CUSTOMER CHURN PREDICTION IN TELECOM INDUSTRY

INTRODUCTION

Customer churn is one of the mounting issues of today's rapidly growing and competitive telecom sector. The focus of the telecom sector has shifted from acquiring new customer to retaining existing customers because of the associate high cost. The retention of existing customers also leads to improved sales and reduced marketing cost as compared to new customers. These facts have ultimately resulted in customer churn, prediction activity to be an indispensable part of telecom sector's strategic decision making and planning process.

Customer retention is one of the primary objectives of customer relationship management (CRM). Its importance has led to the development of various tools that support some important tasks in predictive modelling and classification. In order to properly manage customer churn in business, an accurate and reliable churn prediction model is needed that will study the historical patterns from existing dataset and will generate decision rules.

In recent decades, the organizations are increasingly focusing on long term relationships with their customers and observing customer's behaviour from time to time using various applied knowledge discovery techniques to extract hidden relationships between the entities and attributes in flood of data bank. These facts have attracted many companies to invest in CRM to maintain customers information.

Customer centric approach is very common, particularly in telecommunication sector to predict the customers' behaviour based on historical data stored in CRM.

This type of data provides useful information to the decision makers for strategic planning about their customers. Data can be considered as good if the system can convert it into meaningful information, there is a need of an integrated system that will identify the customer's churn behaviour before the customers are lost which require suitable action to be taken in advance.

PROBLEMS AND CHALLENGES

To succeed in today's complex business scenario, companies need to build and deploy an effective customer churn analysis model to monitor churn rate and maximize customer retention. Acquiring new customers always costs heavily and this makes the predictive churn model appealing for businesses that aim at retaining customers and maximizing profits. Although predicting customer churn seems to be easy initially it involves several challenges. Some of the challenges faced by Data Scientist and Machine learning engineers are:

1. Lack of a 'silver bullet' methodology

One of the major challenges that companies face in building a predictive churn model revolves around the selection of a suitable churn modelling approach. But there is no single methodology to build a predictive churn model that can work in most situations. Machine learning techniques are mostly used by businesses due to their efficiency and ability to categorize and manipulate complex data sets. The approach of survival analysis, on the other hand, uses survival and hazard functions to predict which customer will churn during a particular period. So, the best solution to deal with this challenge is to compare the performance of several models and identify the most effective method for your business.

2. Features and exploratory analysis

Businesses face several roadblocks and churn risks at this stage of building predictive churn models such as lack of information, target leakage, and the need for optimal feature transformations. Along with domain knowledge, businesses must also have the required skills and creativity to build robust predictive churn models. Therefore, it is important that companies execute careful exploratory analysis and build auxiliary models before embarking on building an overall churn prediction model. Exploratory analysis can also help in revealing reciprocity, irregularities, outliers, and relationships between different functions, which wouldn't be possible with domain knowledge alone.

3. Validating churn model performance

For accurate customer churn analysis, it's essential to choose the correct metric to optimize and validate datasets. The precision of a churn model not only impacts performance but also affects decision-making. As such, businesses need to employ different strategies to validate the performance of a churn model prior to its implementation. Also, businesses need to monitor several versions of the churn model to identify problems.

METHODOLOGY

The followings are steps to be taken in course of analysing and predicting customer churn in the Telcom Industry.
1. Descriptive statistics of the dataset

2. Exploratory Data Analysis (univariate and multivariate analysis)
3. Data processing i.e., data cleaning, data normalization, scaling, handling missing values and removal of outliers
4. Describe on which predictive method to use e.g., Linear Regression
5. Build and evaluate the models
6. Compare their performance
7. Interpret the models

CONCLUSION

Customer churn is a crucial activity in rapidly growing and competitive telecommunication sector, due to the high cost of acquiring new customers. Churn prediction has emerged as indispensable part of strategic decision making and planning process in every organization.