

IMPLEMENTATION OF DATA MINING ENGINE ON CRM - IMPROVE CUSTOMER SATISFACTION

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Abstract- Analysis on customer relationship is reaching more practical and motivating success factor for the growth of every company, in the same way, discovery of unseen information is also supporting for the successful expansion in an organization. A customer and a company are essential to each other and their good relationship and understanding will take the company on the top as well as the customer to the satisfactory level. In this paper we presented the model of Customer Relationship Management (CRM) to describe the association of a customer with the company and enhanced the model by connection with Data Mining Engine (DME) for evaluation the query of a customer or an employee, customer understanding to support the CRM. The main aspect of this paper is DME which is playing commanding role to bear a company on the top. Analyze and assessment of the query to understand the customer and work on organization's action, by using data mining techniques are the main characteristics of DME.

Key Words:- Data Mining Engine (DME), Customer Relationship Management (CRM), Customer Satisfaction.

1. INTRODUCTION

CRM is one of the most hot topic of the information technology and is an integration of business and technology process to gain the customer satisfaction and used to satisfy the need of a customer. CRM basically begins with the deep analysis of customer behaviour. The organization that wants to create personal interaction with the customer they must be gather all the customer related data and using this data they will achieve the customer satisfaction and behaviour by using IT infrastructure. To achieve the customer satisfactions the organization must follow the IT rules for extracting knowledge from the customer database and define new rules and strategies to for their attraction.

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Data mining is one of the IT strategy through which we can collect the all the information about the customer. Many management specialists embraced the still vague notion of customer relationship management across multiple channels and interaction points as the next big thing [1], and rushed its implementation despite the lack of a clear definition, vision, and set of best practices, as well as without understanding of the enormity and complexity of organizational restructuring required for a successful CRM implementation [1]. The systemic application of data mining techniques reinforces the knowledge management process and allows marketing personnel to know their customers well to provide better services [2]. Customer relationship management is the key point in the analysis and the creation of a future scenario based on a KM-based framework throughout the integration between strategic and operative supports [3]. CRM is, essentially, a business strategy that aims to help companies maximize customer profitability from streamlined, integrated customer-facing processes [4]. The motivation for companies to manage their customer relationships is to increase profitability from concentrating on the economically valuable customers, increasing revenue ("share of wallet") from them, while possibly "demarketing" and discontinuing the business relationship with invaluable customers [5]. CRM systems are regarded as " front-office" systems since they are concerned with the relationship of the organisation with its sources of revenue [6].

Customer Relationship Management (CRM) is very important for any organization through which the companies wanted to know the relationship between customers and their organization. A good companies need to identify the problems of customers and enhance the cohesion between customers and their organization. In the past years the CRM has become the successful part for every organization [11].

2. RELATED WORK

ECCRM is now and will continue to be an important subfield of MIS research, as well as of relevant reference disciplines such as marketing, computer science, library science, and psychology. As an emerging subfield, it is an object of interest and worthy of study in and of itself [7]. *Vince Killen* [8] used data mining tools and find out that these tools are very helpful and faster in data extraction of information for the company. These tools serve as the backbone driving CRM systems and have enabled the measurement frameworks in place today. *James et-al* [9] used the online approach for extracting the data of the customers by using automated software and scripts to download the relevant web pages and extracted the appropriate information from the web pages.

Customer satisfaction provides bottom-line business results in the form of increased purchased volumes, repetitive purchases, and generation of new business in the form of references and prospect identification [11].

Activities a business performs to identify, qualify, acquire, develop and retain increasingly loyal and profitable customers by delivering the right product or service, to the right customer, through the right channel, at the right time and the right cost [12]. KPO Digital Writer Pvt Ltd in-house developed data-mining tool Roboeditor TM is a versatile software capable of data mining information from the internet and build databases from it, Fig 1. [13]

