CUSTOMER RELATIONSHIP MANAGEMENT: Business Strategy, Software Solutions and Applications

Rezime: Rukovođenje orijentisano na kupca (CRM) je poslovna strategija koja se fokusira na pojedinačnog kupca sa namerom da se izgradi dugotrajna profitabilna veza koja ostvartit zavodljivo kod kupca kao i njegov lojalnost. Ovaj rad opisuje proces rukovođenja orijentisanog na kupca i informacione tehnologije koje pomažu ovaj proces u preduzećima. Mi smo podelili CRM softversko rešenje na operativno CRM rešenje, analitičko CRM rešenje i alat za optimizaciju poslovnog procesa. Na kraju upoznačemo va sa dva CRM proizvoda Instituta Mihajlo Pupin: ITS – sistem za praćenje investicija i RTS sistem za praćenje zahteva.

Ključne reči: menadžment, biznis strategija, kupac, informaciona tehnologija

Summary: Customer Relationship Management (CRM) is a business strategy that focuses on individual customer with the aim to build long lasting profitable relationship and to achieve customer satisfaction and customer loyalty. This paper describes the CRM process and information technologies that support this process in enterprises. We divided the CRM software solutions into operational CRM solutions, analytical CRM solutions and tools for business process optimization. At the end we introduce two Mihajlo Pupin Institute CRM products: ITS – Investor tracking system and RTS – Request tracking system.

Keywords: management, business strategy, costomer, information technology

1. INTRODUCTION

Urged from the need to ensure competitiveness on market, companies nowadays search for and introduce new business strategies and information technologies that improve efficiency and effectiveness of

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business processes and decision support. According to Balanced Scorecards Methodology [9], a well established methodology for measuring enterprise performance, customers and position on market along with internal processes, financial results and organizational learning and growth are main indicators for company success. Thorough studies of customer’s profitability have shown that (1) it is five to ten times more expensive to acquire a new customer than to sell a product to a loyal customer; and (2) only 20% of customers generate 80% of profit. Therefore, one of the main business activities in companies is establishment of organizational culture and information infrastructure for efficient management of profitable customers.

Customer Relationship Management (CRM) is a business strategy that focuses on individual customer with the aim to build long lasting profitable relationship and to achieve customer satisfaction and customer loyalty. CRM is a process of learning the customer attitudes and preferences and according to that customizing the products and services to best suit their needs. Successful implementation of the process requires tight integration of the front end activities (marketing, sales and service activities) with the back end activities, such as monitoring, planning and decision support. Information infrastructure that enable the process is build of operational CRM solutions (business contact management tools, sales automation tools, direct marketing tools), analytical CRM solutions (data mining algorithms, information warehouse, on-line analytical processing technologies), as well as tools for business process optimization.

The objectives of this article are to define the customer relationship management process, overview the main features of commercial available CRM tools, and to discuss the Mihajlo Pupin Institute CRM offer. Topics are presented in Section 2, Section 3 and Section 4 consequently.

2. CRM PROCESS

Customer relationship is based on a cycle of contacts that customer has with company (see Figure 1, Copyright © SAS Institute). A cycle starts when a potential customer express his interest in company offer by browsing its WEB presentation, or contacting the company’s representatives by phone, e-mail or personally. Just a small number of initial contacts develop in sales activity. Depends on the type of product or service, sales process could last many days or months, or even years. When a sales activity concludes with a sale, the potential customer became a customer. With the time, through communication with the company and by using the company’s products, the customer gains an impression about the company. This relationship could develop in two directions. If the customer is satisfied with the company offer, he continues to buy the same product or extend his necessities to other products and became a loyal customer. Otherwise, he will be a lost customer.
Often the marketing, sales and client service activities in enterprises are not aligned to serve the customer's needs, but rather are organized around products. As a result, the profitability analysis is based on profitability of individual products instead of profitability of customers. The objectives of customer relationship management strategy are to transform the existing product oriented processes to client oriented processes and to optimize the client process defined above. This is possible with transparent and coordinated activities of all departments.

Marketing's role is to generate demand. On one side, that means reaching potential customers to make them aware of the company's products and services, following up with requested information, and turning over qualified leads to the sales department. On the other side, marketing analyst do an extensive market research, customer segmentation, preference analysis, campaign effectiveness analysis, retention analysis, etc. The job of sales is to convert qualified leads into revenue. Effective selling methodologies rely on structured processes with multiple steps and milestones involving many different points of contact. Thus, CRM software must allow total visibility of the customer's history and provide an opportunity management system capable of organizing and tracking the processes. Also, CRM software should perform sales performance analysis and profitability analysis. Closing the sale is just the beginning of the customer relationship. Customer satisfaction and loyalty are
largely determined by the responsiveness of customer service and support. Therefore, first line support agents should be online connected with a comprehensive knowledgebase that enable quick and effective resolution of common requests.

