

IT Support for Customer Relationship Management

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1 INTRODUCTION

Since the mid 1980s marketing has no longer merely concentrated on the design of individual interactions but has also considered or even focused on the design of the entire customer relationship (cf. e.g. Dwyer and Schurr and Oh 1987; Rogers and Peppers 1994; Peter and Schneider 1994). Against the background of increasing purchaser power in saturated, transparent markets, this reorientation is obvious from today's standpoint: after all, individual transactions or interactions are normally based on a comprehensive, long-term customer (or supplier) relationship. Unlike transaction marketing, which considers the individual transactions in isolation and where the emphasis is on winning customers and selling, relationship marketing therefore concentrates on the long-term maintenance of the customer relationship, i.e. customer retention (Schulze 2000, 12-13).

Roughly since the mid 1990s Customer Relationship Management (CRM) systems have been available as configurable standard business software packages for the collection, analysis and evaluation of information to support front-office processes in marketing, sales and service. The CRM systems market ranges from 'operational' CRM software (e.g. Siebel, Vantive) for supporting the daily business (e.g. campaign management) to 'analytical' CRM software (e.g. Matlab, SPSS) for supporting decision oriented CRM subtasks like customer segmentation, customer value calculation, or churn analysis. 'Collaborative' CRM is often viewed as a third class of CRM software. But 'collaborative' functionalities like call center operations or other forms of contact management are more focused on transaction support than relationship oriented.

The first generation of CRM systems supports acquisition, sales and/or service processes by collecting, integrating, analyzing and evaluating customer-oriented transaction or contact information. The transaction orientation of these systems becomes evident by the large amount of data that have to be exchanged with other transaction oriented information systems (e.g. accounting information system, product data management system, materials management system). As a consequence, Sinha (2001) considers integration problems to be the most important cause for the failure of CRM projects. More recently, vendors of integrated enterprise resource management software like SAP or Peoplesoft address the integration problem by offering CRM modules as (more or less) integral components of their respective software frameworks.

Companies have therefore to choose between

- a specific, standardized CRM software package that might be hard to integrate with the surrounding operational information systems and
- an integrated CRM module within a vendor's software framework that might not provide sufficiently specific support for CRM.

For large companies, a third alternative could be the development of individual software for CRM: Many large service companies have decided to go with this costly model after failing to successfully introduce standardized CRM software packages.

The decision problem of choosing between specific standardized packages, modules within a general software framework and individually developed solutions has been observed many times before (e.g. product configuration, workflow management, electronic commerce). Methodological support for this type of decisions should also be applicable to the CRM domain.

2 WHY DID SO MANY CRM PROJECTS FAIL?

Even more critical than the choice between different software options is the development of sound conceptual foundations for CRM: "Organisations need to understand the theoretical and practical implications of the business perspective of CRM before embarking upon a CRM system project. [...] To be successful, CRM projects need to be viewed as more than the implementation of IT" (Light 2001, 1239).

The explication of a consistent relationship strategy by senior management,

- the transformation of traditional, product oriented ('stovepipe') processes into cross-product, customer oriented processes, and
- the transition from a transaction based understanding of customer relationships towards a product and transaction independent view

have been identified as being major conceptual challenges in this field (Peppard 2000; Sinha 2001; Seeger 2001; Winter 2002).

The German Computerwoche magazine (2001) reports CRM project failure rates between 65% and 80%. Such extraordinary high failure rates – even for large and therefore failure prone IT projects – can not be explained alone by a difficult business case, complex organizational embedding, bad manageability of large IT projects in general or even inadequacies of the deployed standard software package; Due to their cross-product and cross-transaction nature, the conceptual foundations for CRM are challenging most organizations' ability and willingness for change. E.g. 'customer ownership' may require an organizational setup that is incompatible with the actual division of responsibilities (and powers) in a large, decentralized organization; Or meaningful 'customer value' concepts can only be developed if not only the organizational unit that runs the respective CRM project is involved.

Failed CRM projects create significant damage: In Germany, average CRM project budgets range from 0.5 to 2.5 million Euro (0.6 - 2.8 million US Dollars, Meta Group 1999, 85), in the US the average budget is 3 million Dollars (Cap Gemini 2001). Despite the recession, the CRM market is expected to have grown 25 - 30 percent in 2002 and will have grown 60 - 80 percent by 2004 (Computerwoche 2002a, 2002b).

