



International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirccce.com

Vol. 5, Issue 3, March 2017

Analysis of the Classification Technique of Data Mining in Marketing Sector

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ABSTRACT: One of the most important problems in modern finance is finding efficient ways to summarize and visualize the stock market data to give individuals or institutions useful information about the market behavior for investment decisions. The enormous amount of valuable data generated by the stock market has attracted researchers to explore this problem domain using different methodologies. Potential significant benefits of solving these problems motivated extensive research for years. The research in data mining has gained a high attraction due to the importance of its applications and the increasing generation information. Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions. Classification techniques are widely used in data mining to classify data among various classes. Classification techniques are being used in different industry to easily identify the type and group to which a particular tuple belongs. This paper provides an overview of application of data mining techniques such as decision tree. Also, this paper reveals progressive applications in addition to existing gap and less considered area and determines the future works for researchers.

KEYWORDS: Marketing, data mining, classification techniques

I. INTRODUCTION

Data mining involves the use of various sophisticated data analysis tools for discovering previously unknown, valid patterns and relationships in huge data set. These tools are nothing but the machine learning methods, statistical models and mathematical algorithm. Data mining consists of more than collection and managing the data, it also includes analysis and prediction. Classification technique in data mining is capable of processing a wider variety of data than regression and is growing in popularity. The term Data Mining, also known as Knowledge Discovery in Databases (KDD) refers to the nontrivial extraction of implicit, potentially useful and previously unknown information from data in databases.

Classification is the popular techniques used to predict user interest and relationship between those data items which has been used by users. Classification methods includes Bayesian network, J48 Decision tree, Neural Network etc. Particularly this work is concerned with classification techniques. The *goal* of data mining is to allow a corporation to improve its marketing, sales, and customer support operations through a better understanding of its customers.

Knowledge Discovery Process (KDD)

The term Knowledge Discovery in database or KDD, refers to the broad process of finding knowledge in data and emphasis the —high level application of particular data mining methods.

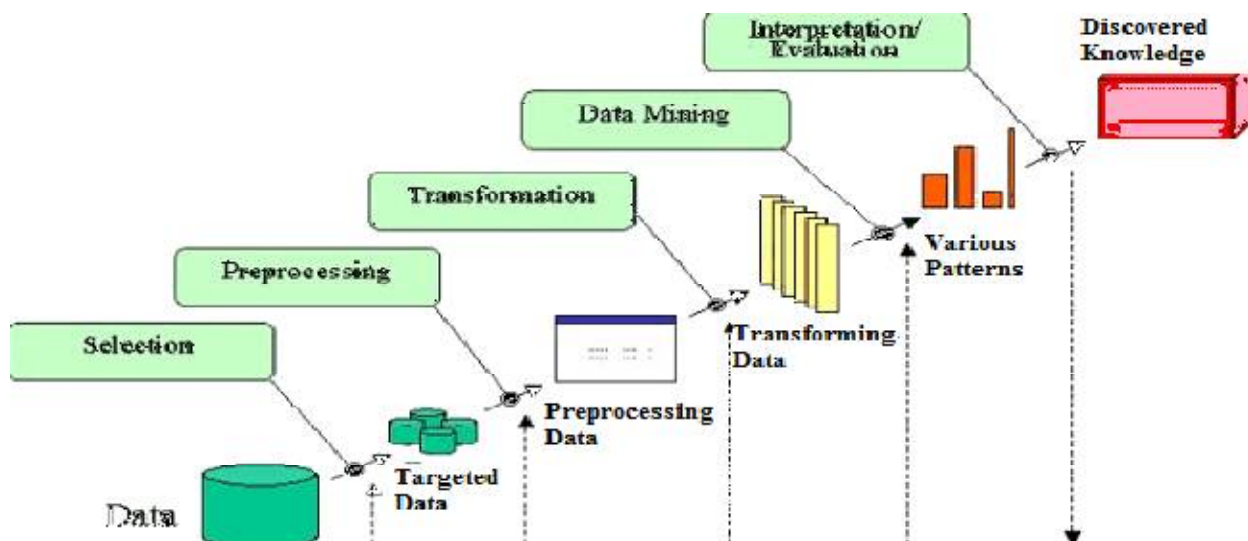
KDD refers to the overall process of discovering useful knowledge from data. The figure shows that the KDD process,

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a) Classification

Classification consists of examining the features of a newly presented object and assigning it to one of a predefined set of classes. The objects to be classified are generally represented by records in a database table or a file, and the act of classification consists of adding a new column with a class code of some kind.

