Vol 4 Issue 5 Feb 2015

ISSN No : 2249-894X

Monthly Multidisciplinary Research Journal

Review Of Research Journal

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RNI MAHMUL/2011/38595 **ISSN No.2249-894X**

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Review Of Research
ISSN:-2249-894X
Impact Factor : 3.1402(UIF)
Vol. 4 | Issue. 5 | Feb. 2015
Available online at www.ror.isrj.org

APPLICATION OF DATA MINING IN CUSTOMER CHURN ANALYSIS- A Review

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Abstract:-Every Industry has been suffering from customer churn problem, but since last one decade a telephone companies are top most industry where lots of customer churn problem .

Customer churn means a customer can leave their service or service provider & move to another service or service provider. This rate is increasing day by day in all telephone companies.

The aim of this paper is to focus on customer problems and to prevent from churning. Data mining is one of the techniques which provide different methods & application to find out those customers who are going to churn & how to prevent them. This study is focus on only prepaid service users.

Keywords: Customer Churn, Data Mining Techniques, Telecommunication.

I.INTRODUSTION:

Today, telecommunication market all over the world is facing a severe loss of revenue due to fierce competition and loss of potential customers. To keep the competitive advantages and acquire as many customers as possible, most operators invest a huge amount of revenue to expand their business in the very beginning. Therefore it has become vital for the operator to acquire the amount invest and gain at least a minimum profit within a very short period of time, because it is very much challenging and tedious issue to keep the customers intact for a long duration due to the competition involved in this business field. To servive in the market, a telecom operator usually offers a variety of retention policies to attract new customer. This is the major cause of subscribers leaving one network and moving to another one which suits their needs. according to telecom market, the process of subscribers(either prepaid or postpaid) switching from one service provider is called ‘Customer Churn’.

Keeping of old customer is always the good and profitable option to the company. Attracting new customers costs almost six times more than retaining the old customers. For attracting new customers company should pay cost on publicity and discounts, they should recruits or engage manpower for new customers.

Most of the telecom industries keep lots of customer data for their use but in these data only 70% data is valuable data and for churn analysis churn customer can be predict only the use of valuable data. Data mining is one of the technology which help to classify data into different clusters, and finding hidden information from tremendous data. Data mining provide different tool to analyze data and find out the result very quickly. Data mining turns a large collection of data into knowledge.

Data mining is used in churn analysis to predict whether a particular customer will churn, when churn is expected to happen and reasons for churn. By predicting which customers are likely to churn, telecommunication companies can reduce the rate of churn by offering customers new incentives or packages to stay. By understanding the reasons for churn, providers can improve their services and packages offered. Apart from that it gives the best strategy for them in terms of cost and effort by decreased total cost of retention campaigns and increased the effectiveness campaigns.

II.RELATED WORK:

1. “Customer churn prediction in telecommunication” [1][2013] – this paper is presented by ‘Nabgha Hasmi[1],

Naveed Anwar Butt[2] and Dr. Muddesar Iqbal[3].

This paper also focus on distribution of articles by techniques, like decision tree, & its frequency, Neural network , logistic regression , cluster analysis etc.The paper is highlighted the immense treat of customer churn of telecom companies by giving statistical reasons. Customer churn problem was discussed and reviewed both in general and subsequently in specific mode. Afterwards a comprehensive comparison of selected articles was carried out in four intentional dimensions. 61 articles were reviewed in detail by year of publication used technique, relative journal and by dataset type.

2. "Customer Churn Analysis" A Case Study[2][2006] – this case study is done by 'Teemu Mutanen'[4]. The goal of this study is to apply logistic regression techniques to predict a customer churn and analyze the churning and non-churning customers by using data from a personal retail banking company. The different models predicted the actual churners relatively well. One the models did work almost as the random probabilities. The differences between the models input data indicates the dynamic nature of the churning customer profile. The finding of this study indicates that, in case of logistic regression model, the user should update the model to be able to produce predictions with high accuracy.

3. "A Survey on Data mining techniques in Customer Churn Analysis for Telecom Industry"[3][2014] – 'Amal M. Almana[5], Mehmet Sabih Aksoy[6] and Rasheed Alzahrani[7]' surveys the commonly used data mining techniques in this paper to identify customer churn patterns. They focus on data mining application & techniques like Neural Network & statistical based techniques, which are used in learning links between both the dependent and independent attributes.

4."Churn Prediction in Telecommunications Industry, A study based on Bagging Classifiers"[4][2014] – in this paper ' Antonio Canaleand[8] Nicola Lunardon[9] focus on churn prediction which is performed considering a real dataset of an European telecommunications company. An appealing parallelized version of bagging classifiers is used leading to a substantial reduction of the classification error rates from an operative viewpoint, the parallel implementation of such a methods is appealing for practitioners that are stressed to produce reliable result in reasonable time.

5."Customer Churn Analysis in Telecommunication sector"[5][2010] – in this study, the data of a company which is operating in telecommunication sector is analyzed with data mining techniques with the aim of demonstrating models to predict churner customer behavior, improve customer relationship management, and develop various campaigns and marketing strategies for customer retention & loyalty. After eliminating non-related data and preparing stages, logistic Regression analysis and CART decision tree are applied for determining the reasons for customer churn.

6. This paper is presented by Afaq Alam Khan[10], Sanjay jamwal[11], M. M. Sepehri[12]. This study has two main objectives that detection of many churners as possible & to determine the best predictors among demography, billing and usage features. This section is mainly focused on second objective. The main conclusion of this study is that the demographic features have the lowest affect on the churn prediction.

7. This study is done by Anuj Sharma[13] & Dr. Prabin Kumar Panigrahi.[14] This paper suggests that data mining techniques can be a promising solution for the customer churn management and author can establish an early –warning model for this non- steady –state customer system. The final model summery in this paper concludes that the model gives more than 92% overall accuracy for the customer churn.

8. "Prioritizing factors influencing customer Churn"[8][2014] – In this study Roya Hejazinia[15] & Mahdi Kazemi[16] focused on to develop and test a customer churn. Then it was demonstrated that security concerns and service cost are not significant factors affecting customer churn Friedman test was performed for ranking the influential factors. The result indicate that the service quality is the most significant factor followed by customer satisfaction, competitors with superior technology, coast of change, and advertising

III.CONCLUSION

Many researchers find out the rate of customer churning in other areas like in Retail Bank, Insurance policy, in an Internet service, and many other industries. They use different data mining methods for the results like use of bagging method, statistical methods, cluster methods etc.

Some researchers also focus on customer relationship management and develop various campaigns and marketing strategies for customer retention & loyalty. They also focus on demographic features and give need about regression method for customer churn prediction. Similarly many researcher use different application of data mining for customer churn in different industries.

In this paper author explore the prediction of churn analysis of customer in selected telecom company. For

this study Data mining provide a process which help to collect data, classify data, store data, cleaning data & extract knowledgeable data. This study also shows the result or impact of churning on Telecom Company & indirectly shows customer relation with the company. This study is focus on customer churning reason, customer service demand & long term customer of company.

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