**Customer Churn in Telecommunications Industry**

Paper No. 2, Oct 13, 2018

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“Leadership in telecommunication is also essential since we are now in the age of e-commerce.” Michael Oxley

Information and communication technologies have been developing at rapid pace over recent decades. Today, the telecommunications industry within the information and communication technology sector is made up of all telephone companies and internet service providers. While traditional telephone services continue to be the industry’s top revenue source, advances in network technologies caused the telecommunications industry to evolve to a point which the services have increasingly become more about text (e.g., email) and visual (e.g., video streaming) based communications. Consequently, high-speed internet access for computer and mobile based data applications are the fastest growing revenue source. ~~Telecom providers are offering diverse services to their clients for their satisfaction~~. Despite the fact that worldwide revenue growth for telecommunication services projected to be $2.4 trillion in 2019, telecommunication industry suffers from high churn rates and significant revenue loss caused by customer churn. With hundreds of service providers in the market, and competitive service offerings perhaps the customer churn is unavoidable. However, service providers can still take more proactive measures to manage churn and reduce their churn rates to a more acceptable level.

As stated above, highly competitive nature of this market makes customer retention a high priority for service providers and motivates them to develop analytic talent and employ predictive models to analyze the root causes of customers for leaving of their clients.

In this paper, authors identified a large set of parameters about subscribers that could affect the churn rate of clients.

Some other parameters that could be helpful in predictive analysis are the volume of outgoing calls, the number of text messages sent, and the amount of transferred data that each client had because sometimes consumption of subscriber is not proportional to their monthly cost, so they leave operator to find a cheaper service provider at their area. It could have two reasons. Sometimes client did not receive the right service based on his or her requirements or operator does not have a suitable service package for that client.

Additionally, getting information about the location or ZIP Codes of churned clients could be helpful because sometimes network of the operator in some areas is congested or competitors have some more affordable services in that area. Preparing surveys in the middle of contract term could help operators to identify the source of problems before leaving of clients. Gathering this information is not difficult. Software packages for routers, switches, and servers could provide this information for the service providers.

It seems that we could use two methods of logistics regression and decision tree to find the variables that drive customer churn. After making models and doing descriptive and predictive analysis, we aware managers about clients that have a potential to leave the company shortly.

Additionally, we could make a report about the reasons for their leave. Telecom managers should make some decisions to decrease the churn rate. For example, if short time clients have a high chance to leave, sales and technical persons could ask those clients about their satisfaction, or company could offer them some additional services with a low price for a few months as an introductory rate.

The company could use analytics insights step by step. It means they can apply some ideas to a small set of clients that have the potential of churn and then if that experimentation is successful, they could use it for all of their clients. Even they could do A/B testing for this target.

Operators need to pay attention to the lifetime values of subscribers to minimize their churn. Especially at these days there are a lot of new services that embedding some of them in a well-designed package would be helpful to have a better retention level. Some examples could be IoT and remote health monitoring that are interesting for a lot of clients.