

Review of Consumer Trends and Behavior Mapping With Data Mining for Organized Retail in Kolhapur District

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Abstract – From last decades there is increasing growth of online businesses so has resulted in complexity of interactions and consumer behavioral patterns in so many aspects. Therefore, many researchers try to work on an integrated model of the effective factors in online consumer behavior and their satisfaction. Data mining techniques are expected to be a more effective tool for analyzing consumer behaviors. CRM systems accumulate increasing volumes of customer data over time and a wealth of important information is hidden behind the data. Due to the limitations of technique and idea, a great deal of customer data in many service industries can only reflect the sales information. In this paper Analytical CRM helps to analyze customer data and interactions through various data mining techniques. With the hype of CRM, information systems have gained main interest of researchers and practitioners. This review paper facilitates overview of CRM and its recent works.

Key Words- CRM, Data Mining, Customer Satisfaction

1. INTRODUCTION

Data mining is process of useful extraction of implicit, novel, and actionable knowledge from huge datasets. It assisted to automate the finding of applicable patterns in a datasets. It helps to increase the customer revenue and customer profitability. Monetary method is utilized to find target customers and customer lifetime value can be calculated using regency, frequency. Clustering study is utilized in locating high value customers. Clustering analysis output utilized to verify the total number of target customers with high satisfaction, high interest, and a large amount of purchase can be finding (Ngai, et. al., 2009).

From last decade, authors use many data mining techniques such as classification, predictive modeling, estimation, clustering/segmentation, association rules or affinity grouping, description and visualization, as well as sequential modeling. Similarly, there are also number of application methods, including sequential pattern, association rules, classification analysis, grouping analysis, and probability heuristic analysis. Thus, through research knowledge of customers separate through data mining can be integrated with retailing and then provided to retailers. The analysis of retailers, customer's shopping information is unusually

subjective, because such data usually is both mathematical and categorical and priorities of each feature describing the data are not clearly defined. In this thesis, our aim is to study the data utilizing a number of various visualization techniques, to envision client behavioral data and to represent the visualization output for the choice on the master plan of the advertising campaign to a non-specialized person, more often than not media planner. Information on the online client shopping data is multidimensional and comprises of two kinds: numerical and downright. Two or three multidimensional information portrayal methods are related in showing web based shopping information and their importance is dissected (Kendall, 2007).

Data mining has quickly emerged as highly desirable tools for using current reporting capabilities to uncover and understand hidden pattern in vast data base these patterns are then used in models that predict individual behavior with high accuracy. The result data mining helps in decision making helps in Customer Relationship Management (CRM) it also affect the cost and production of the business (Fang & Qizhi, 2012). There are a wide variety of data mining applications available, particularly for business uses, such as Customer Relationship Management (CRM). These applications enable

marketing managers to understand the behaviors of their Customers and also to predict the potential behavior of prospective clients. An example of the kind of task that a data mining technique may assist with is the prediction of future client retention. For example, a company may decide to increase prices, and could use data mining to predict how many Customers might be lost for a particular percentage increase in product price.

Data mining can be used to guide decision making and forecast the effect of decisions aimed at the discovery and consistent use of profitable knowledge from organizational data. Each of the CRM elements can be supported by different data mining models, which generally include classification, association, clustering, regression, sequence discovery and visualization.

i) Classification:

It not only enables the study and examination of the existing sample data but also enables to predict future customer behaviors through classifying database records into a number of predefined classes based on certain criteria. Common tools used for classification are decision trees, if-then-else rules and neural networks.

ii) Association:

Market basket analysis and cross selling programs are typical examples for which association modeling is usually adopted. Common tools for association modeling are apriori algorithms and statistics.

iii) Clustering:

Clustering techniques identify meaningful natural groupings of records and group customers into distinct segments with internal cohesion. Clustering techniques attempt to identify distinct customer typologies and segment the customer base into groups of similar profiles to facilitate more effective marketing.

iv) Regression:

Regression is a kind of statistical estimation technique used to map each data object to a real value to provide prediction value. Uses of regression include curve fitting, prediction and testing scientific hypotheses about relationship between variables. Common tools for regression include linear regression and logistic regression.

v) Sequence discovery:

Sequence discovery is the identification of patterns over time. Common tools for sequence discovery are statistics and set theory.

