

DTH Service Trade Satisfaction Analysis using Data Mining Techniques

Suchismita Mishra, Apurva Vashist

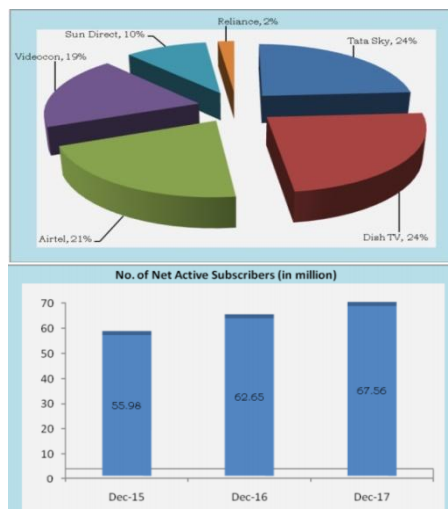
Abstract— The DTH (Direct to Home) television broadcasting service has revolutionized the television service industry. This method of telecasting has technically improved the television industry and implemented improved methods of technology. This has also improved quality of services offered. People are applying Data mining techniques to find out the satisfaction level of DTH service. In this research, clustering and association analysis methods of data mining are implemented to find out the fruitfulness of DTH service.

Key words- DTH television service, clustering, association analysis

I. INTRODUCTION

The first DTH service in India was introduced in 2003 by Dish TV. In 2004 Prasar Bharati launched free DTH service. In terms of number of subscribers, India became the largest DTH market. DTH telecasting is a method of receiving signals transmitted from direct-broadcast-satellites.

The DTH service has also gained population due to its customer focused, improved audio video quality and personalized services. Hence, it gained huge popularity within a short time span and resulted in an increase in subscriber base to millions. With the advancement of networking and graphics quality, DTH telecasting became popular. But the satisfaction level with respect to the services offered needs to improve with time. This leads to data mining approach to get the pros and cons that need to improve. In this research paper, we have described the service satisfaction indices and what needs to improve.



[Source-<https://www.telecomlead.com/broadcasting/indias-dth-subscribers-reached-67-5-million-in-2017-83936>]

[(a) Share of service providers from total subscribers (b) growth of DTH subscribers]

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II. LITERATURE REVIEW

The research paper [1], the authors have studied on association rule generation from a medical data set which contains the patients' records and diagnosis details. The popular algorithm Apriori has been implemented upon the taken medical data set to generate association rules. The researchers in [3, 4] tried to explain about versatile implementations of association rule mining. The authors are also emphasized on theoretical as well as practical views of the popular Apriori algorithm including advantages and limitations including the role of weak and reverse association rule determination. The authors of the research paper [5] entitled as "Association Rule Mining: A Survey", has described the correlation of various rule mining algorithms including Apriori algorithm, Dynamic Item set Count algorithm (DIC), Frequent Pattern growth (FP Growth) algorithm. This paper also gave a detailed discussion on various fields of the association rule like in FMCG, the market basket of a customer, in finance, the credit card business, SCM, CRM, Medical data analysis, census data analysis, financial fraud detection, intrusion detection, time series analysis etc. The researcher Rashid M., et.al in their research paper [7] had developed an application for medical data which can predict on the patient's disease and its co-occurring of another disease relating to some other diseases by applying association rule mining technique, the Apriori algorithm.

The research published [6] by Said I., et.al has given an illustration on association rule generation from medical data set to predict on the heart diseases cause-effect by using the popular Apriori algorithm. Here the researcher also experimented on a medical data set, in which the sick patient and healthy patient details are classified for the purpose of predicting chances of occurrences of heart diseases. The authors in [9] Amin A. et. al. in their study gave an study on the use XML technique for retrieving information and suggested an improved architectural view for textual data mining system and text processing including mining of association rules and visualization of the result. The researchers developed an algorithm named GRW Algorithm which focused on XML technique for extraction of association rules to minimize effects of occurring disease, in this study which is dengue. As per the report of Oracle on data mining concepts 11g released on 2008 [10] focuses on semi-structured, unstructured data as well as different text mining algorithms with different methods like k-Means, Naive Bayes method, SVM, Apriori, generalized linear models, Non-Negative Matrix Factorization, FP

Growth , minimum descriptor length. This report describes the rule mining algorithm Apriori for association extraction function, which is an excellent method to generate association rules for the purpose of retrieving information from heap data storage. In research [11] made by the authors Gitanjali J, et al. conducted a study on huge volume of health care data consisting various aspect of the data for n example patients detail, symptoms of diseases, diagnosis prescribed for the disease, availed medical equipment, etc. Application of data mining approach on the medical data the extracted knowledge may prove to be helpful for future decision making processes. Here, focuses given on identify frequently occurring using Apriori.

The author Kaur G.[15] has explained association analysis method and named it as Apriori, Frequent Pattern Growth and AIS including their merits and limitations. Here author gave an over view of various practical implementations of association rule technique like health care, inventory control analysis, telecom networks analysis and formation, risk management, retail market management, fraud control etc.

III. MODEL DESIGN

In this quickly evolving dynamic industry, it has become vital to constantly monitor Channel Partners’ satisfaction and engagement with various DTH service providers to assess the brand’s strengths and weaknesses. Therefore, it is important to take stock of the current situation towards building better relationship with trade partners.

