CRM Evaluation

An Approach for Selecting Suitable Software Packages

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1 Introduction

Customer Relationship Management (CRM)[1] has been discussed in the literature since the nineties. IT evaluation on the other hand dates back to the eighties starting with a more contemporary approach (Farbey et al. 1999, p. 191). As reported by earlier works, the success rate of CRM implementation projects is up to today still not satisfactory (Becker et al. 2009; Finnegan and Currie 2009). Reasons for failing the expectations of involved parties are diverse, but can be summarized under the three dimensions: people, process and technology (Figure 1). Due to the described quality problems and the speed of evaluation results becoming outdated, new CRM solutions or updated versions of established products continuously enter the market.

[1] CRM solutions range from simple address and activity management applications to integrated software packages linking front office and back office functions (Chen and Popovich 2003, p. 673). Hence, there exists a multitude of different characterizations for CRM. For the context of this paper a definition by Goldenberg (2000) is used, who describes CRM as a cross-functional, customer-driven, technology-integrated business process management strategy that aims at maximizing relationships and encompasses the entire organization. This definition thereby incorporates all three already mentioned dimensions of the CRM implementation model (people, process and technology) by Chen and Popovich (2003).

The goal of this paper is to evaluate the existing literature of CRM evaluation, to describe the state-of-the-art, to identify the most suitable method, criteria and technique of CRM evaluation, and finally, to develop an approach for selecting suitable CRM software packages.[2]

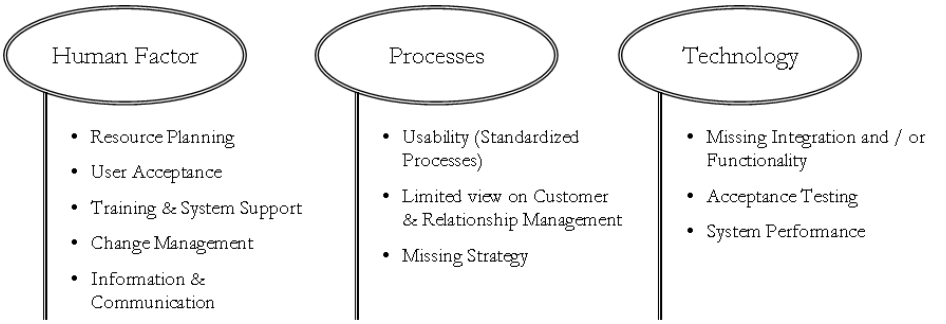

Figure 1: Reasons for failing CRM implementations

We propose a new approach for the evaluation of a suitable CRM software solution avoiding the identified failures. The approach covers the whole process of selecting packaged CRM software, after a CRM strategy has been defined, and before the implementation project begins. The proposed approach applies to tender evaluation and may be adopted for other purposes. Furthermore, the differences to general IT evaluation are shown.

2 Methodology

In order to get an overview on the currently available information, a content analysis was performed. The goal was to find published articles in journals and conference proceedings which discuss the topic of CRM evaluation, or IT evaluation in general. For this article it is assumed that CRM evaluation poses an area where research is still at the beginning. Three major databases ACM Portal, Elsevier Science Direct and Springer Verlag were selected for the baseline search for German and English language papers. As search criteria were the terms "IT evaluation", "CRM evaluation" and "CRM strategy" used. Hand research included the selection of referenced articles and papers that related to the search criteria.

In total, 137 papers could be identified with 122 papers in English and only 15 in German. 76 hits were related to IT evaluation, whereas 61 contained topics linked to CRM evaluation or other associated CRM topics. All papers were reviewed in full text for their relevance to the research question. 83 papers were found to offer significant input and were therefore included in further analysis.

[2] Mendoza et al. (2006, p. 921) recently proposed similar critical success factors for an efficient implementation of a CRM strategy.

The remaining papers were then further classified into four categories: "method", "evaluation technique", "criteria" and "tools". Papers that could not be assigned to one or more categories or that were not referring to the subject were excluded. However, a publication might be allotted to more than one category if more than one topic was discussed by the authors. The search was performed from June to August 2009.

