

CRM (Customer Relationship Management) - Accessing, Managing & Servicing to Customers using Data Mining

Customers are common but they cannot understand the new policies as well as working strategies for the product. Comprehensive data warehouses that integrate operational data with customer, supplier, and market information have resulted in an explosion of information. Competition requires timely and sophisticated analysis on an integrated view of the data. However, there is a growing gap between more powerful storage and retrieval systems and the users' ability to effectively analyze and act on the information they contain.

PROF. B.H.BARHATE

Introuction :

CRM stands for Customer Relationship Management. It is a process or methodology used to learn more about customers' needs and behaviors in order to develop stronger relationships with them. There are many technological components to CRM, but thinking about CRM in primarily technological terms is a mistake. The more useful way to think about CRM is as a process that will help bring together lots of pieces of information about customers! sales, marketing effectiveness, responsiveness and market trends.

CRM helps businesses use technology and human resources to gain insight into the behavior of customers and the value of those customers.

Database Bank Marketing :

Database Marketing uses database technology and sophisticated analytical techniques combined with direct-marketing methods to elicit a desired, measurable response in target groups and individuals. Keeping the concept of Database marketing in consideration, new generation banks apply e-bank marketing policy in their concerned affairs with the extensive usage of different types of database software. The software are mainly divided into back-end database and front-end application. The back-end software act as database to store banking data such as database to store banking data such as clients, creditors, loans, service, product, and account information. On the other hand, front-end banking software are used with different types of forms and users directions to guide the clients to do banking. The back-end software are considered as server while front-end are called clients. In other words, database bank marketing is implemented through client-server database system. For example, using database of clients customer relationship managers of most banks today wish their valued

clients on their birthday or marriage anniversary that create a lasting impression on the minds of the later and encourage them to utilize the banking services more regularly. Moreover, intelligent and prompt decisions of these bankers-regarding the correct payment data and amount often save customers cost that has a great impact on the later's satisfaction.

Improving Customer Services by adopting following factors:

Prompt and Better Customer Service: Due to the application of Convergence technology automated modern banks the expertise can be able to prove prompt and best customer service almost in every affair of banking.

Anywhere Banking : The extensive usage of online banking, any branch banking, etc., has made it made it possible for the bank to serve their customers from a single point location whether it is in a physical region or in an electronic net centric marketplace. Banks can follow their own website, ATM, phopie banking, etc., services to ensure smart banking from anywhere.

Customized Software : One of the main goals of modern marketing is to maximize profit that can be supported with the application of cost minimization marketing policy of the concerned bank and in this case customized banking software is a glaring example. Banks must decide instead of buying commercial software are developing their own by appointing information technology or Computer Science educated software development experts. In the development of specific banking Solution.

Various Services to Customers using CRM :

Banking Service :

CRM simply refers to organizing hour bank around the needs of your most valuable, i.e. profitable customers. That

HOD , Dept. of Computer Science & IT Bhusawal Arts, Sci. & P.O.Nahata Commerce College, Bhusawal & Hon. Director Institute of Management & Career Development , Bhusawal (Maharashtra)

is a straightforward concept, and just about everyone, in the marketing community would agree that it is sound business strategy for any bank to follow. Once you begin looking at how to manage the customer relationship, you realize that CRM represents a new way of doing business for banks. It incorporates such seminal concepts as the sales culture, one-to-one marketing data warehousing, data-mining. Customer segmentation, loyalty programs and cross selling.

To the large banks and other financial services firms, who are spending tens of cr. to perfect these strategies, CRM is a state of mind, a behavior, an amalgam of strategies. It puts the customer at the center of the universe, thus emphasizing profitability and technology enabled.

Indian banks have now seriously started to recognize the value of superior customer care and maintenance of well greased relationship with its customer as very important tools to profitability. Having understood the growth of awareness and rapid imbibing of the internet culture, common man is not ready to accept anything less than the best.

