Focusing the Customer: A Critical Approach Towards Design and Use of Data Warehousing in Corporate CRM

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Abstract: For many large scale companies, especially those operating in future deregulation markets, Customer Relationship Management (CRM) is becoming an increasingly important business success factor. After a short introduction to issues in Customer Relationship Management, this paper highlights facets and experiences from a CRM project, describes our view of the role of Data Warehousing for CRM purposes and takes a critical position concerning the roles which technology vs. design, implementation and use play in applying a CRM philosophy in corporate business. We will thereby focus on the Data Warehousing-related analytical part of CRM, although the experiences we are going to present are not limited to this field.

Keywords: CRM, design methods, integration, management, project experience

Introduction

Deutsche Post World Net with its four brands Deutsche Post, DHL, Danzas and Postbank is one of the largest, high-performing logistics companies in the world. Over 300,000 employees generated a revenue of Euro 33.4 bn in 2001. The group offers comprehensive solutions for national and international customers. These include worldwide mail, parcel, express and logistics services, innovative eBusiness solutions and a broad range of financial services [DPWN 2002]. It is DPWN's strategy to extend and retain its position as a leader in logistics in both size and quality. All corporate divisions hold potential for growth and increasing their value, leveraging this potential requires a joint effort between the divisions.

The Deutsche Post MAIL division is one of the mainstays of the DPWN, and currently preparing for competition in its former monopoly markets in Germany, which is expected to increase due to EU deregulation within the next five years [FEDMA 2002]. Therefore, it pursues a customer and industry oriented sales strategy, which involves an account-oriented customer service aiming at a closer customer relationship.

For the DPWN group, especially for its MAIL division, Customer Relationship Management (CRM) is becoming a fundamental business philosophy and an important factor for its future success. The key for a successful CRM approach is a group-wide cooperation, based on an open exchange of customer related data between all divisions. Implementing such a CRM approach in both organization and software is, due to its heterogeneity and the resulting complexity, a bold venture, as our experience report shows.

For a better understanding of the scope of this paper, we want to make clear at this point that unlike most of its antecedents in this workshop series, it is not directed towards technical issues regarding Data Warehousing solutions. While the role of technology will still remain important (since it builds the foundation for any computer based system supporting businesses), there are additional, probably more "soft" issues that need coverage too, which will have to be regarded by anyone being responsible for a Data Warehouse project. These people will need a more holistic view of building a Data Warehouse solution.
Our claim thereby is not to be able to "solve the problem". What we are aiming at is to initiate discussion on the topic, and probably get some feedback from other researchers and practitioners in the field dealing with the same problems, but from different points of view.

Developments in Customer Relationship Management

This section is provided to show points of contact between current CRM and Data Warehouse approaches, and to give a short introduction to CRM's underlying business logic.
As a basic definition, CRM involves building a relationship with your customers and prospects by understanding their needs and responding with products and services through multiple channels. CRM will thereby enable a targeted, ongoing, mutually beneficial, profitable relationship with individuals and groups. Simple as this may sound, reaching this goal is getting increasingly complex in large scale, mass customer environments. Most companies' CRM approaches are therefore characterised by understanding CRM as a long-term business strategy, focusing on individual customer demand, aligned to a customer's value, allowing for segmentation and analysis of customer needs, preferences and behavior, and being based on an organization-wide database. Accordingly, the key problems to be solved within such a CRM approach are:

- Differentiation of customers, assuming that customers are not equal; thereby recognizing and caring for customers on an individual basis,

- Differentiation of offerings, mostly based on marketing trends like personalization, mass customisation, or one-to-one marketing [Peppers and Rogers 1993],

- Focus on keeping existing customers – assuming it is 5 to 10 times cheaper to retain current customers than acquire new ones,

- Maximizing customer lifetime value (CLTV) by exploiting customers' up-selling and cross-selling potential, and

- Increasing customer loyalty (expecting loyal customers to be more profitable due to decreasing marketing and sales costs).