Based on the results of the structured analysis of the identified literature, an approach that tries to address four categories has been developed. The categories are adopted from Jadhav and Sonar (2009)[3], and defined as follows:

- Method: Methodology to perform the actual evaluation, including the steps and scope to be considered.
- Criteria: Criteria or areas supporting the comparison of CRM software.
- Evaluation technique: Approach to apply the identified criteria. It supports the decision-making process over the available alternatives, and is aimed at selecting one CRM package that is superior to the researched alternatives.

3 Results

The following chapters describe the result for each category. The literature verification to the individual statements could not be fitted into the given paper for spatial reasons; a table with supporting documents concerning the mentioned statements in chapter 3 can be sent by the authors on request.

Table 1 summarizes the results of analyzing the selected relevant publications. 77 papers were excluded as they did not relate to the predefined criteria. As some papers discussed more than one category, then the total number does not equal the sum of all categories.

Table 1: Overview of the results of the literature search

	IT	CRM
Method	15	9
Evaluation technique	14	1
Criteria	13	21
Tool	2	0
Total	36	24

3.1 Method

24 of the reviewed papers discuss the evaluation process. Nine papers are directly related to the CRM process methodologies. Most of the remaining papers discuss

[3] Jadhav and Sonar (2009, p. 555-563) previously present a review of evaluating and selecting software packages from a broader perspective. The paper primarily focused on IT evaluation, as it covered only one article on CRM evaluation.

IT evaluation in general or for other specific areas, such as knowledge management tools or computer-based instructional support systems. Seven papers describe methods which are not adequate for CRM (pre-)evaluation. The following list gives an overview of all activities that should be performed during the evaluation process which have been mentioned in any of the identified papers.

- Define strategy
- Establish organizational framework and scope definition
- Determine requirements (processes & system)
- Examine IT landscape and interfaces
- Analyze software market
- Design target processes
- Define functional criteria
- Identify potential vendor
- Create and transmit material
- Schedule and conduct vendor workshops / presentations
- Evaluate collected information
- Prepare and document the final decision
- Present results to involved parties
- Select final vendor
- Negotiate vendor contract
- Start implementation

3.2 Criteria

34 papers describe the aspects concerning the assessment of CRM or IT evaluation. 21 papers focus on CRM matters in specific areas like sales force automation or give an overall view. The remaining 13 papers center on the evaluation criteria from a more general perspective, mostly relating to quality or cost aspects. The following overviews summarize the criteria specified in the literature in the areas of functionality, quality and costs, accompanied by a description that supports evaluating a fitting CRM system ranked in the order of highest occurrence.

Table 2: 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

3.3 Evaluation Technique

14 papers deal with evaluation techniques. Only one of these studies is directly related to CRM evaluation. Various evaluation techniques have been mentioned in the literature, but not only one dominating technique was found. Instead, the identified studies discuss various different techniques, each with its own characteristics, presenting a rather heterogeneous picture of the available data.[4] In general, more or less all authors aim for a ranking of alternatives up for selection by scores. However, there were also approaches concentrating mainly on the monetary aspects like the *Return on investment (ROI)* analysis or the *Total Costs of Ownership (TCO)* approach (Deschoolmeester et al. 2004, p. 116 f.). These methods are supportive, but concentrating only on monetary aspects appears to be not satisfactory for informing on the selection of a software package. Hence, Lech (2005, p. 298) rightfully notes that these approaches are suitable for the evaluation of the cost side needing a combination approach.

Eight of the fourteen papers cover different techniques, give overviews, draw comparisons, or search for a way to define an adequate technique for the respective situation. A detailed description of all the differences would go beyond the scope of this paper. The following list depicts the three different approaches that are mentioned explicitly.

- Fuzzy based Approach
- Weighted Scoring Method
- Analytical Hierarchy Process (AHP)

[4] Renkema and Berghout (1997) present an overview of 65 evaluation techniques based upon research of different Dutch researchers.

3.4 Tool

None of the papers proposed a tool for CRM-specific evaluation, although two papers covered tools for IT evaluation in general: Expert System for Software Evaluation (ESSE) that includes a multiple-criteria decision aid; Knowledge-based System (KBS) that matches IT applications with company's strategy.

