

The Design of a Lean CRM Software Process Model

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ABSTRACT

In this paper, the concept and development of CRM (customer relationship management) are discussed, we defined a customer “lead” concept which emphasized the inter-connection of downstream and upstream processes of our customers. It is pointed out that the key point in CRM is the customer lead management in the software design and implementation. Based on this perspective, the processes of lead processing, lead management, and inside lead management are further elaborated, analyzed and their models are proposed. The problem of analyzing customers’ behavior is also studied. Hence a simplified and lean integrated CRM software process is finally given, and this integrated model can be used to build CRM software for small and medium-sized manufacturing enterprises.

Keywords: CRM, Customer Relationship, Lean Model, Business Process Management

1. INTRODUCTION

Discussions on customer relationship management (CRM) have been going on for several years. International studies have tended to focus on the management function of CRM and its management characteristics^{[1][2]}, and less on analyzing the structure and processes of such a system. We rarely see more in-depth research or thoughts on system design in the area, although CRM solutions have been developed by many software companies.

Referring to SAP company’s CRM materials^[3], online help document^[4], and the Siebel company’s Demo software^[5], we study and analyze the structure of CRM software. This paper emphasizes the re-construction of the CRM concept and provides a basic process framework of CRM model suitable for analyzing small and medium-sized manufacturing enterprises (SME). A typical manufacturing enterprise means a company has post-sales service and permits customers to configure the product they need. The basic process means a general framework, not taking industry characters and more complex processes into account. Generally, CRM software consists of three levels: the operating level, the level of analysis, and the level of cooperation. The model discussed here contains only an operating level, with little analytical function.

The object of building a lean, simplified model is to integrate the functions of marketing, sales, service, and configuration in an enterprise. Enterprise marketing and sales management will then be promoted from the departmental to the enterprise level. Another object is to make CRM software easier to understand, because managers may find it difficult to understand how to operate an enterprise supported by modern IT technology, which may lead to great changes in the relationship an enterprise has with its customers.

It should be pointed out that CRM software is just a software tool. What this paper discusses is the software design, development and implementation processes and how to improve them to help manage business flows in an enterprise.

2. MODEL STRUCTURE ANALYSIS

The first difficulty in modeling is how to describe the “customer” and “customer relationship.” The words “focused with customer” can be seen in every paper on CRM, but left un-resolved are the questions of what a customer is, what a customer relationship is, how such a relationship is to be made the focus in the software.

Contact Center	Phone	Internet	Direct Contact
Marketing activity / Marketing Department	Tele-Marketing	Internet marketing	
Sales activity / Sales Department	Tele-Sales	Internet Sales	Mobile Sales
Service activity / Service department	Service Interaction Center	Internet customer self service	Mobile service

Fig1. Contact Center Structure

Also less discussed is how to build the process structure in CRM software to realize the concept of “centering.” We see many variations software, but there are fewer papers describing why they are designed to look the way they do. In the following, we attempt to conduct such analysis of the CRM software. “Centered” should mean the monitoring, management and response to the feedback from the customer, i.e., the market. First, enterprises should be able to monitor the feedback from each “connection” between departments and the customer. The feedback is obtained by the connection, and the relationship is also from the connection, so the model must be related to the connect center. The model in the paper is a 3×3 connect center (Fig. 1) that covers almost all functions and various corresponding methods of connecting. Though there

may be only part of them in a real enterprise, it will not affect the discussion behind. The system should be able to manage the incoming customer information and send

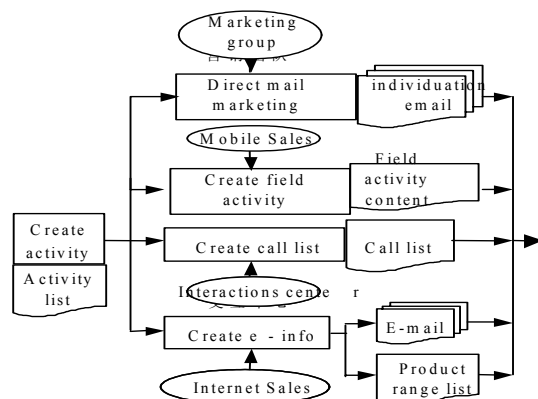


Fig2. Sending clue process in the Marketing level

it quickly to the corresponding stages, as well as give a response.