The retailing environment has visualized a tremendous growth in the size and the market dominance of larger players, with greater store size, increased retail concentration and the utilization of a range of formats. This growth has intensified the level of competition in retail business, stimulating the retailers to reposition and diversify their retail formats and innovate in their distribution systems. The maturity of core markets, the erosion of traditional shopping patterns through urbanization and the social and the demographic changes of developed markets have stimulated several major players to focus more on establishing themselves in the developing markets. The main aim of this paper is to highlight how Marketing professionals and retailers can use the data mining tools to move closer to their customers and add value to their products. It suggest the potential for applying data mining tools and technology to find out the best fit methods for pattern discovery and matching . In this research work our hypothesis is based on to define security and trust as an inbuilt behavior of online customers from a believable source of online shopping in World Wide Web network. Focus of marketing analysis or research is the behavior of customer increasing on the internet. In particular customer functions in online shopping from adoption motivation to post usage function has become the crucial concentrate of research in the field of marketing especially within customer function. Yet it has been acknowledged that while aspects such as adoption and usage motivation are the now good understood there are much more questions that remain un-answered and this warrants continued analysis effort.

2. RELATED WORKS

Sashi Bhushan (2015)

In [1] hotel industry customer satisfaction is generally an endless supply of administration. Consumer loyalty in the hotel business has been critical for a long time. Superb administration and upgrading consumer loyalty are broadly perceived as critical components prompting the achievement of organizations in the hotel, providing food and tourism ventures. An administration approach concentrated on consumer loyalty can enhance client steadfastness, along these lines expanding the positive picture of the touristic goal. Thus, investigating the significance for clients of hotel properties in lodging choice is crucial. Visitor fulfillment converts into the thought of regardless of whether clients will come back to a hotel or guidance it to different voyagers is critical to the achievement of the cordiality business.

Eric W. T. Ngai, Li Xiu, Dorothy (2009)

In [2], contempt the vital of information mining strategies to client relationship administration (CRM) there is a nonattendance of a sweeping composition overview and a plan plot for it, this is the essential

decide academic written work review of the usage of data mining methods to CRM. It provided a scholarly database of writing between the time of 2000– 2006 covering 24 diaries and proposes an arrangement plan to characterize the articles. Nine hundred articles were determine and investigated for their immediate importance to applying information mining techniques to Customer Relationship Management. Eighty seven articles were in this way chosen inspected and ordered; each of the 87 chose papers was sorted on four CRM measurements Cursorsory and Visualization. Papers were additionally ordered into nine sub classes of CRM segments under particular information mining techniques in light of the wide concentration of each paper. Client relationship administration (CRM) comprises a gathering of undertaking and empowering frameworks supporting a business technique to construct long haul gainful associations with specific clients. Client information and data innovation (IT) instruments shape the establishment whereupon any fruitful CRM technique is worked what's more the fast increment of the web and its related advances has incredibly development the open doors for promoting and has changed the course connections amid organizations and their clients are overseen.

Luo Fang, Qiu Qizhidesign (2012)

In [3], a first framework an n state prevention model and attempts to exhibit that the three state model can growth system performance. Then they manage the n state model to register the likelihood proficiently and support two-dimensional RFID reader arrays. Moreover to clean RFID information and data with more exactness and capability they devise a Metropolis Hastings sampler with demands, which incorporate limitation organization. Moreover to help consistent inquiry watching they display the gushing Bayesian surmising techniques to adapt to continuous RFID information streams. At last they figure the execution of our answers through large tests.