4 CRM Evaluation Approach

On the basis of the content analysis the most suitable method, criteria and technique were identified and combined in order to develop the CRM evaluation approach.

4.1 Method

Following the method presented in Figure 2 is proposed and described. Before starting the evaluation, a CRM strategy needs to be defined as this forms the basis for the evaluation. In addition, an organizational framework needs to be established, including the definition of the project team, a possible timeframe, the aim of the project and the following objectives, as well as the available project budget for each phase.

Figure 2: CRM implementation method

During the *Demand Analysis*, the conceptual framework is established by determining the main functional processes, system requirements and the underlying IT landscape, including interfaces that are dependent on the 'as-is' situation as well as the future strategic orientation. All relevant interest groups should be involved throughout this phase. The defined scope specifies high level requirements for the vendor selection. This list may include CRM modules from existing ERP solutions, CRM or industry specific software. Due to constant changes in the market, a detailed search for currently available solutions is required.

In the *Detailed Requirement Specification* phase target processes need to be specified to derive mandatory functional criteria. The outcome helps to narrow the list of potential vendors down to a maximum of 4-6 candidates (referred to as 'short list'). In addition, the proposed evaluation techniques (Chapter 4.3) can be informed and filled with the estimation metrics. A project summary and company specific use cases for demonstration purposes, as well as required costing factors, then are transmitted to the selected vendors. A criteria catalogue and a feedback

form are developed for internal use during pre-project sessions with potential vendors.

To facilitate the *Vendor Presentations*, workshops are scheduled, aimed at obtaining a deeper insight on the degree of scope coverage. The vendors should be obliged to present their individual solution for the pre-defined use cases during the sessions. Furthermore, functional and system requirements mandatory for vendor specific solutions should be discussed and fixed. As each involved party fills out a feedback form afterwards, a sense on the individual look and feel of the proposed software solution can be created. Subsequently, all material can be analyzed to evaluate and prioritize each vendor.

Finally, in the *Decision* phase, the results can be summarized and documented before the presentation to the involved interest groups. By this approach, the decision for a specific solution can be justified and demonstrated before the vendor negotiation begins.

The following CRM implementation starts a new project cycle and is therefore excluded from a detailed description in this approach.

4.2 Criteria

"The criteria by which a system should be judged must reflect the nature and the purposes of that system." (Farbey et al. 1992, p. 116) Evaluation criteria cannot exclusively focus on functional requirements, although these are a critical element. Costs and quality criteria are two further areas that need to be considered. All three areas can be split up in further topics with sub-categories.

The contents of a full *quality* concept are covered by ISO/IEC 9126-1 which may be used as a framework. It covers the reliability, usability, maintainability, portability, performance (efficiency), and security of the identified criteria. Additionally, we recommend considering data integration, resources, timeliness, popularity, as well as training and support.

An assessment of *costs* needs to cover all related expenses. Besides costs for the system itself which include hardware and software components, preparation, installation; upgrade and maintenance costs should be considered as all of them vary depending on the vendor and the software product. Human labor costs comprise not only external consulting fees, but must also include an approximation of internal resources. Training and support costs need to account for charges from the vendor as well as the internal efforts. In most cases, the provided training materials needs to be individually adjusted according to company specific changes made.

The categories of the *functional* needs vary depending on the industry and culture of the individual company and can be divided into three blocks:

- operative CRM, which comprises all processes and functions regarding the day-to-day business;
- analytical CRM, which systematically analyzes customer and customer-related information; and

- communicative CRM, which controls, supports and synchronizes each communication channel (Kemper et al. 2006, p. 172). In some cases, functional areas may be assigned to operative and communicative CRM.

Figure 3 provides a general overview on the automation of the sales force, customer service and marketing, in addition to reporting. Lead and opportunity management are summarized in the "Lead management" block. Some categories may be part of an ERP, BI, or another software solution. These were added to the current approach for reasons of completeness, as it depends on the individual CRM solution which category needs to be included.