2.1 The Clue and Character

A careful analysis of the function of the connection center, which has a 3×3 connecting function (in all orientations) with customers, reveals that all of the results of its operations (on information flow) can be abstracted in one word – “clue.” Each piece of incoming information has its own source, and each piece of information that is sent has its own destination; they connect customers just like a invisible cobweb, regardless of whether or not a sales order is made. The process of forming a relationship between the customer and the enterprise is: connecting - understanding - making a relationship - exchanging action, so the clue is what we want to find – the basis of the customer “relationship.”

The reason why we emphasis the concept of the “clue” is also because it supplies us with a new perspective from which to rethink the design of CRM software.

Let us re-examine the concept of customer relationship management. Although not defined exactly, the “relationship” is, in fact, related to information on the customer and to the current and past connections between enterprise and its customers. Therefore, to some extent, we can say: to CRM software, customer relationship management is the processing and management to customer “clue”. Centered with customer, to the model, means centered with connecting, with clues, to complete monitoring, and replying the customer information in real time. This point should be the center of the design of the CRM process model; its software management process design should address this point. The accumulation of clues is also one resource of an enterprise, and the management of such clues promotes the management of the relationship between the enterprise and customer from the level of the department to the level of the enterprise. For the

same reason, an analysis of the enterprise’s relationship with its customers should not only focus on those with an order history, but on all customers who used to relate to the enterprise. This is because the aim of marketing is to enlarge the customer group.

Clues can be divided into three parts by the time of connection: connecting now – current clues; connecting in history – database clues; marketing connecting, aimed at enlarging the number of sales orders, and customer group based on customer classification and taste (target group), which are obtained by computations based on current and historical data to yield future clues.

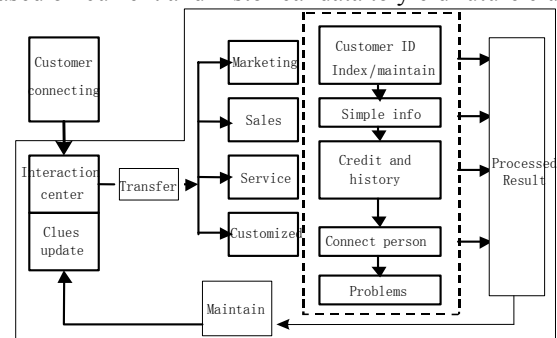


Fig3. Clue Receiving Process

The clues can also be divided into two parts based on inputs and outputs to the software system:

The first is sending clues. This part also covers two parts: answers to daily business processing; and marketing action information to obtain more customers. The process, which an enterprise needs to maintain and enlarge its market share, is illustrated in Fig 2.

The second part consists of coming clues. It also includes two parts: inquiries about daily business products or services (information less related to sales orders); and receiving clues, which are information about sales orders or plans for sales orders. The process is illustrated in Fig. 3, where the process in the dashed line block indicates the parts shared among several departments.

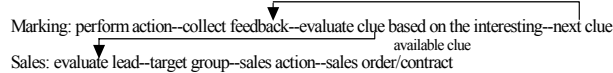
2.2 The Process to Manage Clues

The clues can be divided into available clues and general clues (not taking garbage clues into account). The available clues refer to the clues thought to have been changed to sales orders with a larger possibility, and the rest are general clues. But general clues yesterday may be available clues today.

