Figure 7: Type of Involvement

Critical Success Factors: When asked for the most important critical success factor in their CRM evaluation projects (Table 4), most CRM experts referred to requirement fit meaning the match of the customers' needs and main business processes by focusing on the business need and not the IT solution. The selected software certainly needs to fit those business requirements, which in turn should be supported by identifying must-have criteria.

The next most often named critical success factors were usability and functionality. Usability in this context focuses on user experience when using the software in day-to-day business. The solution has to be easy to use, which means users can become familiar with it quickly due to straightforward functionality, user-friendly and efficiency in handling. In addition simplicity of the application is important, meaning that it has been ergonomically designed. Nevertheless the functional scope always depends on the specific demands of the individual company. Costs were almost exclusively mentioned by German experts, with the exception of one English-speaking expert. The majority rated costs via the price performance ratio. Other dimensions were cost efficient implementation and TCO calculation. Business process design comprises a detailed analysis and definition of business processes and derived requirements to optimize the current situation and design appropriate processes in the CRM system. To achieve user acceptance, most CRM experts referred to end and key users, as well as management involvement. In this context it is important that all stakeholder groups are represented to achieve comprehensive user acceptance. Employees that use the system must recognize the added value it provides.

Integration into the existing application landscape was understood to be the integration of Microsoft© solutions (e.g. Outlook©, but depending on the individual case, other Office Suite integration might be required), integration with the ERP system and other company applications (e.g. backend systems) to access additional data (e.g. POS). This permits integration across departments. Another important success factor is the configurability of software, including ergonomic factors, as well as customization to requirements with no or limited development effort. The software configuration should involve little technical knowledge so that it is flexible and changes can be made (enhanced or additional requirements) at a later stage. Stakeholder involvement comprises affected departments (e.g. sales, marketing), end users, and communication between selected stakeholders and the consulting or IT vendor imple-

menting the CRM system. Involvement includes communication of the major impact and of changes resulting from the project to alignment and integration of stakeholder groups in the requirement and selection process. Management support entails not only involvement of an additional stakeholder party, but also the commitment needed to motivate and provide capability for other stakeholder groups.

Table 4: Critical Success Factors

Ranking	Critical Success Factors of CRM Projects	#
1	Requirement Fit	20
2	Usability	17
3	Functionality	17
4	Costs	14
5	Business Process Design	13
6	User Acceptance	11
7	Integration in Application Landscape	11
8	Configurability	11
9	Stakeholder Involvement	8
10	Management Support	8

Other critical success factors mentioned included flexibility, short implementation cycles, industry know-how, CRM experience, strategy, open source, training, methodology, innovation, SaaS availability, change management, project management, performance and autonomy to software vendor.

Selected CRM System: The most popular CRM out of the box software (Table 5) includes Microsoft Dynamics CRM© and Siebel©, which is part of the Oracle© product portfolio. Customers were the group of CRM experts that mainly preferred standard solutions.

Table 5: Most popular CRM System

Ranking	Software	#
1	Microsoft Dynamics© CRM	22
2	Oracle Siebel©	19
3	SAP© CRM	13
4	Oracle© on demand	11
5	Salesforce©	9
6	CAS©	7
7	SugarCRM ©	6
8	Sage© CRM	5
	Other	39

Certain software solutions by popular vendors were not mentioned at all, e.g. Oracle E-Business Suite© CRM, PeopleSoft Enterprise© CRM and Microsoft DynamicsAX© CRM. In several cases, CRM experts referred to individual software solutions or named solutions that had not been referenced by other experts. These have been subsumed under other.