The classification techniques are as follows:

1. Decision Trees: Decision trees are trees that classify instances by sorting them based on feature values. The Microsoft Decision Trees algorithm is a classification and regression algorithm provided by Microsoft SQL Server Analysis Services for use in predictive modeling of both discrete and continuous attributes. Decision trees are produced by algorithms that identify various ways of splitting a data set into branch-like segments. These segments form an inverted decision tree that originates with a root node at the top of the tree.

2. Naïve Bayesian Classification: It is based on the Bayesian theorem. It is particularly suited when the dimensionality of the inputs is high. The Microsoft Naive Bayesian algorithm is a classification algorithm provided by Microsoft SQL Server Analysis Services for use in predictive modeling. The algorithm calculates the conditional probability between input and predictable columns, and assumes that the columns are independent

3. Support vector machine: Support vector machines (SVM) have been promising methods for data classification and regression. SVM performs well on data sets that have many attributes, even if there are very few cases on which to train the model.

b) Identify the Business Opportunity

The virtuous cycle of data mining starts with identifying the right business opportunities.

Many normal business processes are good candidates for data mining:

1. Planning for a new product introduction
2. Planning direct marketing campaigns
3. Understanding customer attrition/churn
4. Evaluating results of a marketing test

II. LITERATURE REVIEW

Literature is studied to understand the basics of relationship marketing through the research has been already conducted in this field and to find out gaps, issues which are still uncovered. First part is focusing on understanding of Relationship Marketing which include concepts of RM, Objectives, Definitions & Models related with Relationship Marketing. In second part review in context of industry initiatives to implement relationship marketing programmer,



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practices adopted by industries and competitive market strategy development through relationship marketing. In third part relationship between relationship marketing and market development reviewed which include customer retention, customer loyalty & increase customer satisfaction, how to increase customer base & market share. Fourth part contains related to firm performance in terms of B2B review exchange, customer-firm affection, corporate brand development is discussed. In last part review related to technology is discussed with development of real time system development of relationship marketing. Finally issues in the literature review are identified and discussed. The literature defines several areas in which market analysis is important. These include: sales forecasting, market research, and marketing strategy. Not all managers will need to conduct a market analysis.

III. ANALYSIS OF PROBLEM

All of these forms of marketing research can be classified as either problem-identification research or as problem-solving research. There are two main sources of data — primary and secondary. Primary research is conducted from scratch. It is original and collected to solve the problem in hand. Secondary research already exists since it has been collected for other purposes. It is conducted on data published previously and usually by someone else. Secondary research costs far less than primary research, but seldom comes in a form that exactly meets the needs of the researcher. A similar distinction exists between exploratory research and conclusive research. Exploratory research provides insights into and comprehension of an issue or situation. It should draw definitive conclusions only with extreme caution. Conclusive research draws conclusions: the results of the study can be generalized to the whole population. Exploratory research is conducted to explore a problem to get some basic idea about the solution at the preliminary stages of research. It may serve as the input to conclusive research. Exploratory research information is collected by focus group interviews, reviewing literature or books, discussing with experts, etc. This is unstructured and qualitative in nature. If a secondary source of data is unable to serve the purpose, a convenience sample of small size can be collected. Conclusive research is conducted to draw some conclusion about the problem. It is essentially, structured and quantitative research, and the output of this research is the input to management information systems (MIS). Exploratory research is also conducted to simplify the findings of the conclusive or descriptive research, if the findings are very hard to interpret for the marketing managers.

IV. CONCLUSION

Future development of the concept societal marketing is gaining the marketers and consumer attention and there is every reason to expect it to continue to evolve in practice. It focuses on providing win-win opportunities to companies, consumers and society. But achieving the compelling benefits for each party involved is very complicated. So much more research is needed. To achieve a win situation for organization involved, is dependent largely upon how the key constituents react. In this context, anticipating consumer reaction is really challenging which can be affected by number of factors that often vary across different segments. The several research questions remain to be answered like how different factors affects reaction to societal marketing and how do the various factors interact. For consumers to win, societal marketing must provide them with compelling benefits that increase their overall welfare. Determining whether there is a win situation for society by societal marketing initiative is the most difficult question to be answered. Therefore extensive future research is needed particularly investigating questions with respect to its impact on consumer attitudes to corporate image, product image and their purchase intention or brand choice as well as on positive impact on society.

Based on the results our organization retail smart store decided to undertake lot of loyalty programs for smart store customers. The further work on classification using more detailed behavioral data and opportunity identification using association algorithms within the segments discovered. Other possible future works are association of products and customer segmentations for cross-selling (selling new products) and up-selling (selling more of what customers currently buy). Service sector is growing and gaining importance day by day. Newer services are entering into market place. Customer is becoming more and more dependent on services. Service organizations are looking for some innovative ways to improve their services.



ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

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(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 5, Issue 3, March 2017

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