2.2.1 The Process of Dealing with Clues

The processing of clues by CRM software may be divided into two levels: marketing level processing and sales level processing. We can then obtain two methods: 1) Medium-sized enterprises can first deal with the clues at the marketing level, and determine the clues that are available for transferring to the sales level. The sales

level then determines the clues that are most likely to lead to sales orders and to one-to-one services (two-level processing). 2) Small enterprise always need one level of processing, i.e., sales-level processing. As to the word “clues,” Siebel’s Demo refers to it as opportunity, SAP refers to the clues available in market level as lead, and to clues available at the sales level as opportunities. We define clue processing process based on the two-level process of clues. The evaluation process in such a system (divided market and sales) can be shown as follows: (the perform action in the marketing level can be seen in fig 2)



Therefore, in the process from marketing to feed-back, and from feedback to sales order, all exchanges are arranged to be completed from the connect center. If managed better, the clues in the process can all be recorded.

2.2.2 The Customer Characters in Clues

The customers of an enterprise always mean those with a history of commercial exchanges with that enterprise, but the concept of the customer in CRM is rather different. Fig. 4 shows the different concepts of the

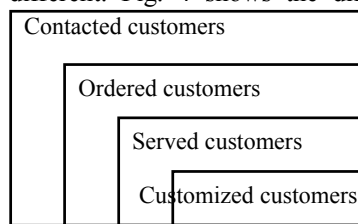


Fig4. Inner-relation among different customers

customer and the inner relationship among them: the connecting customer is the total set of clue: the order customer means those with a sales relationship; service

customer and customizing customer are obviously sub-sets of order customer. Enterprises can select interesting groups of customers from different levels in Fig. 4 when they want to classify customers, but on the other hand, this will also show at least some of their attitude towards operations and the marketing environment, allowing enterprises to select subject products and target groups from various customer levels.

- Pessimistic attitude: selecting a target group from the order customers, with the process of sending clues aimed at those customers. The object is to first fix upon the customers, then enlarge the market share. At the basis of the theory is the belief that the cost of developing a new customer is five times the cost of maintaining an old customer, and that 20% of the customers produce 80% of the profits of an enterprise. Such method is always adopted in a bad market environment. maintaining a old customer, 20% customers produce 80% profit of enterprise. Such method is always adopted on the bad market environment.
- General attitude: selecting a target group from the order customers, with the group of clue customers also the same as that of the connecting customers.

The aim is to enlarge customer term furthermore at the time of fixing its own customer term. The advantage is that an enterprise can get extra customers, besides their original customers, and need not worry about omitting the requirements of the original customers.

- The optimistic attitude: selecting a target group from the connecting customers, where in the sending of clues, the customer group is also the connecting group. Its object is to enlarge market share and the definition of the customer. In better market conditions, such a method will generally be adopted. The defect is that the target group obtained from clue customer may be some different from that obtained from order customers, or may even cover the requirements of the original customers.

2.2.3 The Managing Process To Clues

The model’s Object aims to integrate enterprise’s marketing, sales, service, configuration and analysis method into one frame. From SAP’s training material^[3], the clue can be managed by following process. First following concept should be given at least in the model.

- Marketing- to enlarge market, it is decided by enterprise stratagem, operating object and it own resource and capability, and its document is market planning.
- Campaign- to develop a market needs several campaigns, each organized campaign aims to a special subject product and target group, those customer group is got by computing in special arithmetic, and refer to the outside analysis information and the third analysis result, its document is campaign plan;
- Action- a campaign is composed of a series of actions, and its document is action content.
- Subject product- one kind or a series of product planned to push up (usually are higher ROI product);

Target group- a kind of classified customer got by computing the interesting of connecting clue customer and history customer data, its document is customer list;

Their relating is shown in Fig 5. The planned action is performed in sending clue process of marketing part(fig 2), when the campaign performed. And each action should be affirmed in all sending process to make sure it is performed. The market and campaign can be combined into one level clue management in some small system case. The work that needs to be performed after sending is the collection and analysis of clues on feedback.

2.2.4 The Inside Process of Managing Clues

From the literature review of SAP material^[3] and Siebel’s Demo^[5], the inside management of clues can be adopted following a proper structure. The following

information are required to be in the CRM database:

- Clue—a clue code is a directly connecting code for customer by various of channel and connecting media such as call numbers, mobile numbers, email addresses, and so on, so that the system can find the customer code using each clue;
- Customer code — may directly index the customer's enterprise information, enterprise account, and connecting history;
- Connecting person—there may be several connecting persons in an enterprise, who may be responsible for different businesses or for the same business; the system can find a list of connecting persons by customer code, in case this is needed.