In the community banking world, CRM has become a rallying call around which the bank organizes a "customer-centric" business strategy that harnesses information technology to discover and anticipate customers' financial needs and engages all the business lines in the bank in satisfying those needs. CRM uses both internal and external data to identify the bank's most profitable customers and prospects, and devotes time and attention to expanding account relationships with those customers through individualized marketing, repricing, discretionary decision making and customized service, all delivered through the various sales channels that the bank uses.

In the earlier times, community bank presidents knew all their customers and their families and negotiated loans and interest rates based on how valuable the customer was to the bank. With CRM. Such personalized business dealings are again started and on the increase.

Like coming full circle, CRM enables large financial institutions to look, feel and act like a community bank, effectively managing hundreds of thousands of customer relationships through the use of technology-driven sales and marketing.

Bankers' traditional strategy has been to attract large numbers of customers. They use the branch system and mass marketing techniques to attract deposit accounts and sell loans. And they treat everyone more or less equally, regardless of balances and numbers of accounts.

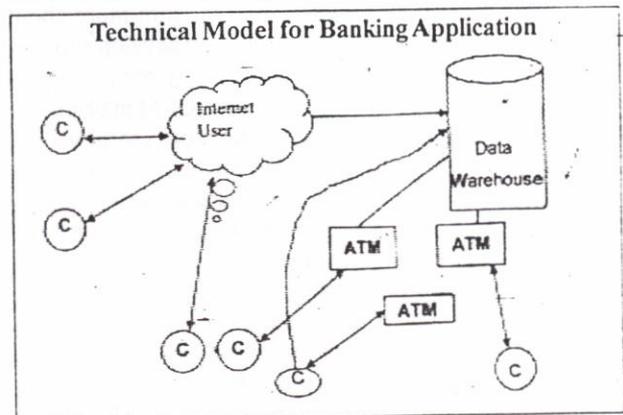
Three things have happened at least, however, to make this volume-based business strategy less viable and to demonstrate the need for CRM.

- (1) Competing financial services providers arrival
 - (2) New technologies acting as egalitarian tool and
 - (3) Change in customer base.
- (i) Competing financial services providers bring with them sophisticated marketing applications that are focused on attracting some of your bank's best customers.
- (ii) New technologies are a relatively egalitarian tool. The

largest banks with their supercomputers and their tens of terabytes of capacity can manipulate their customer information in a potentially fast manner. But today even small community banks can cost effectively leverage computer technology to gather, analyze and most important, use customer information- information that they already own. Computers have put the power of information at the disposal of all bankers and size is no longer a limiting factor.

(iii) Customer base is changing forever. Your customers are becoming more affluent, increasingly comfortable with technology, demanding new financial services and are willing to go anywhere- they must to get the product and services they demand. Next millennium's community bank may have to become the equivalent of financial supermarket, and escort its customers through the isles towards a full range of products and services.

These initiatives have gathered such a lot of momentum today that even chronically dormant ones have suddenly become aggressively customer savvy. Indian nationalized banks, which are largely governed by the RBI norms. Are facing stiff competition from foreign banks that have entered India some time ago. In the wake of such serious competition. Indian banks are left with no choice but to take adequate steps to protect themselves.



Marketing Service :

For marketing of products which are newly launched by companies CRM helps such types of companies to improve sales of products. Web technologies help for advertisements. Web sites of such companies provide special effects to their products like multimedia effects.

Concepts of Data Mining in CRM :

Data mining, the extraction of hidden predictive information from large database, is a powerful new technology with great potential to help companies focus on the most important information in their data warehouses. Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions. The automated, prospective analyses offered by data mining move beyond the analyses of past events provided by retrospective tools typical of decision support systems. Data mining tools can answer business questions that traditionally were too time consuming to resolve. They scour databases for hidden patterns, finding predictive

information that experts may miss because it lies outside their expectations.

Most companies already collect and refine massive quantities of data. Data mining techniques can be implemented rapidly on existing software and hardware platforms to enhance the value of existing information resources, and can be integrated with new products and systems as they are brought on-line. When implemented on high performance client/server or parallel processing computers, data mining tools can analyze massive databases to deliver answers to questions such as, "Which clients are most likely to respond to my next promotional mailing, and why?"