Addressing these typical CRM problem areas, three main solution areas have developed, which can be identified in CRM-literature and products today [Schwede 2000]:

- Operational Customer Relationship Management: Sales Force Automation (SFA), Marketing Automation, Call Center/Customer Interaction Center, which are primarily concerned with process automation [Keillor et al. 1997],

- Collaborative Customer Relationship Management: use of different communication channels (eMail, Fax, e-Commerce, Computer Telephony Integration) for direct interaction between customer and corporation (commonly oriented at the corresponding communication channels); this field mainly tries to integrate data from the different channels [Schwartz and Bliedung 2001], and

- Analytical Customer Relationship Management: Data Warehouse, Data Mining, used to serve the purpose of supporting selection for acquisition, cross-sales, and retention of (real or potential) customers [Inmon 1992, 1996].

Design and Management of CRM at DPWN: A Project Summary

DPWN's MAIL division initiated CRM efforts towards their customers over six years ago, when a pilot project with some 30 users in the MAIL sales division was initiated using a customized standard software package (COVIS®). Since then, the whole system grew up to over 1400 users today, currently we are planning on extension for its use in a more cross-divisional approach.
Soon after the first users started entering data, analytical CRM was only a step away. This was still in 1996, and DPWN started implementing an analytical database using Data Warehouse and Online Analytical Processing (OLAP) technology. The main problem areas in implementation and use of these systems were mostly not technically oriented:

- *Number of stakeholders and people affected:* As the systems of this size grow up, issues like organizational change or fluctuation in a project team can become a major obstacle to project deliverables. Many data stores to be integrated in a Data Warehouse mean many meetings to be held, many people to talk to, and many organizational problems to be overcome before any action can be taken.

- *Many data sources:* Several views being maintained throughout the corporation, „the customer" is not as easy to grasp as it may sound first. Due to not only various numbering systems, but also different semantic classifications of customer data, their comprehension and exchange becomes quite difficult. (as a simple example, the MAIL and EXPRESS divisions use a common numbering scheme provided by their SAP systems, while other sales divisions like press or banking maintain their own numbering schemes).

- *Different ways of doing business:* working on the dynamic aspects of a customer, things get even more difficult. People in different divisions regard action taken on their customers in very different ways, leading not only to data conversion problems when designing interfaces. Since there are no interface definitions which can be put into people's heads, a common understanding of the relation of the action being taken to the data acquired has to be built.

- *Diversification and acquisitions:* Due to diversification and several acquisitions in the group the system landscape has become very heterogeneous. But this is the smaller problem: Cultural diversity makes up the larger part of the heap when trying to achieve communication between the different divisions, especially when no face-to-face-communication, but just computer based information systems (IS) are involved.

- *Different possible views on (actually the same) customer data:* Due to different focuses of different sales divisions as well as from within one division (e.g. key account managers vs. call center agents), the ever-changing business prohibits a „one-and-only“, unified view on the customer by itself. Since the customers can themselves be corporations with complex decision structures, it gets difficult to decide who cares about whom when talking about such an apparently simple construct as „a customer“.

Many of the problems being faced could, at first glance, easily be classified as solvable by technical means and thus be approached by adopting new technological developments. The list of approaches used in many of DPWN's information systems projects resembles one which would be referred to as computing industry's "best practice". However, in spite of several Enterprise Application Integration (EAI) approaches [Linthicum 2000], the application of reference databases for so-called "semantic" integration, and the increasing use of standards (XML-based exchange formats etc.), several problems do not seem to be apt to such a "simple" solution. After experiencing that many of the approaches described above still cannot be regarded a panacea to the problems we faced, it becomes clear that there must be something else which makes the development of IS for a business purpose that difficult, and has to be addressed in appropriate – and probably quite different – ways.