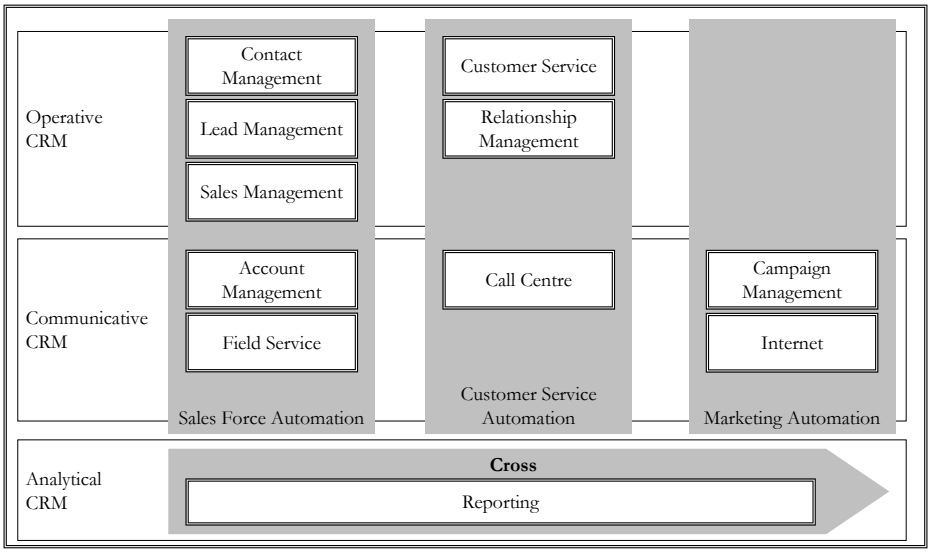

Figure 3: Categories of evaluation criteria

4.3 Evaluation Technique

The selection of a CRM package enables addressing a wide range of decision variables and therefore represents a multi-criteria decision making problem (Colombo and Francalanci 2004, p. 192). Hence, it is essential to identify the most suitable technique for the circumstances of the company specific selection of a CRM package. A number of criteria have to be designed before using a multi-criteria method (Renkema and Berghout 1997, p. 3). The selection of these is of paramount importance as the results of scoring and ranking models highly depends on the assignment of criteria weights (Marchewka and Keil 1995, p. 7).

A framework of criteria has been defined for the selection of a CRM package in section 4.2, with each criterion representing a different level of the problem (Saaty 1990, p. 9). Based on the literature search we recommend the AHP as the

technique of first choice to evaluate a CRM package. The "AHP is about breaking a problem down and then aggregating the solutions of all the sub-problems into a conclusion" (Saaty 1994, p. 21) which seems to be the most suitable and applicable technique in the given circumstances. To incorporate the costing side aiming for an optimal basis for decision-making, the TCO methodology should be used in addition. The TCO forms a good basis for the adjustment of sub-criterions associated with the cost-criterion due to its approach using a full cost concept.

Figure 4 provides a hierarchically ordered overview on the structure of the problem of selecting the best CRM package. In the top level the overall objective has to be identified. The second level contains the criteria determined in section 4.2, cascaded down into sub-criteria which have also been determined in the criteria-process. In the bottom level, the alternative CRM packages are represented that are selected for evaluation. Pair wise comparisons of the criteria lead to the relative importance of each criterion, with respect to the overall objective. After that step, pair wise comparisons of the alternatives with respect to a single sub-criterion have to be conducted, in order to calculate local priorities.[5] Multiplying the results of each alternative in each sub-criterion with the relative importance of the criterion leads to global priorities. Finally, the aggregation of these global priorities to one score for each alternative results in overall priorities.