When a connection occurs (taking call numbers as an example), the system should list those customer enterprises that have a similar call number as the coming number, and allow the receiver of the call to read messages related to the incoming call, such as the company code, simple information about the company, the company's credit status, and come of its commercial or connecting history. Furthermore, should allow him or her to read those records about the connecting people before and as part of the process of exchanging information (the clues involved are in the clue database illustrated in Fig. 5; its process is illustrated in Fig. 3). The advantage of this is that a business person (the receiver of the call) in same role can quickly know with whom and with which company he is communicating, and know its connecting history and the level of its relation- ship with his own company. From the simple record, he can anticipate what will be discussed, what questions will be asked, where the difficulties may lie, and the solutions previously given, and so on. Thus, the problem can be quickly affirmed and a new solution will be given.

2.3 A Comparison with ERP

Based on the above discussion, we can make simple comparisons between the ERP and CRM software.

- 1) The difference in aim: ERP is software that is based on process and centered on product management; CRM is based on process, and centered on clue management.
- 2) The difference in customer concept: customers in ERP always mean those who have an order history -certain customers; customers in CRM mean clue customers who used to connect to the enterprise -uncertain customers. There is more information on future customers in CRM.
- 3) The difference in information processed: the information processed in an ERP system is information that is currently useful (a series process after the making of an order), while the information in a CRM system is mostly currently useless, or useless forever, but no one knows which part may be useful and which part may be useless.
- 4) The difference in input/output: in an ERP system, orders are the input and products are the output; in

a CRM system, clues are the input and sales orders are the output. So the interface between ERP software and CRM software should be the sales order (as defined earlier).

- 5) The difference in model: the ERP model shows the integration of the whole enterprise process; and the CRM model shows the integration of the whole market and the sales process.
- 6) The difference in reference. The ERP model addresses enterprise business management framework supported by IT; while the CRM model addresses to the market and sales business management framework supported by IT.

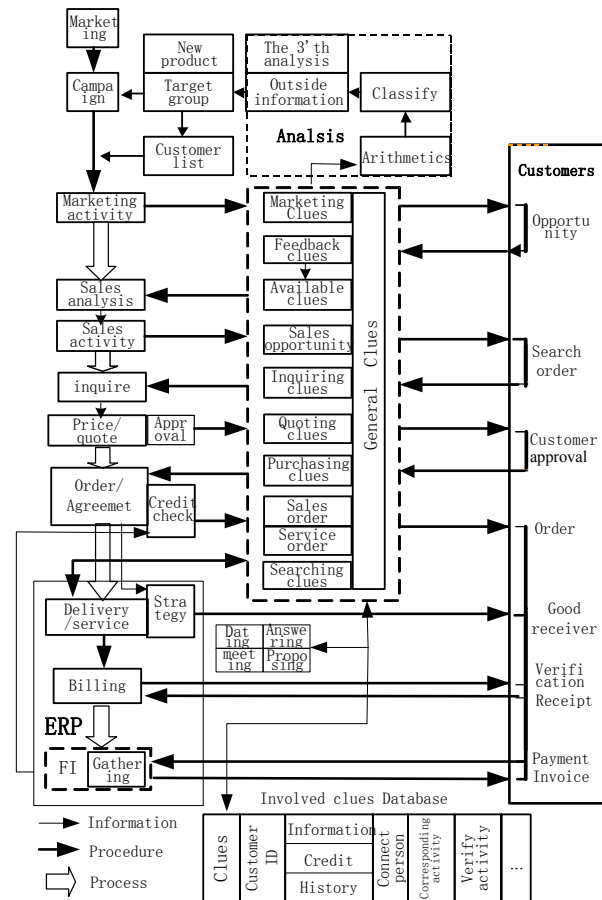


Fig5 CRM software simplified process model

3. THE INTEGRATED PROCESS MODEL AND ITS APPLICATIONS

A lean simplified, integrated process model that summarizes the above analysis is shown in Fig. 5. The model takes into account the enterprise functions of marketing, sales, services, customer configuration, and analysis, in order to make a CRM integrated process framework designed from the market orientation of the enterprises and customer orders. In Fig. 5, the thick line represents the process, the thin line represents information, and the dashed line box represents connecting center and its corresponding receiving and sending processes. Besides the marketing sending process, the marketing part also has the function of dealing with