Feasibility of the Proposed Approach: 75.8% CRM experts rated the CRM evaluation approach as very good or good (Figure 8). Only 4.8% rated it poor and 0.8% thought it is not applicable in practice.
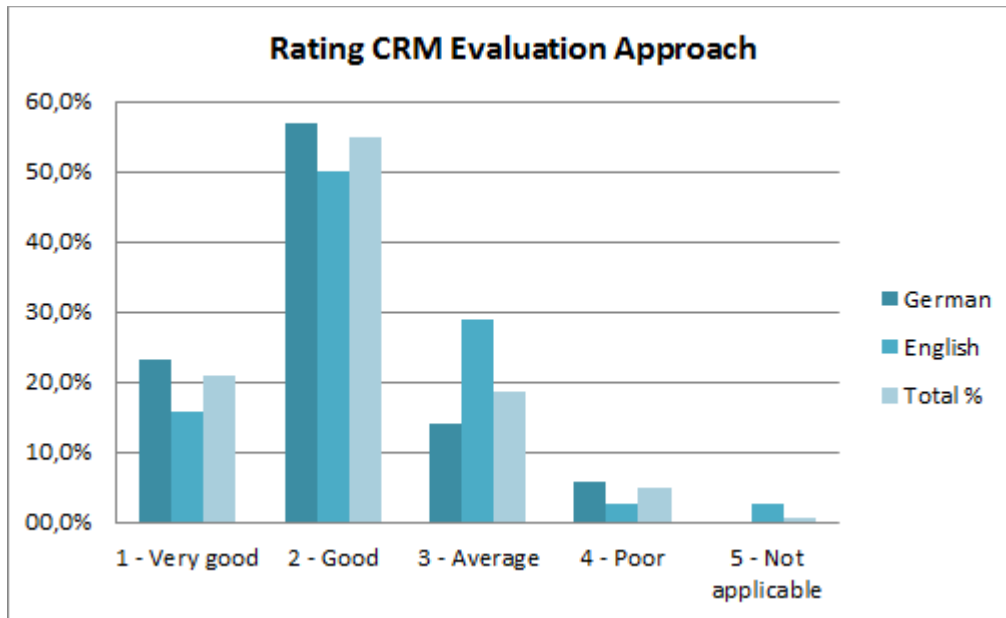
Figure 8: Rating CRM Evaluation Approach

CRM Criteria Evaluation: Overall, 75.7% agreed with the classification presented in the approach. When asked for the most irrelevant criteria *popularity* was nominated most often (n=47), whereas *portability* was mentioned by ten CRM experts and *field service* by seven. In most cases criteria from the category "quality" were rated as irrelevant.

When participants were asked for the most important criteria topics from all three categories were mentioned. An overview of the ranking for each category can be found in Table 6.

Table 6: Most Important Criteria

Ranking	Quality	Costs	Functionality
1	Usability	Maintenance	Contact Management
2	Data Integration	System Costs	Relationship Mgmt
3	Performance & Practicability	Preparation & Installation	Lead/Opp. Mgmt

Additional Criteria: Along with suggesting sub criteria for existing categories, the CRM experts were asked for new criteria (Table 7). The most often referred to new main criteria was *technical architecture* which subsumes using technical standards, design principles (e.g. SOA), data handling, interface definition (e.g. to mobile technology, other applications), development environments and stages, software (e.g. operating system, legacy applications, security) and hardware (e.g. server, network) environment and groupware.

Table 7: Additional Sub Criteria for Main Criteria

Ranking	Category	Main Criteria	#
1 - new	Functionality	Technical Architecture	11
2 - add	Functionality	Reporting	9
3 - add	Quality	Popularity (Vendor)	7
4 - new	Quality	Project Management	7
5 - new	Quality	Sustainability	6
6 - add	Functionality	Field Service	6

Reporting as an existing criteria had the majority of sub criteria suggestions. These suggestions included strategic and daily business analysis, monitoring, data mining, dashboard, business intelligence or ad hoc reporting.

Other criteria referred to was *popularity*. New sub criteria suggested were reputation of vendor and consultancy concerning financial viability, stability, strategy, references, experience, resources, quality, price, and market share of the evaluated CRM system. Another new criterion is *project management*, which refers to document management, status tracking and methodology toward achieving set objectives. Furthermore *sustainability* was added in the "*quality*"-category which rates the upgradability to state-of-the-art technology and the possibility to create a future proof on the industry sector.