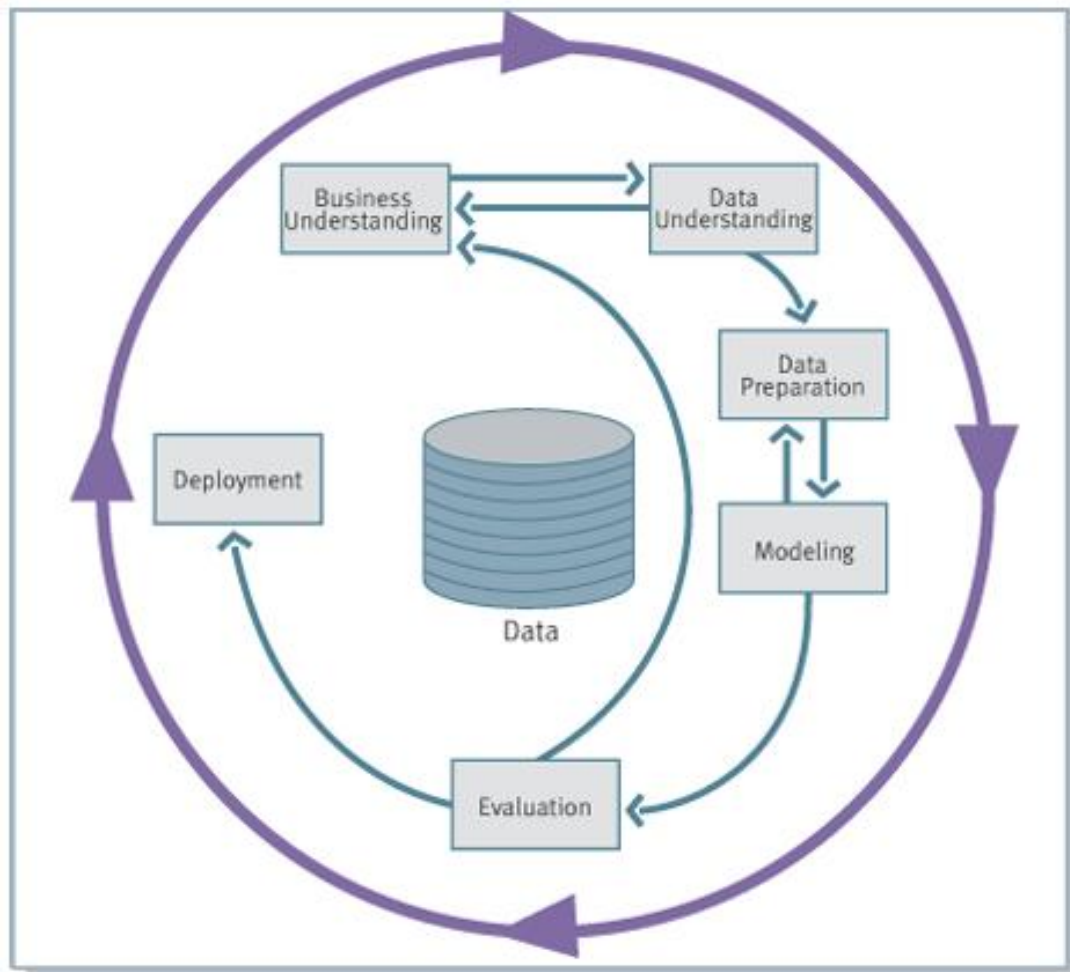


Fig. 1. Data Mining Tool

3 Model for Customer Relationship Management (CRM) with Data Mining Engine (DME)

3.1 Explanation of Fig. 2

The methodology presented in this paper, combines the CRM and Data Mining techniques. The main steps of the methodology are described below (Fig. 2).

