DATA MINING TECHNIQUES FOR IDENTIFYING THE CUSTOMER BEHAVIOUR REGARDING SURRENDER/SWITCHOVER OF LIFE INSURANCE PRODUCT IN LIFE INSURANCE SECTOR IN INDIA

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ABSTRACT

Advancement of technology has a huge impact on service sector in India. The companies have large amount of data available to them. regarding customers, products and competitors this raw data can be converted into useful information , which in turn will help in improvement in business activities .So Data mining, the extraction of hidden predictive information from large data basis is a powerful new technology with great potential to help companies focus on the most important information in the data ware house.[9] This paper describes to identify the reasons for surrender/ switchover of life insurance product by the customers in India. For this purpose data mining techniques such as clustering- descriptive data mining technique is used to identify the reasons of surrender/ switchover in life insurance sector of india.

Keywords: *Data Mining, Clustering.*

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INTRODUCTION

In this competitive environment huge amount of data is available to life insurance companies in India about customer, products and competitors and advancement in technology such as hardware, software and data storage, the lots of information hidden in the data is not extracted so our goal is not this low level data .but the useful information extracted from this data. By using this valuable information decision making can be made i.e. Marketing strategy can be made to minimise the surrender/switch over of the life insurance product by making improvement in the product which in turn is useful for increasing the profitability of the life insurance company.[2]

Data mining refers to extraction of data. It is also known as techniques of exploring data in order to discover previously unknown patterns. It is known as knowledge discovery in data bases (KDD) By performing data mining interesting knowledge regularities or high level information can be extracted from Data bases & viewed or browsed from diffident angles. The Discovered knowledge can be applied to decision making process control, information management and query processing [1]

This research paper contains five sections namely introduction, related work, analysis and interpretation, conclusion and references.

RELATED WORK

The behavior of customer can be analyzed by using different techniques and the features were extracted in different research papers depending upon the technique used by the author. One approach i.e statistical technique is used to explore the impact of insurance on economic growth and interaction of insurance and banking in promoting the economic growth in ex-Yugoslavia region (2004-2008).The study shows that insurance companies contributed to economic growth both as institutional investors and insurance risk managers [7].The other researcher had used the same statistical technique to examine the behaviour of investors in selection of life insurance/mutual fund as investment vehicle in Indian prospective by making a comparative study[6].Most of the proposed method use data mining techniques to analyze the customer behaviour. Business organizations usually have large data base of their customers and their purchase pattern are usually hidden. By using data mining techniques depending upon the information required the purchasing pattern of customers can be identified which result in improvement in products and profit of the organization [3]. In other research study customer relationship management (CRM) can be maintained by using data mining techniques such as chi-square automated interactions detection(CHAID) to gain

competitive advantage over other firms such as identification of valuable customers, predict future behaviour and enable firms to make proactive knowledge-driven decisions[4].Also in other research project the goal of predictive data mining in clinical medicine is to derive models that can use patient specific information to predict the outcome of interest and thereby support clinical decision making which in turn is used in daily clinical practice[5].In a study for swiss life from life insurance business for this data mining environment is set up in the form of analysis, data mining & learning environment of Rentenanstalt/swisslife(ALDER).which integrates a palettes of tools for automatic data analysis. By using these data mining techniques potential clients can be added and customer losses can be avoided and capability can be sharpened as compared to other insurance companies[2].Previous study identified the trend of customer investment behaviour in life insurance sector in India using predictive data mining techniques. By using these techniques new products can be developed and marketing strategies can be implemented also. Life insurance companies may focus on that segment of customers, from here maximum policies can be captured [8].

ANALYSIS AND INTERPRETATION

In this research paper the author has used data mining technique of clustering to identify the customer behavior regarding surrender/switchover of life insurance product, on the data collected from the 125 respondents belonging to northen region of india in the form of questionnaire using SPSS software.

The reliability of data was tested by cronbach's alpha. Since there are 125 respondent and 10 variables. The satisfactory value of alpha should be more than .5.In this present study cronbach's alpha value found out to be .587 insuring good reliability of scale.

Table 1

Reliability Statistics	
Cronbach's Alpha	N of Items
.587	10

The Auto clustering statistics examined the BIC (SChwarz Bayelian information criterion) and AIC (Akaike information criterion) change for all solutions In auto-clustering determining the optimal number of clusters, various criteria have been proposed such as the

number of clusters with the smallest BIC , the number of cluster with smallest AIC and others For better result the author pick a solution with reasonably large" Ratio of BIC changes and large "Ratio of distance measures".

Table2 Auto Clustering

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change[a]	Ratio of BIC Changes[b]	Ratio of Distance Measures[c]
1	5042.473			
2	4538.188	-504.285	1.000	1.421
3	4266.405	-271.783	.539	1.212
4	4091.287	-175.118	.347	1.407
5	4047.890	-43.397	.086	1.111
6	4036.747	-11.143	.022	1.134
7	4060.097	23.351	-.046	1.024
8	4089.512	29.414	-.058	1.118
9	4145.347	55.835	-.111	1.514
10	4277.331	131.985	-.262	1.065
11	4418.359	141.028	-.280	1.057
12	4566.832	148.473	-.294	1.014
13	4717.060	150.228	-.298	1.050
14	4873.524	156.464	-.310	1.157
15	5046.718	173.194	-.343	1.016

Simulation studies have shown this combined criterion works better than BIC or AIC alone. The data collected from respondents shows number of three such clusters with cluster 1 has 44% interclass similarities which are maximum and cluster 2 & 3 has 28% - 28% interclass similarities which are minimum were formed. After data reduction it can be analysed easily

CONCLUSION

Customer data bases if properly managed analyzed and exploited can be helpful in gaining competitive advantage in life insurance industry in India. By using data mining techniques the useful information can be extracted and can be used to minimizing the Surrender / switchover from life insurance industry this may be due to personal circumstance or better

offer from the competitors. By knowing the reasons for surrender/ switchover the damage control measures can be taken such as improvement in products, providing better services & returns to the customers etc.

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