In the "functionality"-category, an addition was to the main criterion *field service*. CRM experts requested mobility technology, which involves installing software and synchronization capabilities with data sources and partner portals on selected devices, as well as offline functionality, to work without a corporate network connection.
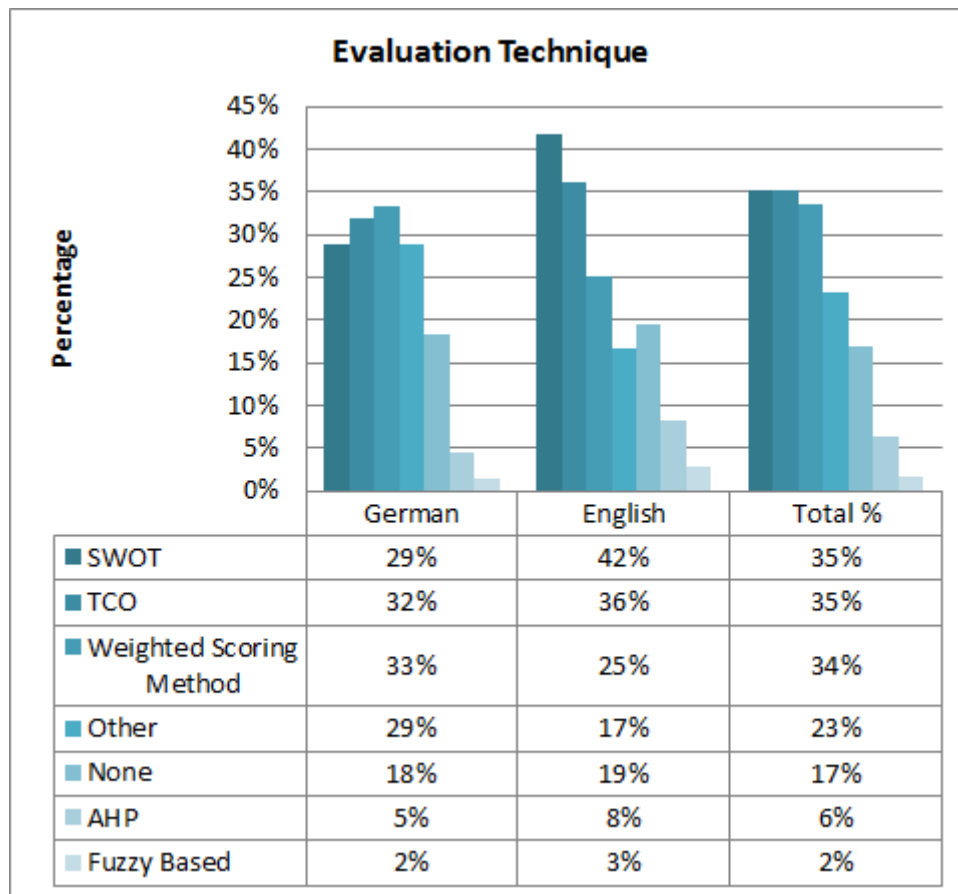
More references were made in all three categories, to customer service, marketing management, modifiability and maintainability, usability, preparation and installation costs amongst others all reaching less than 5 nominations.

CRM Evaluation Technique: Most CRM experts (82.1%) were unfamiliar with AHP. However, the experts that were familiar with it thought it was applicable.

An overview of the applied evaluation techniques shows Figure 9. Other techniques mentioned were usually self developed evaluation methods and requirement analysis, balanced scorecard and workshops. Most CRM experts involved as customers were not sure which technique was applied to evaluate their CRM system.

Changes to the Proposed Approach: The majority of changes were seen in the area of *Methodology* (Table 8). The suggested enhancements included a change from a linear to an iterative approach for the requirement analysis and vendor presentations including workshops. Some of the CRM experts mentioned that the approach required adaptation to individual needs. Some thought that change management and expectation management should be integrated along the phases. Lastly, the definition of as-is as well to-be situations and processes required a stronger focus.

The creation of a *long* and a *short list* should be part of the iterative process in the form of market screening, vendor pre-selection based on requirements and final decision after presentations, taking human factors into account. Reference visits and prototyping are further components that support the decision-making process. Such lists are available over the internet (www.selectcrm.de).