Conclusions

Though we are sure that there will remain many questions left open, we think it is time for some reflection on several issues we regard relevant for IS theory and project practice, and which we hope to be discussed further in IS research:

- The primary motivation for applying DW technology in most CRM approaches or projects is grounded in the variety of quantitative features a customer can be attributed to and valuated upon. It must be noted, however, that successful CRM is not a matter of this valuation, but on the *actions* taken based hereon. These actions are normally taken by humans, and the perceived valuation is with the customer, again a (subjectively perceiving) human.

- There is no such thing as a "unified view of the customer". Even if you can read this at every corner on the web or in any sales folder for CRM systems, experience shows that like every customer wants to be treated individually, also every potential user has a different perception of the "real world", so you have as many views on your customers as you have people communicating with him. No matter what epistemological position someone has adopted, it should just be clear that it is important to take care of that fact when designing CRM or information systems supporting it.

- For CRM, there is no so-called "standard solution" – this is not a matter of individuality, but of your company-specific processes (since people at work know best how to do their own job). Reference models and processes will work well in environments that can be fully described by rules or something like an algorithm – in such a case, the algorithm may serve as an appropriate model of the environment. For CRM applications, due to the individuality of all the people involved and the resulting specificity of each interaction, this approach will never work – there is no reference model of a human. If there was, the whole approach of

CRM could be regarded obsolete, which was invented *because* customer interaction is a singular, individual process every time.

- As a consequence of the above statements, and for any approach to succeed, a holistic view of all the initiatives taken for interaction between a corporation and its customer base is necessary.

Although several new technological solutions have been developed, there is still no "general problem solver" for Data Warehousing in CRM (and with [Rudra and Yeo 2000], and we should not expect this for quite some years, if ever, to come) – on the contrary, like in most other fields, not much has changed since the software crisis [Shore 1988], and many of the projects being conducted in the CRM field still fail. To overcome this situation, we think work needs to be done on the foundations of the development of information systems, which we still consider to be somewhat lacking when regarding current IS literature.
In the application of our findings in literature research to our own practical work we found that while Participatory Systems Analysis [Frank and Gronau 1999] already leads to improved results, it is in some aspects still too restricted to build communities of practice [Wenger 1998, Wyssusek et al. 2002] from the ground up. Promising approaches can be found in Participatory Systems Development [Kuhn et al. 1992], Professional Systems Development [Mathiassen et al. 1990], Rapid Prototyping [Zelkowitz 1982], and Extreme Programming [Beck 2000], the latter being restricted by definition to software development in small teams. In our opinion, the following issues will be important with regard to these approaches:

- Iterations during the development cycles are of vital importance. These being too long, no user will remember the initial problem setting when first using the prototype. Being too short, no one will see a use in working with it (this is one of many trade-offs).

- Since in our opinion all content of any system is what its users make of it (i.e. sensemaking), the system's acceptance is more a question of enculturation than of mere technology. Users have to be trained, a consensus about the results to be achieved using a system has to be developed. "Design" of a CRM Data Warehouse consists mainly of selecting and commonly agreeing on appropriate content to satisfy the interests of the users, while "Management" of a CRM system has to be understood as bringing together different people with diverse interests and goals, building a community and the (best possible) consensus concerning the issues to be solved by the system.

- The embedding of a project in its organizational context is important for ensuring the acceptance of the users. Since computer-based information systems become part of the context, they are likely to change the work environment in which they are applied, in a way that also very likely no one foresaw when initially designing the system.

- Finally, semiotics is playing a role regarding the relationship between reality and its symbolic representations (in IS as well as in people's heads), as we see that these are more likely to be a subjective matter than an objective one, which in any case yields major consequences for the design and use of IS [Liu 2000, Stamper 2000].

Based on our outline of experiences with a practical implementation of a Data Warehouse within a Customer Relationship Management project, we have discussed several issues which we argue will need more attention in the systems development process. Drawing on literature and applying our findings to work practice, we found that besides technology there are several organizational and cultural topics important paying regard to, and assert to these a need for further exploration.

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