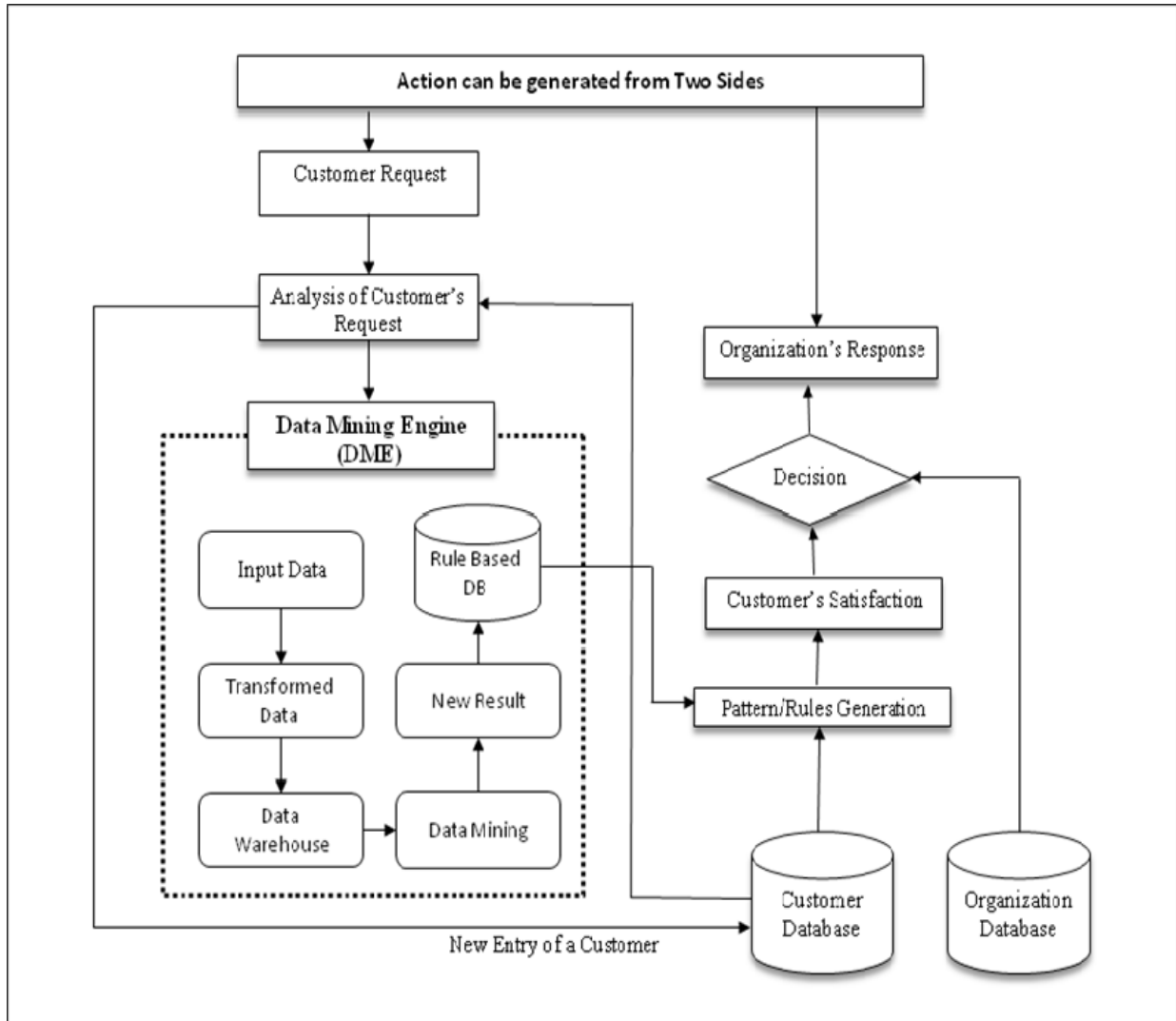


Fig. 2. CRM - DME Model

3.1.1. Customer Request

This is not always obvious since there are many actors involved in the purchase and use of a certain product or service. Yet five main roles can be identified that exist in many purchasing

situations [10]. Most of the time all of the five roles are submitting their queries. Customer can be a user, purchaser, influencer or seller, so there

are several individuals available to work on that particular query.

3.1.2. Analysis of Customer's Request

Having different kinds of queries needs to be analyze before forwarding to a particular department. Queries can be raise in the form of suggestions, requisitions, questionnaires, sales inquiries, or reclamations. In this step, we analyzed the query, if the queried person is new then the record will first forwarded to the customer database for update the record.

3.1.3. Data Mining Engine (DME)

Ultimately all the data related to the particular organization is saved in the database, we have to execute and process this huge data in an efficient manner. Auspiciously, data mining is the technique to extract information from the databases. To assure our model to be best, we presented Data Mining Engine (DME). Every time when a query dispatched to the appropriate department, the reply will be provided to the questioner with the help of database (mined data), and finally this all correspondence will keep in access for the future aspects. In the DME the we took query analysis as an input, for the implementation of Association mining we transformed the data in an appropriate form i.e. column and rows, or comma delimited. Apriori algorithm or clustering can be applied on the transformed data for generation of the new rules and patterns. Then algorithm applied result will be saved in rule based database for further work. This process is not required for all the queries, only new entry will go through to this process, traditional or old queries will solve by the previous example, which is also the major quality of DME.

3.1.4. Patterns/Rules Generation

As a result from DME in connection with the customer database we can generate rules or pattern by experiencing the customer's query. The rules can be sales plan, new strategies for the marketing department, annual sales prediction, budget for the new year or employees salaries and benefits. This will support the organization in an effective manner that some policies and rules will be automatically created and publicized by using DME.

3.1.5. Customer's Satisfaction

By applying data mining techniques we can discover customer behavior, customer satisfaction, and loyalty or background of the customer. Assessment and anlysis in this model may strengthen customer behavior and loyalty for particular organization. Using data mining techniques the organization can take positive from which the customer would be satisfied under the company's policy and limitations.

3.1.6. Organization's Response

After having complete analysis and evaluation organization's action may be included for positive response regarding particular customer query, prediction for sale escalation, some new marketing plan, new strategies for advertisement and instructions for their respected employees.

4. Future Work

The model presented in this paper will be updated through the customer survey or questionnaire. This will enhance our model for customer relationship management (CRM). We can improve our model structure by surveying customers and generating new rules and patterns that will give some fruit full results to the company. By using different data mining methodologies and some more statistical analysis the model can lead to more enhanced.

5. Conclusion

The presented model is not providing only economical support to the company but it also establishing the long live relations between the customer and a company. Good relation with the customer means lot of wide space available for a company to work with more enthusiastically. This approach is specially giving new techniques to understand and satisfy the customer. We use Data Mining Engine (DME) in this model for new generating rules and patterns.

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