Evaluation Technique

	German	English	Total %
SWOT	29%	42%	35%
TCO	32%	36%	35%
Weighted Scoring Method	33%	25%	34%
Other	29%	17%	23%
None	18%	19%	17%
AHP	5%	8%	6%
Fuzzy Based	2%	3%	2%

Figure 9: Evaluation Technique

The involvement of all affected departments, including the user and IT, was referred to as *stakeholder involvement* in the form of decisions, requirement definition and other areas of the selection process.

Suggested *additional phases* were a test phase for key users to verify acceptability and feasibility in daily business with the selected CRM systems. In addition, some CRM experts suggested expanding phases to include additional steps. Reference visits and vendor presentations for short list vendors in the decision phase should be followed by a new prototype phase for the final one or two vendors. Also a proof of concept phase might be added before the vendor presentations in the decision phase.

Table 8: Change in CRM Selection Approach

Ranking	Area to Change	#
1	Methodology	19
2	Long and Short List	11
3	Stakeholder Involvement	10
4	Additional Phases	7

Other suggested changes were in the area of limited scope, goal focus, strategy, risk management, key performance indicators, consulting support, and success evaluation. All of these changes were mentioned by fewer than five experts.

References

Becker, J. U., Greve, G., and Albers, S. (2009). The impact of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention. International Journal of Research in Marketing 26, 3, 207-215.

Fielding, N. (2001). Qualitative Interviewing, In: Researching Social Life, N. Gilbert, Ed., Sage, London.

Friedrich, I., Sprenger, J., and Breitner, M. H. (2010). CRM Evaluation - An Approach for Selecting Suitable Software Packages. In Tagungsband Multikonferenz Wirtschaftsinformatik (Göttingen, Germany, 2010, 611-622).

Gläser, J. and Laudel, G. (2006). Experteninterviews und qualitative Inhaltsanalyse. 2nd edition, VS Verlag für Sozialwissenschaften, Wiesbaden.

Klein, H. K. and Myers, M. D. (1999). A Set of Principles for Conducting and Evaluating Interpretive Field Studies in Information Systems. MIS Quartely 23, 1, 67-94.

Merton, R. K., Fiske, M., and Kendall, P. L. (1990). The focused interview: A manual of problems and procedures. 2nd edition, Free Press, New York.

Miles, M. B. and Huberman, A. M. (1994). Qualitative Data Analysis. 2nd edition, Sage, Thousand Oaks.

Punch, K. F. (2005). Introduction to Social Research. Quantitative and Qualitative Approaches. Sage, London.

Yin, R. K. (2009). Case study research: design and methods. 4th edition, Sage, Thousand Oaks.

IWI Discussion Paper Series/Diskussionsbeiträge
ISSN 1612-3646

Michael H. Breitner, *Rufus Philip Isaacs and the Early Years of Differential Games*, 36 p., #1, January 22, 2003.

Gabriela Hoppe and Michael H. Breitner, *Classification and Sustainability Analysis of e-Learning Applications*, 26 p., #2, February 13, 2003.

Tobias Brüggemann und Michael H. Breitner, *Preisvergleichsdienste: Alternative Konzepte und Geschäftsmodelle*, 22 S., #3, 14. Februar, 2003.

Patrick Bartels and Michael H. Breitner, *Automatic Extraction of Derivative Prices from Webpages using a Software Agent,* 32 p., #4, May 20, 2003.

Michael H. Breitner and Oliver Kubertin, *WARRANT-PRO-2: A GUI-Software for Easy Evaluation, Design and Visualization of European Double-Barrier Options,* 35 p., #5, September 12, 2003.

Dorothée Bott, Gabriela Hoppe und Michael H. Breitner, *Nutzenanalyse im Rahmen der Evaluation von E-Learning Szenarien*, 14 S., #6, 21. Oktober, 2003.

Gabriela Hoppe and Michael H. Breitner, *Sustainable Business Models for E-Learning*, 20 p., #7, January 5, 2004.