Being an IS related issue with this growth – and damage – potential, CRM should be addressed by IS research. The general problem setup is not new: In the 1980ies and early 1990ies, early integrated software packages for supporting operative business processes (e.g. SAP R/2 and later SAP R/3) were available, and companies were facing similar conceptual challenges: Product, customer and part numbers had to be harmonized (maybe even across country organizations), business processes and workflows had to be specified and harmonized, access and role concepts had to be specified, etc. After some time, companies as well as software package vendors learned that successful implementations require accepted reference processes and proven, comprehensive implementation methodologies / tools (e.g. Accelerated SAP) to be made available to the project teams. Particularly the IS research community in the German-speaking countries – where SAP's growth began – developed application ar-

chitectures and process models (e.g. ARIS; event-driven process chains) that significantly supported the introduction of standardized software package in companies.

3 REQUIREMENTS FOR A CONCEPTUAL CRM FOUNDATION

As stated in the introduction, conceptual foundations of CRM should not focus on transactions, e.g. customer acquisition processes, sales processes or service processes. Instead, relationship orientation means – partially conflicting with transaction orientation (Heinrich 2002) – to focus on processes like customer behavior modeling, event detection, customer segmentation, and on permanent profitability control for customer relationships, distribution channels, products, and contact points (cf. Swift 2001, Heinrich 2002, Winter 2002).

In addition to reference processes, reference information models are needed to represent customer clusters, life events, life cycles and relationships between transactions, contacts and sales activities.

With an increasing maturity of IT support for CRM processes, it can be expected that variants of reference processes and variants of reference information models will become available for specific scenarios (e.g. retail business, mass customization, engineer to order). In contrast to ‘industry solutions’ that are available in the enterprise resource management systems market, specific CRM solutions will be oriented much more on interaction intensity and the extent of product standardization than on traditional ‘industry’ structure. E.g., retail banking, the retail insurance business, and the utilities’ retail business are much more similar with regard to CRM than retail and private banking business units in banking.

Recent case studies show that method development should differentiate between the specification of conceptual CRM foundations, the transformation of organizations towards relationship orientation and the introduction of standardized CRM software packages (Rowohl 2003). Furthermore, it is considered to be necessary to analyze whether established methodology support for (financial) project justification needs to be adapted in order to reflect the typically enormous infrastructure costs of CRM systems in the light of mostly decentralized ‘user’ organizations and fragmentary or non-quantitative CRM system benefits (e.g. 15 minute time savings per sales rep per day).

4 PRELIMINARY RESULTS

Our proposal for a basic set of conceptual foundations of CRM systems is based on the business engineering framework (cf. e.g. Winter 2001). This framework has often been successfully applied for structuring IT support in a wide range of business areas. It comprises four architecture levels and implies the following procedural model:

- At the **strategy level** it is necessary to specify from a business perspective how customer relationships are to be designed on principle and what role will be assigned to them in the respective business model (the ‘what’ of business modeling).
- At the **process level** – again from the business standpoint – it is necessary to specify which activities and which performance indicators can be used to plan, organize and control the target customer relationships outlined in the previous step (the ‘how’ of business modeling).
- At the **application level** the components of the information system are specified from a business perspective, i.e. the CRM processes identified at the process level must be transformed into a meaningful information application structure. If a CRM system already exists in the form of a standardized software package, it must be configured so that CRM processes are supported as far as possible without overlaps and gaps with regard to responsibility, data ownership, etc.
- Finally, at the **software level** the application specifications from a business perspective have to be transformed into suitable software module / component specifications. The primary focus here is no longer an overall architecture without overlaps and gaps, but an optimal level of software reuse and integration. If CRM software modules or components already exist in the form of standardized business software they must – where necessary – be integrated with other software modules and components as consistently as possible.

4.1 Strategy Level

The strategy specification specifies amongst others the core services (in respect of the supported customer processes), the type of sales contacts, the sales policy, the price policy, the brand concept as well as targeted purchaser and customer groups (Heinrich and Winter 2003). By these specifications, fundamental foundations for the CRM strategy are already created. Within these boundaries it is now necessary to specify ‘what’ the relationship management should produce. First of all, the transaction-oriented information available at both the contract

and product levels must be integrated not just at the level of customer relationships but beyond this to the level of customer clusters. A customer cluster is defined as a set of customer relationships which are to be maintained jointly because interactions with one of the customer relationships affects the other customer relationships due to ownership structure, family structures, partnerships and the like. For example, the retail customer relationship with a small or medium-sized businessman must be linked with the business customer relationship of the respective company, and the retail customer relationship of a student or prospective heir must be linked with the private banking relationship of a wealthy parent or relative.

Once an integrated, overall picture of the customer clusters has been created they can then be evaluated. The 'value' of a customer cluster in the sense of a 'lifetime value' can be derived for example as the net present value of the predicted transaction contribution margins over the predicted residual lifetime of the customer relationships contained in the cluster. It is frequently the case that the long-term analysis reverses the traditional customer relationship evaluation: for students, individual customers and wealthy senior citizens, for example, a lifetime evaluation produces completely different results to a short-term analysis.