The way in which companies interact with their customers has changed dramatically over the past few years. A customer's continuing business is no longer guaranteed. As a result, companies have found that they need to understand their customers better, and to quickly respond to their wants and needs. In addition, the time frame in which these responses need to be made has been shrinking. It is no longer possible to wait until the signs of customer dissatisfaction are obvious before action must be taken. To succeed, companies must be proactive and anticipate what a customer desires.

Customers and prospective customers want to interact on their terms, meaning that you need to look at multiple criteria when evaluating how to proceed. You will need to automate:

- (1) The Right Offer
- (2) To the Right Person
- (3) At the Right Time
- (4) Through the Right Channel

Customer relationship management (CRM) is a process that manages the interactions between a company and its customers. The primary users of CRM software applications are database marketers who are looking to automate the process of interacting with customers.

To be successful, database marketers must first identify market segments containing customers or prospects with high-profit potential. They then build and execute campaigns that favorably impact the behavior of these individuals.

The first task, identifying market segments, requires significant data about prospective customers and their buying behaviors. In theory, the more data the better. In practice, however, massive data stores often impede marketers, who struggle to sift through the minutiae to find the nuggets of valuable information.

In the past, the link between data mining and campaign management software was mostly manual. In the worst cases, it involved "sneaker net," creating a physical file on tape or disk, which someone then carried to another computer and loaded into the marketing database.

The Foundations of Data Mining:

Data mining techniques are the result of a long process of research and product development. This evolution began when business data was first stored on computers, continued with improvements in data access, and more recently, generated technologies that allow users to navigate through their data in real time. Data mining takes

this evolutionary process beyond retrospective data access and navigation to prospective and proactive information delivery. Data mining is ready for application in the business community because it is supported by three technologies that are now sufficiently mature:

- (1) Massive data collection
- (2) Powerful multiprocessor computers
- (3) Data mining algorithms

Automated prediction of trends and behaviors. Data mining automates the process of finding predictive information in large databases. Questions that traditionally required extensive hands-on analysis can now be answered directly from the data — quickly. Automated discovery of previously unknown patterns. Data mining tools sweep through databases and identify previously hidden patterns in one step.

Data mining techniques can yield the benefits of automation on existing software and hardware platforms, and can be implemented on new systems as existing platforms are upgraded and new products developed. When data mining tools are implemented on high performance parallel processing systems, they can analyze massive databases in minutes. Faster processing means that users can automatically experiment with more models to understand complex data. High-speed makes it practical for users to analyze huge quantities of data. Larger databases, in turn, yield improved predictions. The most commonly used techniques in data mining are:

Artificial neural networks:

Non-linear predictive models that learn through training and resemble biological neural networks in structure. Genetic algorithms! Optimization techniques that use processes such as genetic combination, mutation, and natural selection in a design based on the concepts of evolution.

Rule induction: The extraction of useful if-then rules from data based on statistical significance.

How Data Mining Works:

How exactly is data mining able to tell you important things that you didn't know or what is going to happen next. The technique that is used to perform these feats in data mining is called modeling. Modeling is simply the act of building a model in one situation where you know the answer and then applying it to another situation that you don't.

This act of model building is thus something that people have been doing for a long time, certainly before the advent of computers or data mining technology. What happens on computers, however, is not much different than the way people build models. Computers are loaded up with lots of information about a variety of situations where an answer is known and then the data mining software on the computer must run through that data and distill the characteristics of the data that should go into the model. Once the model is built it can then be used in similar situations where you don't know the answer.

This model could then be applied to the prospect data to try to tell something about the proprietary information

that this telecommunications company does not currently have access to. With this model in hand new customers can be selectively targeted.

Test marketing is an excellent source of data for this kind of modeling. Mining the results of a test market representing a broad but relatively small sample of prospects can provide a foundation for identifying good prospects in the overall market. Following Table shows another common scenario for/building models: predict what is going to happen in the future.