Heiko Genath, Tobias Brüggemann und Michael H. Breitner, *Preisvergleichsdienste im internationalen Vergleich*, 40 S., #8, 21. Juni, 2004.

Dennis Bode und Michael H. Breitner, *Neues digitales BOS-Netz für Deutschland: Analyse der Probleme und mögliche Betriebskonzepte,* 21 S., #9, 5. Juli, 2004.

Caroline Neufert und Michael H. Breitner, *Mit Zertifizierungen in eine sicherere Informationsgesellschaft*, 19 S., #10, 5. Juli, 2004.

Marcel Heese, Günter Wohlers and Michael H. Breitner, *Privacy Protection against RFID Spying: Challenges and Countermeasures*, 22 p., #11, July 5, 2004.

Liina Stotz, Gabriela Hoppe und Michael H. Breitner, *Interaktives Mobile(M)-Learning auf kleinen End-geräten wie PDAs und Smartphones*, 31 S., #12, 18. August, 2004.

Frank Köller und Michael H. Breitner, *Optimierung von Warteschlangensystemen in Call Centern auf Basis von Kennzahlenapproximationen,* 24 S., #13, 10. Januar, 2005.

Phillip Maske, Patrick Bartels and Michael H. Breitner, *Interactive M(obile)-Learning with UbiLearn 0.2*, 21 p., #14, April 20, 2005.

Robert Pomes and Michael H. Breitner, *Strategic Management of Information Security in State-run Organizations,* 18 p., #15, May 5, 2005.

Simon König, Frank Köller and Michael H. Breitner, *FAUN 1.1 User Manual,* 134 p., #16, August 4, 2005.

Christian von Spreckelsen, Patrick Bartels und Michael H. Breitner, *Geschäftsprozessorientierte Analyse und Bewertung der Potentiale des Nomadic Computing,* 38 S., #17, 14. Dezember, 2006.

Stefan Hoyer, Robert Pomes, Günter Wohlers und Michael H. Breitner, *Kritische Erfolgsfaktoren für ein Computer Emergency Response Team (CERT) am Beispiel CERT-Niedersachsen,* 56 S., #18, 14. Dezember, 2006.

Christian Zietz, Karsten Sohns und Michael H. Breitner, *Konvergenz von Lern-, Wissens- und Personalmanagementsystemen: Anforderungen an Instrumente für integrierte Systeme,* 15 S., #19, 14. Dezember, 2006.

Christian Zietz und Michael H. Breitner, *Expertenbefragung „Portalbasiertes Wissensmanagement": Ausgewählte Ergebnisse*, 30 S., #20, 5. Februar, 2008.

IWI Discussion Paper Series/Diskussionsbeiträge
ISSN 1612-3646

Harald Schömburg und Michael H. Breitner, *Elektronische Rechnungsstellung: Prozesse, Einsparpotentiale und kritische Erfolgsfaktoren*, 36 S., #21, 5. Februar, 2008.

Halyna Zakhariya, Frank Köller und Michael H. Breitner, *Personaleinsatzplanung im Echtzeitbetrieb in Call Centern mit Künstlichen Neuronalen Netzen*, 35 S., #22, 5. Februar, 2008.

Jörg Uffen, Robert Pomes, Claudia M. König und Michael H. Breitner, *Entwicklung von Security Awareness Konzepten unter Berücksichtigung ausgewählter Menschenbilder*, 14 S., #23, 5. Mai, 2008.

Johanna Mählmann, Michael H. Breitner und Klaus-Werner Hartmann, *Konzept eines Centers der Informationslogistik im Kontext der Industrialisierung von Finanzdienstleistungen*, 19 S., #24, 5. Mai, 2008.

Jon Sprenger, Christian Zietz und Michael H. Breitner, *Kritische Erfolgsfaktoren für die Einführung und Nutzung von Portalen zum Wissensmanagement*, 44 S., #25, 20. August, 2008.

Finn Breuer und Michael H. Breitner, *„Aufzeichnung und Podcasting akademischer Veranstaltungen in der Region D-A-CH": Ausgewählte Ergebnisse und Benchmark einer Expertenbefragung*, 30 S., #26, 21. August, 2008.