If the values of the customer clusters are known, their distribution can be used to form segments. Appropriate measures can then be assigned to these segments if the predicted profits from the measures for the specific segment do not exceed the predicted costs of the measures for the specific segment.

For each segment an analysis is now performed in which costs and profits are forecast for various standard measures (e.g. ending the relationship, up-selling, individualizing the offering). At some point in time break-even will be achieved for every measure in every segment as a result of decreasing average measure costs per customer cluster reached and the (at the least) constant average measure returns per customer cluster reached. However, the difference in segment sizes together with the segment curves will determine whether the respective measure can actually be put to meaningful use in the segment considered.

The combination of measures identified as promising success leads to 'standard' strategies for the respective segment. On this basis it is quite possible for different strategies to be derived in different companies for similarly defined segments as the number of customer clusters per segment as well as the cost and profit curves will be specific to the company.

4.2 Process Level

At the process level the results of the strategy level defining the ‘what’ must be specified so that their implementation can be structured, organized and managed.

The main processes of CRM are repeatedly stated as being marketing, sales and service (cf. e.g. Schulze 2000, 18-19). Nonetheless, a clear assignment of these processes to basic CRM processes is not possible. Thus, campaign management, for example, can be assigned to both marketing and sales as campaigns can develop new markets as well as addressing existing customers, e.g. for cross-selling.

We start with distinguishing between management, business and support processes in relationship management at the top level of abstraction. Zellner (2003) identified ‘evaluate customer relations’ and ‘select customer relations’ as most important classes of support processes. In the same study, ‘manage relationship design instruments’ and ‘evaluate & select relationship design instruments’ are identified as the most important management process classes. By applying basic process identification patterns to customer relationships, Zellner (2003) identifies ‘create’, ‘maintain’, ‘destroy’, ‘communicate’ and ‘modify’ as basic business process classes dealing with relationship design instruments.

Although being completely specified for selected customer segments and relationship design instruments by Zellner (2003), it is obvious that these generalized process classes need to be adapted to actual business models in order to create a conceptual foundation for CRM systems configuration. As a result of various workshops with executives from several large service companies, the following CRM process structure for retail banking has been compiled:

- **Management processes:** Define relationship strategy according to customer types, relationship owners and relationship tools; manage business processes in line with goals defined in the CRM strategy
- **Business processes:** Operational relationship management (in the sense of handling active and passive customer contacts); complaints management (in the sense of a process of learning from complaints)
- **Support processes:** Integrate transaction and contact information; develop and update behavior models (e.g. ‘churn management’); uncover events (‘event detection’), identify and update segments; identify activities which promise success (‘lead generation’), meas-

ure the profitability of customer clusters; measure the profitability of products, channels and contact points; carry out campaigns

In contrast to Zellner's more rigorous approach, the above CRM process structure reflects a pragmatic yet relationship-oriented approach. Despite the fact that some of these processes are specified in many CRM projects, as yet no reference processes have been published that do not mix relationship- and transaction-oriented design.

Alongside reference processes in the narrower sense, there are also conceptual information models for the representation of customer clusters, life events, contact and transaction life cycles as well as correlations between transactions, contacts and promising activities to be specified at the process level. In addition to published, straightforward customer life phase models (e.g. Swift 2000), reports on complex, sophisticated behavior models are to be found (e.g. Williams 2000) which, however, were also developed as individual solutions and have yet to be standardized.

On the basis of relationship-oriented CRM processes and information models it is then possible to perform a systematic assignment of standardized software package components and data structures to activities and information objects. IS architectures and procedural models already exist for this purpose and appear to be sufficiently general to allow their application for CRM.

5 SUMMARY AND OUTLOOK

This article attempted to analyze the problems involved in developing a 'pure' relationship-oriented rather than a traditional, transaction-oriented specification for CRM. Alongside the general business engineering framework, the basis of these considerations was also the analysis of CRM system architectures and CRM implementation methods. At the strategy level, a methodology was outlined to determine segment-specific 'standard' strategies for CRM. The discussion on CRM processes and models (e.g. behavior or information models) made it clear that the respective generalization efforts are only at the beginning. This applies in particular for the representation of customer clusters, life events, contact and transaction life cycles as well as correlations between transactions, contacts and promising sales activities. The absence of a standardized method for measuring the profitability of CRM measures also prevents a better safeguard for CRM introduction projects and continuous CRM operation.

There is nonetheless still the general problem that networked business architectures and the increasing virtualization of value networks are calling the holistic approach to relationship management into question not only from the organizational point of view but also in legal terms. An apt description of the problem on the organizational side is the question ‘who owns the customer?’ to which there are unfortunately no simple answers in a value network. In legal terms the required high level of integration of transaction and relationship information across company boundaries is virtually impossible.

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