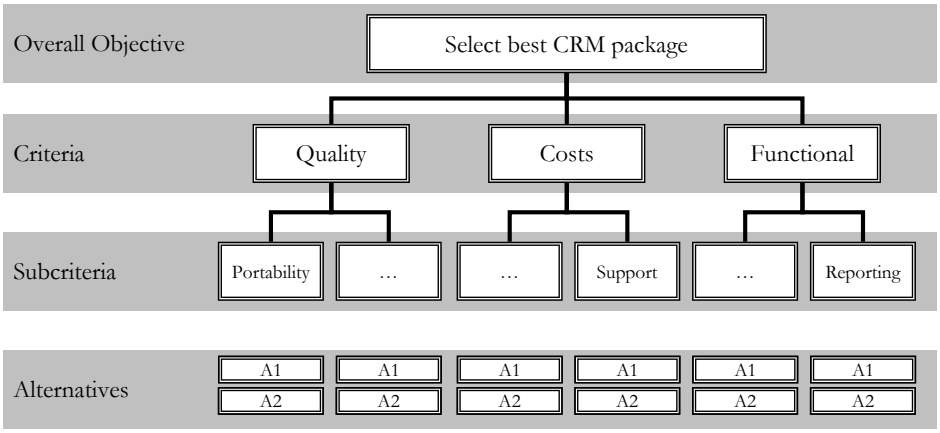

Figure 4: The Analytic Hierarchy Process (CRM package decision)

4.4 Tool

None of the identified tools covered all stages of an evaluation. The KBS introduced by Kathuria et al. (1999) offers the best fit with the proposed methodology, despite being limited to manufacturing processes only. Whether the

[5] A standardized questionnaire is required for this step, which should be filled out by decision-makers during every vendor presentation about the specific CRM product. On the basis of the questionnaires, every vendor can be quickly and reliably compared with respect to every criterion.

ESSE method by Vlahavas et al. (1999) covers CRM-specific metrics could not be assessed due to limited information given by those authors.

Due to a rather small budget compared to other IT implementations (e.g. ERP) of all other industries, no tool is recommended for CRM evaluation.

5 Discussion

The individual results of our research for individual assessment categories are not considered to be new overall. However, combining these, as well as the CRM-specific results cumulating in the *CRM Evaluation Approach* proposed in section 4, adds a new contribution to the field of CRM evaluation.

As noted in the introduction, the success rate of CRM implementations still is not satisfactory. Basic science in this field in many cases focuses on the IT evaluation, neglecting the specifics of CRM software resulting in a lack of research in the CRM evaluation area at this point. The approach illustrated in this paper is grounded and pragmatic and can be used for selecting the best CRM package according to the company-specific weighting of CRM specific criteria.

The proposed approach for CRM evaluation calls for a pre-phase giving emphasis to the idea that the CRM strategy needs to be synchronized with the overall strategy of the company as well as the IT strategy. Furthermore, the approach highlights the importance of business processes as well as human factors when determining the needs. The main part of the criteria category focuses on CRM-specific aspects. Cost and quality categories are generally relevant for IT evaluation. Still, the relative values and weighting for CRM may vary. Therefore, the selection of an evaluation technique is very important. The results of the literature search concerning the evaluation technique identified advanced techniques that exist for a long time and were used in a wide range of decision making scenarios.

The presented *CRM Evaluation Approach* should add a new facet to the existing information in the field of (successful) CRM selection. In a next step, the proposed approach has to be tested in reality, which will be documented in further work.

6 Conclusion and Outlook

This paper presents an overview on the latest research on CRM software selection for tender evaluation. It provides an impression of published papers, specifically regarding CRM evaluation, and might therefore serve as a basis for other researchers in this field.

However, some limitations remain. First of all, the search was limited to three major search portals and subsequent hand research of references. In addition, only English and German papers have been reviewed. However, it is still assumed that the selection reflects the current status of available evidence. The search used specific pre-defined search terms. By entering further alterations to these terms, it

became apparent that all relevant papers were covered. Secondly, the proposed approach has not been verified yet. Further investigation needs to be done to validate our findings. Thirdly, the approach is based on a specific CRM concept and underlying definition. Changing or altering any of the above named factors might lead to different conclusions. Lastly, as some critical points are discussed in the literature about the AHP (e.g. Chou et al. (2006), p. 1029 f.) as the evaluation technique it remains to be clarified whether any of these aspects would jeopardize the quality of results.

We propose the verification of the approach as a further course of action. This might be done either by consulting CRM experts in interviews, or by analyzing case studies to identify successful applications. In addition, it would be reasonable to search for a more detailed criteria catalogue to create sub-criteria for the CRM functional area. Furthermore, a questionnaire based on the developed framework of criteria should be designed in order to enable decision-makers to evaluate particular products of the temporally apart respective provider presentations in these categories. Information raised through such questionnaires could overcome the obstacles of the vendor presentations and enable a comparable evaluation within the scope of the AHP.

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