Harald Schömburg, Gerrit Hoppen und Michael H. Breitner, *Expertenbefragung zur Rechnungseingangsbearbeitung: Status quo und Akzeptanz der elektronischen Rechnung*, 40 S., #27, 15. Oktober, 2008.

Hans-Jörg von Mettenheim, Matthias Paul und Michael H. Breitner, *Akzeptanz von Sicherheitsmaßnahmen: Modellierung, Numerische Simulation und Optimierung,* 30 S., #28, 16. Oktober, 2008.

Markus Neumann, Bernd Hohler und Michael H. Breitner, *Bestimmung der IT-Effektivität und IT-Effizienz serviceorientierten IT-Managements,* 20 S., #29, 30. November, 2008.

Matthias Kehlenbeck und Michael H. Breitner, *Strukturierte Literaturrecherche und -klassifizierung zu den Forschungsgebieten Business Intelligence und Data Warehousing,* 10 S., #30, 19. Dezember, 2009.

Michael H. Breitner, Matthias Kehlenbeck, Marc Klages, Harald Schömburg, Jon Sprenger, Jos Töller und Halyna Zakhariya, *Aspekte der Wirtschaftsinformatikforschung 2008,* 128 S., #31, 12. Februar, 2009.

Sebastian Schmidt, Hans-Jörg v. Mettenheim und Michael H. Breitner, *Entwicklung des Hannoveraner Referenzmodels für Sicherheit und Evaluation an Fallbeispielen,* 30 S., #32, 18. Februar, 2009.

Sissi Eklu-Natey, Karsten Sohns und Michael H. Breitner, *Buildung-up Human Capital in Senegal - E-Learning for School drop-outs, Possibilities of Lifelong Learning Vision,* 39 p., #33, July 1, 2009.

Horst-Oliver Hofmann, Hans-Jörg von Mettenheim und Michael H. Breitner, *Prognose und Handel von Derivaten auf Strom mit Künstlichen Neuronalen Netzen,* 34 S., #34, 11. September, 2009.

Christoph Polus, Hans-Jörg von Mettenheim und Michael H. Breitner, *Prognose und Handel von Öl-Future-Spreads durch Multi-Layer-Perceptrons und High-Order-Neuronalnetze mit Faun 1.1 ,* 55 S., #35, 18. September, 2009.

Jörg Uffen und Michael H. Breitner, *Stärkung des IT-Sicherheitsbewusstseins unter Berücksichtigung psychologischer und pädagogischer Merkmale*, 37 S., #36, 24. Oktober, 2009.

Christian Fischer und Michael H. Breitner, *MaschinenMenschen – reine Science Fiction oder bald Realität?,* 36 S., #37, 13. Dezember, 2009.

Tim Rickenberg, Hans-Jörg von Mettenheim und Michael H. Breitner, *Plattformunabhängiges Softwareengineering eines Transportmodells zur ganzheitlichen Disposition von Strecken- und Flächenverkehren,* 38 S., #38, 11. Januar, 2010.

Björn Semmelhaack, Jon Sprenger und Michael H. Breitner, *Ein ganzheitliches Konzept für Informationssicherheit unter besonderer Berücksichtigung des Schwachpunktes Mensch*, 56 S., #39, 03. Februar, 2009.

Markus Neumann, Achim Plückebaum, Jörg Uffen und Michael H. Breitner, *Aspekte der Wirtschaftsinformatikforschung 2009*, 70 S., #40, 12. Februar, 2010.

Markus Neumann, Bernd Hohler und Michael H. Breitner, *Wertbeitrag interner IT – Theoretische Einordnung und empirische Ergebnisse*, 38 S., #41, 31. Mai, 2010.

Daniel Wenzel, Karsten Sohns und Michael H. Breitner, *Open Innovation 2.5: Trendforschung mit Social Network Analysis*, 46 S., #42, 1. Juni, 2010.

Naum Neuhaus, Karsten Sohns und Michael H. Breitner, *Analyse der Potenziale betrieblicher Anwendungen des Web Content Mining,* 44 S., #43, 8. Juni, 2010.