Suryawanshi, Sujata, Priyanka Jodhe (2015)

In [4], they discuss Apriori algorithm which is a great calculation for learning data mining. Information mining have vast scope of uses in which Apriori utilizes a base up approach for which visit subgroups are expanded one thing at once (a stage known as applicant age and sets of hopefuls are tried against the information. There are numerous calculations has been proposed to decide visit design, Apriori calculation is the main calculation proposed in information mining approach with this time various shifting proposed in Apriori to enhance the execution in term of time and number. Apriori utilizes expansiveness initially find and a hash tree structure to check applicant thing bunch effectively. There are three particular successive examples on traditional Apriori calculation. It

additionally utilizes the aftereffect of applying this calculation to deals information picking up from a major database organization which shows the viability of the Apriori calculation. In information mining techniques Apriori calculation is most noticeably bad. Apriori calculation is to distinguish visit thing gatherings to relationship amid particular thing sets affiliation convention mining calculation. For instance assume information (bank information) and tries to pick up Apriori calculation can be moreover utilized and advanced. The imperative objective of Association convention mining calculations are utilized to identify out the best joining of particular traits in information.

Meenakshi (2013)

In [5] concentrate on development of retail market in India with exceptional reference to widening of shopping center culture in level ii city this paper now the shopper needs to shop at a place where he can get nourishment, excitement and shopping, all under one rooftop. This has given Indian sorted out retail advertised a noteworthy support. Shopping centers are the hot shopping goals in new way of life. Because of quick retail blast, assortment of shopping centers has developed. With this first-class shopping center culture hitting the colossal Indian working class, the times of unadulterated shopping delight is by all accounts reducing.

Rajora et al (2013)

In [6] provincial retailing in India – an evolving worldview, this paper in the realm of merciless rivalry, each advertiser is looking better arrangements and items and administrations to serve the end clients, around 70 % populace is lives in rustic or semi urban range and as of late, country market of India have gained noteworthiness, as the general development of the Indian economy has brought about the considerable increment in the obtaining force of the country groups. truth be told it has been evaluated that the provincial markets are developing at five times the rate of urban markets, in this way offering sufficient chances to advertisers. In this paper analyst will talk about the points of view in the rustic retail& challenges in the provincial showcasing and a few proposals about how country advertising should be possible all the more adequately.

Kalpanasingh (2014)

In [7] has grown retail part in India: show situation, rising open doors and difficulties in this paper the administration's drive to permit 51 for each penny outside direct venture (FDI) in multi-mark retail has been a subject for level headed discussion for a long while now. Indian retail division has in this manner pulled in the consideration of individuals from

different fields including the scholarly community, industry, investigate associations. The present study is attempted to pick up knowledge about the present structure of Indian retail segment, the real sub-segments in sorted out and customary retail and changes in the relative share of different sub-segments over most recent couple of years and infiltration of composed retail in different fragments. the examination additionally covers the open doors and developing difficulties before Indian retail division in perspective of late approach changes by administration of India.

Kamaladevi et al (2014)

In[8] investigation of e-tail business with reference to e-client encounter, in the advanced period, the worldwide retailers are building up their business by utilizing e-following and the principle reason is the white collar class customers who have swung to the web for shopping. Numerous sprouting business visionaries are currently going into e-following as a hot most loved and are unquestionably putting resources into e-following business. Client relationship, administration personalization, customization and balanced promoting client understanding are the core of Customer relationship administration. It is the general for streamlining client lifetime esteem which thusly inundates client division and occasions to expand client change maintenance faithfulness and benefit. Legitimate client comprehension and activity capacity prompt upgraded client lifetime esteem dishonorable client comprehension can prompt disastrous activities. A client can be a client buyer impact creator and so on. In this way the exchange information question might be have a few sorts of request which included prescribes inquiries orders and recoveries. In the examination of client enquiry we can investigate which sort of inquiry has been put by the client and where it will be sent.