The role of management is to focus on big picture of the process, analyze the existing process and introduce strategy that will reward the best clients to improve loyalty, re-activate dormant clients, increase share of client spend by cross sale, reduce the cost of acquisition, marketing and serving low value clients, increasing contact with occasional clients, etc.

3. MAIN FEATURES OF COMMERCIAL CRM TOOLS

We have divided the CRM market into: (1) operational CRM solutions that automate the everyday customer activities, (2) analytical CRM solutions that perform deeper analysis of customer behavior and are used for building customer strategy, planning further activities and decision support, and (3) tools for business process optimization that monitor the customer process and are used in process re-design and optimization. Key players on market for operational CRM solutions are the following software providers: IBM, ORACLE, SAP, Siebel, PeopleSoft for large systems and Front Range Solutions, Chordiant, E-piphany and others for midmarket and small systems. Best analytical CRM solutions are provided by SAS, IBM, SPSS, Cognos, Business Objects and others. Business process optimization market prevail Ultimus, Staffware and QPR. Often in practice, CRM process is based on integration of tools from different providers. On Figure 2 (Copyright © Cognos, [1]) Siebel operational CRM solution is integrated with Cognos CRM analysis and reporting tools. In the following subsections we present main features of commercially available CRM tools.
Operational CRM

Front end activities are: communication with the customers via telephone, fax, WEB, completing customer’s requests for financial transaction, servicing activities such as distributing goods to customers, etc. We will refer to these activities as operational and software tools that support them operational CRM tools. Operational CRM tools include: business contact management (BCM) systems, sales force automation systems (SFA), answering machines, call centers, knowledge portals, e-marketing applications, bank automates, etc. BCM tools enable auto-dialing, order entry, scheduling callbacks and other follow-up activities (meetings, e-mails, and other messages), insight in client history, etc. SFA tools enable complete pipeline management, tracking the sales process for individual account, reporting on financial results and forecasting the future sales. Marketing automation tools facilitate leads generation and tracking, preparation of marketing information; execution of marketing campaigns, etc. Call centers and self-service knowledge portals, from one side, help the customers to easier find the needed information, and from the other side, help the technical staff to complete the customer's requests promptly.

Operational CRM systems generate a vast amount of data that usually reside on different locations (platforms), in different formats and data/business models. In that way, there are islands of data in enterprises and reporting from these sources could give misleading information. In order to get a complete view of the customer the data sources have to be integrated in a form of information warehouse. Information warehouses open possibilities for extensive research of customer business behaviors. Hence, with time, analytical CRM techniques appear on market that are nowadays essential part of CRM solutions.

Analytical CRM

Analytical CRM aims to monitor the ways clients do business, understand the client's needs and preferences, predict the clients future behavior, identify the most prospective customers, analyze the marketing and sales activities and direct the future actions. Analytical CRM process is composed of two sub processes: (1) process of transformation of customer data into valuable customer information that is stored in data or information warehouse, and (3) process of analysis of customer data.

Data warehousing tools that support data warehousing process include:

- Tools for data transformation (data extraction from transactional systems, data cleaning, data integration and processing and data loading in format suitable for further analysis).
- Administration tools (defining metadata, automation and scheduling processes) and security system
- Reporting tools that comprise OLAP tools, too.
OLAP stands for on-line analytical processing and enable multidimensional view of customer data. Using drill-down action the data could be analyzed from summary level to most detailed levels. Levels and dimensions are defined to best suit the analysis and reporting purposes. Multidimensional cubes that are built on time data are used for analysis of trends. For example, sales activities are analyzed through time across geographical and organizational hierarchy dimension.

"Data mining" is a process of analysis of large quantity of data with the aim to uncover hidden patterns and rules of customer behavior. Depending on the analysis problem, used techniques and quality of input data, a specific business model is built that either explains, categorize or forecast. By incorporating the business model back into operational applications, decision making process could be automated. Sales and marketing applications of data mining are: credit scoring, campaign analysis, customer segmentation and profiling, profitability analysis, analysis of communication channels, identification of loyal customers, estimating the customer lifetime value, insurance risk, claim, and fraud analysis, etc. Core technologies for data mining are statistics, time series analysis methods and forecasting algorithms, rule based systems, neural networking, machine learning, artificial intelligence, etc.

Business process management tools

Enterprises have realized that business processes together with customer potential, product market, knowledge and skills of employees are valuable intangible asset of the company. The objectives of business process management (BPM) are to identify the business processes on corporate level, integrate, automate and optimize them where ever is that possible. Optimization of client processes improves business performance by reducing costs and enhancing customer satisfaction. Nowadays optimization of business processes is considered as a precondition for business success.

As was presented in previous section, client processes are spread across many departments. As first the client interests are registered in marketing department, sale transaction is carried out in financial department, product is delivered by transportation personal, further client requests are served in call center and technical support group, etc. Some transactions could be executed automatically (for example buying goods by Internet or searching the company’s knowledge portal), but some steps require presence of company representative. Sometimes these activities are carried out by different persons by using different software applications that reside on different platforms. BPM software tools provide the ability to define and build a model of best practice, integrate and automate the individual activities in standardized customer process. Process automation takes care of routine activities such as call scheduling or information fulfillment, and lets account representatives focus on substantial issues.