The key objectives of this model are to measure:

- Retailers’ level of satisfaction with DTH service providers
- Factors affecting DTH service satisfaction level
- Service quality improvement areas

After a lot of technical improvements in television broadcasting services, the quality has significantly improved. The picture transmission has been upgraded from MPEG2 to MPEG4, which has resulted in clarity of picture. Also, introduction of High Definition (HD) pictures have also improved picture quality. The DTH service providers have improved service quality by providing HD services, programme recording services and online services. With the improvement in terms of quality of services, some qualities are yet to be improved. Interruption in transmission is still occurring due to the change of mode in transmission and external environmental conditions.

The service quality improvement factors are assessed by studying the touch points between service providers & retailers. The touch points include:

- Product, offers and packs
- Sales team representative and other representatives
- Communication process
- Order placing and delivery process
- Financial process
- Incentives provided by service providers
- Marketing and ad support
- Help line assistance

IV. EXPERIMENTAL SET-UP

The initial study has been carried out in two phases:

- 1) Exploratory phase
- 2) Measurement phase

The significant factors are determined by applying PCA. The found out data has been applied with Apriority algorithm to determine the correlation factors.

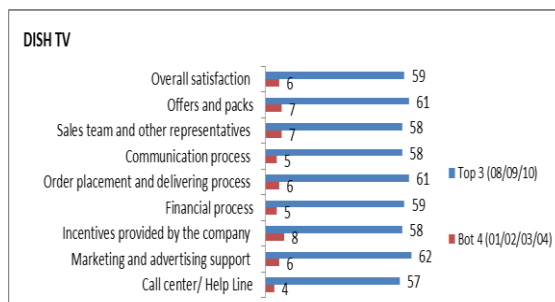
In the exploratory phase of study, data was collected from trade partners on pen and paper basis describing their satisfaction level at each touch points. The touch points are:

- Product, offers and packs
- Sales team representative and other representatives
- Communication process
- Order placing and delivery process
- Financial process
- Incentives provided by service providers
- Marketing and ad support
- Help line assistance

The financial process mainly includes payment methods i.e. in cash or through credit card, regular account reconciliation, consumer finance schemes, product pricing, sales incentives or margins provided to the trade partners. Order placing and delivery process includes defect-free material provided on placing order by trade partners, time taken to comply services, product handling and proper packaging, maintaining of delivery schedule etc. The communication process segment includes frequency of company personnel visits, communication regarding new offers/schemes and price changes. Sales team representative and other representatives’ segment includes quality and attitude of salesmen of service providers, quality of sales personnel at service, helpfulness in resolving trade issues by involved personals and helplines, accessibility to senior personnel. The result has been recorded on a 10 point scale, where 10 is for outstanding and 1 for worst. The obtained data set has been applied on Weka 7.0 to get the desired outcome.

V. RESULT ANALYSIS

The below visualization has been determined by analysing the DTH trade partners overall satisfaction level with the service providers of sample size of 1800 from different cities of India. The test has been carried out from the parameters listed below. The study shows the overall satisfaction level on specified parameters. The top three boxes show the maximum satisfaction and bottom four boxes show minimum satisfaction.



[Satisfaction score of Dish TV Trade Partners with Dish TV DTH Service Provider]

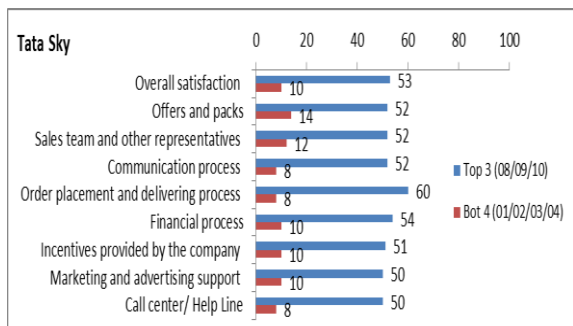




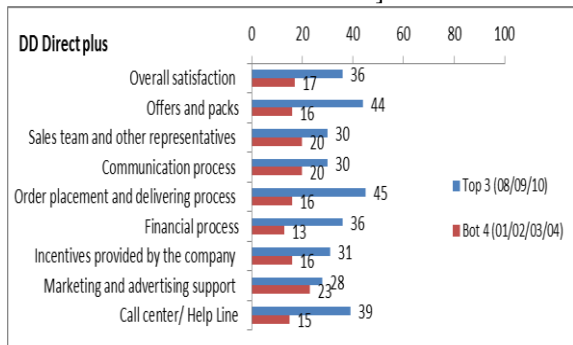
[Satisfaction score of Airtel Digital TV Trade Partners with Airtel Digital TV DTH Service Provider]



[Satisfaction score of Videocon D2H Trade Partners with Videocon D2H DTH Service Provider]



[Satisfaction score of Tata Sky D2H Trade Partners with Videocon D2H DTH Service Provider]



[Satisfaction score of DD Direct Plus Trade Partners with DD Direct Plus DTH Service Provider]

The above study depicts the areas in which the service providers maintain the satisfaction level and areas in which points they need to improve. The aim of the study is to find out which touch points need to improve to maximize business. From the above study it is found out that Dish TV and Tata Sky DTH service providers are performing better in market where as DD Direct plus and Videocon D2H need to improve to be in competition. DD Direct plus and Videocon D2H need to focus on sales, communication process, marketing support and help line services.

VI. CONCLUSION AND FEATURE SCOPE

The DTH television service is a burning research area. This area is still left with many challenges and issues regarding quality. This leads to many researchers to study on this area. We have applied data mining to suggest some points in terms of quality satisfaction. Still many issues are left to be addressed, which can be resolved by applying different data mining techniques.

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