Chang et al. (2011)

In [9] shows that there have been no analysis studying the inter-play of online browsing and shopping and addressing such questions as can basic coarse-obtained browsing behavior such as the time spend on Facebook be used to predict the kind of product user will buy? This analysis fills this gap by studying browsing data of half a million users who have bought products online from either Amazon or Walmart.

Changchit, Douthit, and Hoffmeyer (2005)

In [10] Manage and examination on web based shopping was identified with online some intriguing elements which about the impact of online customers when they buy from the site pretty much input to purchase or to the site. They have been examined the accomplishment of the business online weight on their ability to allure and change for clients to their clients can preferable utilization of their opportunity over the costs and to assemble any sort of item data through web. The quantity hosts on internet having undeniable

from millions of every 1993 to 110.0 million of every 2001.

3. CRM

The information and experience is the base of novel promoting worldview shows that partnerships request to find out about clients and experience based showcasing worldview suggest bringing more interconnections into client related exercises. Parvatiyar meant as CRM as "an exhaustive methodology and assignment of getting, holding and banding together with closable clients to create prevalent incentive for the organization and the client". From the design perspective the CRM structure can isolate into operational and logical. Operational CRM presents to the robotization of business assignment, whereas expository CRM alludes to the examination of client qualities and conduct in order to help the association's client administration methodologies. In that capacity, logical CRM could push an association to better separate and viably more allotment assets to the most gainful arrangements of clients. As indicated by Parvatiyar CRM comprises of four measurements:

- (1) Customer Identification.
- (2) Customer Attraction.
- (3) Customer Retention.
- (4) Customer Development.

These four dimensions can be seen as a closed cycle of a (CMS) customer management system there have number of synonymous terms: client administration, client data frameworks, client esteem administration, client mind and infrequently at times client centrality or client driven administration however now plainly the term client relationship administration has turned into the to a great extent utilized. In the present aggressive period, client relationship administration can be received as a center business technique with a specific end goal to enable associations to deal with client intercommunication all the more successfully. The medium objective of client relationship administration (CRM) is in this way to expanding the lifetime estimation of a client to the association. CRM is an intuitive errand that transforms client data into client connections through currently utilizing and gaining from data. Ryals and Knox confirmed that the philosophical bases of CRM, relationship introduction client maintenance and predominant client esteem created through undertaking administration. It is a cycle for incorporating principal sets of activities learning disclosure, advertise arranging, client connection and examination. Effective usage of CRM needs cross useful rearrangement particularly promoting and data innovation to work firmly together to expanding the arrival on client data. Wu et al. (2005) utilized choice convention and information

mining to examine the plausible clients for a current or novel protection item. These procedures empower organizations to put resources into clients who will supply the most benefit for the organization.

4. CONCLUSION

In this study we presented the consumer trend and behavior mapping retailer from Kolhapur district with reference o CRM, CLV, RFMT model. Data mining is primarily used today by companies with a strong Customer focus - retail, financial, communication and marketing organizations. Data mining is having lot of importance because of its huge applicability. It is being used increasingly in business applications for understanding and then predicting valuable data, like Customer buying actions and buying tendency, profiles of Customers, industry analysis, etc. Since determining the online consumer satisfaction has become an important to online business managers, the objective of this to capture the potential consumers' opinions. In this paper, the usefulness of the RFTM for modeling and simulating the consumer satisfaction in online environment has been studied. The main contribution of the paper lies in the focusing important issues to improve decision making to optimize your relationships with Customer in highly Customer based business. We notice that we need to work on data-preprocessing to increase the accuracy and reduce process time. For further research, factors influence on loyalty, Online Consumer retention and online continuance for using online information systems, which are common in many aspects, can be examined and modeled. Decision makers should consider the strength of factors and their polarity on the main concept and each other to view a whole picture of the problem. It is also very useful for making the proposed model, more dynamic by using a suitable learning method which can revise it through passing the time.

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