Table - Data Mining for Predictions

Type of Information	Yesterday	Today	Tomorrow
Static information and current plans (e.g. demographic data, marketing plans)	Known	Known	Known
Dynamic information (e.g. customer transactions)	Known	Known	Target

If someone told you that he had a model that could predict customer usage how would you know if he really had a good model? The first thing you might try would be to ask him to apply his model to your customer base - where you already knew the answer. With data mining, the best way to accomplish this is by setting aside some of your data in a vault to isolate it from the mining process. Once the mining is complete, the results can be tested against the data held in the vault to confirm the model's validity. If the model works, its observations should hold for the vaulted data.

Integrated Business Functions with Data Mining :

To best apply these advanced techniques, they must be fully integrated with a data warehouse as well as flexible interactive business analysis tools. Many data mining tools currently operate outside of the warehouse, requiring extra steps for extracting, importing, and analyzing the data. Furthermore, when new insights require operational implementation, integration with the warehouse simplifies the application of results from data mining. The resulting analytic data warehouse can be applied to improve business processes throughout the organization; in areas such as promotional campaign management, fraud detection, new product rollout, and so on.

The ideal starting point is a data warehouse containing a combination of internal data tracking all customer contact coupled with external market data about competitor activity. Background information on potential customers also provides an excellent basis for prospecting. This warehouse can be implemented in a variety of relational database systems: Sybase, Oracle, and so on, and should be optimized for flexible and fast data access.

A wide range of companies have deployed successful applications of data mining. While early adopters of this technology have tended to be in information-intensive industries such as financial services and direct mail marketing, the technology is applicable to any company looking to leverage a large data warehouse to better manage their customer relationships. Two critical factors for success

with data mining are: a large, well-integrated data warehouse and a well-defined understanding of the business process within which data mining is to be applied (such as customer prospecting, retention, campaign management, and so on).

A large consumer package goods company can apply data mining to improve its sales process to retailers. Data from consumer panels, shipments, and competitor activity can be applied to understand the reasons for brand and store switching. Through this analysis, the manufacturer can select promotional strategies that best reach their target customer segments.

In Marketing it helps to collect historical Data from all types of customers.

Easy way to gather statistical analysis using Data Warehouse.

These Application leverage the knowledge about customers implicit in a data warehouse to reduce costs and improve the value of customer relationships. These organizations can now focus their efforts on the most important (profitable) customers and prospects, and design targeted marketing strategies to best reach them.

Relaxation of Complexity through Data Mining :

Data Mining is the process of semi automatically analyzing large Databases to find useful patterns . Data mining deals with Knowledge recovery in Databases .Some type of knowledge discovered from a database can be represented by a set of rules. The dependency of Data mining is on Confidence and support Support - Is a measure of what fraction of the population satisfies both the antecedent and consequent of the rule

Confidence :

Is a measure of how often the consequent is true when the antecedent is true.

PRODUCT1	PRODUCT2	CONFIDENCE
Milk	Bread	80%
Milk	Any other ...	0.001%
Notebook	Pen or Pencil	More than 80 %

The analysis can be tested for summarized data by creating rules . And the method generate fast results form big repositories.

Conclusion : Choosing the right data mining products means finding a tool with good basic capabilities, an interface that matches the skill level of the people who'll be using it, and features relevant to your specific business problems. Customers gets confident information that he wants . Results which are processed by Data mining tools are depends upon expertise data therefore risk factor to complete any work through this method is very less.

References :

- (1) database Management System Concept by Henry Korih.
- (2) E-commerce papers-proceeding, M.J. College Jalgaon.
- (3) ICDL 2004, International Conference on Digital Library & Delhi Papers on e-commerce, (4) E-commerce by CVS Murty.
- (5) Ref. Paper of B.H. Barhate, Title CRM at IIM Indore Conference.
- (6) Ref. Paper of B.H. Barhate, Title Knowledge Management at Mumbai.