BPM tools use statistical modeling techniques to analyze the process behavior under various scenarios modeling real business conditions. Analysis of the
modeled process leads to a better understanding the business operations, critical flaws in the current operational conditions, ways of optimizing them, and an assessment of the resources required to ensure performance consistent with expectations. Results from these analytical activities have often resulted in 50 to 80% improvement in operational efficiency and process improvement [4,5]. BPM tools ensure optimal utilization of resources and improved business performance.

4. MIHAJLO PUPIN INSTITUTE CRM PRODUCTS

Mihajlo Pupin Institute started research in the field of customer relationship management two years ago as part of the research of knowledge management solutions on market. Knowledge management as management discipline is most often defined as a process of creating value from the intangible assets of the company. From that viewpoint, customer relationship management systems generate new knowledge about customers. In parallel with the research, a business contact management product (ITS – Investor tracking system) and a prototype application for tracking customer requests (RTS – request tracking system) was developed. The following subsections discuss ITS and RTS.

ITS – Investor Tracking System

![ITS Application](image)

**Figure 3: ITS – Investor Tracking System.**

ITS application (on Figure 3) automate the communication processes with investors, suppliers, partners and clients and efficiently track all type of contacts (meetings, e-mail and fax messages, telephone calls). Although there are commercially available products that could be used for this purpose (for example GoldMine from Front Range Solutions), ITS development was initiated to
respond to the following specific needs of the Ministry of International Economic Relations. As first, the system is intended to track sensitive information about foreign investors stored in code pages used in Serbia (Windows 1251 or Windows 1250 for Serbian Cyrillic and Serbian Latin respectively). And second, the system should satisfy the data security and information access standards of the government institutions in Serbia. The search problem was solved by function that translates the information into English Latin. Regarding security, the following types of security were implemented: hierarchical authorization for users, hierarchical authorization for document types, protection from incidental data erase or data change, and protected of connection (HTTPS protocol).

Besides tracking documentation and information about correspondents and participants at meetings, the system is used for planning the follow-up activities, routing the uncompleted activities and for reporting. Investor Tracking System (ITS) is implemented as WEB based application in three-tier architecture (see Figure 4) using Microsoft Visual Studio development environment, Microsoft SQL Server 2000 and Microsoft IIS. More information about the implementation could be found in [6].

**RTS – Request Tracking System**

![Figure 4: ITS/RTS three tier architecture.](image)

RTS is pilot version of a system for tracking customer requests from the point of entry in a company with complex organizational structure until its completion. Request processing is done in different departments spread out in many branches. System was designed according to the requirements of Serbia Local Government Reform Program for Request/Document Tracking Solution for Citizen Assistance Centres. The objectives were to replace the current way of processing citizen’s requests (inquiries, complaints, etc) in municipals in Serbia that is done mostly on department basis with a new customer oriented solution.

The proposed RTS solution offers: a single entry of customer request (and customer data) accompanied with a single case number, assignment of the request to the appropriate departments according to previously standardized

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procedures, use of dynamic lists of follow-up activities and responsible persons, tracking the request until its completion, information about the status of the request via answering machine, and issuing receipt or proof of completion at the end of the procedure.

*The proposed solution operates on Windows operating system. RTS is WEB based application, implemented in three-tier architecture using Microsoft Visual Studio development environment, Microsoft SQL Server 2000 and Microsoft IIS (see Figure 4). More information about the solution is written in [3].*

5. CONCLUSION

Customer relationship management (CRM) initiatives are most often driven by strategic planners with the objectives to gain customer knowledge, serve customers, improve their loyalty, profitability and satisfaction, meet the business objectives, be competitive on the market, and create profit. Implementation of CRM strategies requires transformation of existing internal processes towards client oriented processes, changes in organizational culture and information infrastructure.

In this article we observe CRM is a process of integration and optimization of customer activities in marketing, sales, customer support and management. We divided the CRM software tools into operational CRM tools, analytical CRM tools and tools for business process management. Operational CRM tools enable efficient communication with clients and automate the client processes. These include business contact management tools, sales automation tools, direct marketing tools, e-marketing, call centers, etc. Analytical CRM solutions that perform deeper analysis of customer behavior and are used for building customer strategy, planning further activities and decision support. Analytical CRM tools are based on data mining algorithms, information warehouse, on-line analytical processing technologies, forecasting and other statistical algorithms. Business process management tools monitor the customer process and are used in process re-design and optimization.

At the end, we introduce two CRM applications developed at Mihajlo Pupin Institute. ITS – Investor Tracking System could compete with commercial products for business contact management. Its advantage is that it fully supports work with Serbian Cyrillic and Latin letters and offers high level of security. RTS – Request/Document tracking System is a pilot application that allows standardization of customer processes and tracking requests in complex organizations.
6. REFERENCES