general clues. Its result may be a simple answer: the giving of a suggestion, fixing a time for a face-to-face talk, or arranging a small meeting. The total process in Fig. 5 is as follows.

When planning a market activity, the people making the analysis begin from the clue database, refer to outside information and obtain the subject product and classified target group (customer group). They then come up with the object of the campaign, and organize promotions to reach the designated group of customers. In order to attain the objectives of the campaign, the market department should organize a series of corresponding actions, design corresponding action content, and perform them through the connecting center. As the campaign proceeds in all directions, in this target group old customers gain a new understanding and new customers who become interested in the subject product may connect to the enterprise's marketing department. The marketing department analyzes those clues on feedback, selects available ones, and transfers them to sales department. Those making inquiries are transferred directly to the sales department. The sales department studies this information in order to determine its own target group, then organizes corresponding actions in order to turn opportunities into sales orders.

The sales department also has the problem of receiving feedback. After orders arrive, CRM transfers the information to ERP. The ERP system completes the translation from orders to products and then to corresponding function. CRM takes the corresponding records, in case the customer inquires about it. Of course, the system should have the ability to compute costs, to evaluate the market and the effect of the campaigns. Obviously, in this the model, CRM cannot complete the order independently, so this part should have an interface to the ERP. The interface is not just a data interface, but needs to ensure process and organization, otherwise the system can only transfer data, but not complete the business processes. In fact, we can refer to the SAP's mapping method between SD module organization structure and that of the CRM^[3,4].

The sales part in CRM should have some similarity with that in the ERP. For example, the processing to inquiring/quotation, processing to order and so on: customer inquiring-enterprise quotation refers to the commercial history- customer making PO (purchasing order)- sales people searching inventory- enterprises sending SOs (sales orders) - the sales order to ERP system. The order is the output of the CRM software, and the later one is in the ERP manufacturing process. The service part has its own process, and is also processed in the flow of information, until the SO's are sent out. Service orders in a manufacture industry are

always related to manufacture orders: service order processing-resource planning-in site service completion and affirmed -- billing -- account receivable.

4. CONCLUSION

A lean, simplified process model of CRM software has been proposed, and an analysis of CRM using a "clue" concept has been given in this paper. Our greatest contribution would be the concept of the "clue": for the database built based on connections is the basis upon which an enterprises analyzes customer behavior and characteristics, and is also the basis used to integrate and predict, and establish customer "relationship management." In today's ERP/MRP II software which is based on process and centered on products., it is essential for monitoring performance in real time, reacting in time to the status of the market, customer status, and customer feedback to form a CRM core management framework using the process and centered on customers (clues). We can see that CRM concepts, methods, and meanings may change with time, technology, and customer requirements, or the changes may even introduce a change in the structure of the CRM model, but these changes can be accommodated with a lean and simplified structure described in this research.

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REFERENCES

- [1] Winer, Russell S, A Framework for Customer Relationship Management[J], California Management Review, 43(4), 2001: p89-106
- [2] Ling, Raymond; Yen, David C, Customer Relationship Management: An Analysis Framework And Implementation Strategies[J], Journal of Computer Information Systems, 41(3), 2001: p82-98
- [3] SAP company, SAP CRM training material[R], SAP company, 2001
- [4] SAP company, SAP online help[OL], http://help.sap.com/saphelp_crm30/helpdata,2002.9
- [5] AMT site, Siebel CRM software demo 6.0[OL], <http://www.amteam.org,2001.12>
- [6] Scott Nelson, Tom Berg, Customer Relationship Management: An Overview[R], Gartner Group Strategic Analysis Report, 2000.8