Predictive Analytics: A Game-Changer for Telcos

Telecom services are becoming increasingly commoditized, and telecom companies or telcos are trying to break out of this impasse both strategically and operationally. Using predictive analytics techniques could be the solution. While Predictive Analytics is not an altogether new area, the telecom industry is relatively low in adoption of predictive analytics, data mining and operations research in its daily operations. This white paper describes the various ways by which analytics can enhance revenue, reduce churn and increase sales, thereby offering a telco several opportunities to outthink and outpace its competitors. We also look at possible areas of focus for telcos in terms of predictive analytics.
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Table of Contents

1. Introduction 4
2. The Business Value of Predictive Analytics 4
3. Predictive Analytics Opportunities In Telecom 4
4. Conclusion 8
Introduction

To borrow a term from Harvard Business School (HBS) professor Clayton Christensen, ‘disruptive innovations’ like Mobility, Cloud Computing, Social Networks and Big Data, have changed the way businesses are being run. Arguably, no other industry has witnessed changes as turbulent on account of these technologies as the telecom industry.

The consumer’s ever-changing priorities have made it increasingly difficult for telecom operators to remain profitable. Encouraged by their success in utilizing analytics to gain a better grip on revenue and operations, telcos are now adopting analytics across several functional areas. While leveraging key metrics for decision making is not new, ‘managing through numbers’ has taken on a new meaning.

Predictive analytics, which started off as an IT function, is no more owned by IT alone. It is conceptualized, executed and measured by business managers who view predictive analytics as a strategic capability that is expected to pay rich dividends in the marketplace.

The Business Value of Predictive Analytics

Analytics is a widely used blanket term and often includes most data warehousing, business intelligence, online analytical processing (OLAP) and predictive analytics development activities, and their underlying technologies. Our focus here is on predictive analytics, the activity of building statistical models to solve business problems. Figure 1 illustrates the complexity and business value obtained from various analytics activities.

Predictive Analytics Opportunities in Telecom

Marketing, sales and customer relationship management are some of the areas where the returns from Analytics are the highest.

Ideally, analytics-driven telcos must have predictive analytics embedded in all their business processes, thereby moving away from decisions based on gut feeling or intuition. Figure 2 illustrates the four phases of a telco customer life cycle – Acquisition, Relationship, Retention and Win-back. Each phase can have several embedded analytical models, which can enhance operations considerably and provide a strategic advantage.
Predictive Analytics Models-A Closer Look

**Campaign Analytics**
Earlier, up-selling through campaigns used to be carried out through trial and error. Nowadays privacy norms forbid operators from reaching out to customers repeatedly. Hence, all instances of customer contact become significant. In such a scenario, analytics can help develop a ‘sharp-shooting’ method to run campaigns. Based on historical data and customer profiles, it is possible to classify customers according to their likelihood of buying a product or a service through a campaign. Thus, every campaign can target the set of customers with better purchasing potential for that service/product. While these statistics-driven campaigns yield higher ROI, they also reduce the irritation caused by non-relevant communication, thereby indirectly reducing customer dissonance. Campaign analytics is most beneficial to product management teams. While response modeling was traditionally used for campaign analytics, today Net Uplift Modeling, which excludes unprofitable customers, is widely used.

**Churn Modeling**
Churn is expensive, costing telcos millions of dollars every year. Probably the most widely used analytics model in the telecom world, churn modeling helps reduce the impact of voluntary churn to the bottom-line. Typically, the model measures the ‘Churn Propensity’ of a customer, and profitable customers are wooed through a set of personalized actions, like offering free app downloads or free airtime. Here again, the value of the offers can be tailored to suit customer profitability. Churn modeling is an easy analytics option, with relatively low complexity, wide acceptance among functions and immediate results. The marketing department usually initiates these activities, and most telcos use their customer service and sales teams to execute these plans.
**Cross-Selling and Up-selling**

A very real challenge in the telecom industry is how to increase yield from the current subscribers, or how to improve Average Revenue per User (ARPU). Cross-selling and up-selling activities can now be supported by predictive analytics, while drawing on association rules and transaction histories. Analytics-driven cross-selling and up-selling campaigns provide remarkably higher returns. Moving beyond financials, they also increase stickiness and reduce the number of contacts required for cross-selling and up-selling. These models may be integrated with real-time decision engines and developed as real-time cross-selling and up-selling systems. The campaigns are usually planned by the marketing department and executed through in-bound customer facing teams, mainly call centers.

**Customer Lifetime Value Analytics**

Not all customers are the same. Although most organizations follow this credo at one level, it is important to assign a quantifiable dollar value to each customer, in order to prioritize various sets of customers. The Customer Lifetime Value model provides the predicted yield from each customer over the customer life cycle. High priority customers can be given loyalty bonuses, preferential treatment through personalized service, better credit norms for contract subscribers etc. This analytics model may be utilized across all the functions like marketing, credit Risk, customer service and so on.

**Customer Segmentation**

This has been one of the main analytical models in the telecom industry. Customers are segmented both at the pre-subscription and subscription phases. At the first stage, segmentation helps reach out to prospects with higher predicted conversion rates, thereby increasing the campaign success rate as well as the ROI. During campaigns, subscribers are divided into segments to which specific campaigns are targeted. This approach helps eliminate meaningless segments that unnecessarily clutter the thinking and execution of the campaign. More often than not, the marketing teams drive the segmentation exercises.

**Fraud Analytics**

Fraud is a key root cause of lost revenue in the telecom industry. Efficient fraud detection systems can help telcos save a significant amount of money. Fraud detection systems depend on data mining algorithms to identify and alert the telco to fraudulent customers and suspicious behavior. While data mining techniques help only in the areas of subscription fraud, it is useful to remember that there can be several methods of fraud, requiring other analytic models to aid detection. Risk management teams are the largest users of fraud management systems.

**Marketing Spend Optimization**

Telcos spend heavily on mass media, sometimes even eclipsing traditional heavy spenders like the consumer goods industry. These spends cover television, newspapers, radio, magazines, and the internet. The marketing spends are often apportioned on the basis of instinct rather than hard facts. A Marketing Spend Optimization model helps marketing managers and product managers take decisions based on what works and what does not. This analytics model has been of considerable benefit to the marketing function, and is hence widely used to improve marketing Return on Investment (ROI).
Network Optimization

Network management is possibly the most complex operation in a telecom company, given the sheer enormity of the metrics involved, the size of the investment decisions and the cost of a failure in terms of customer perception. Predictive analytics help forecast traffic patterns and peak period routing, and is thus of immense benefit in the smooth running of network operations. Analytics can ensure that network operations are run as pro-actively and scientifically, taking cognizance of changing traffic patterns.

Price Optimization

Price optimization contributes significantly to revenue development and profitability and is especially important in the corporate sales segment, where awareness of the impact of the various pricing options offered is critical. Simulated scenarios can help evaluate the revenues at various price points. These models are widely used by product managers and finance teams.

Sales Territory Optimization

Maximum market coverage and sales efficiency are the hallmarks of a well-optimized territory structure; hence, optimization of sales territories is necessary to align and balance workload and market potential. In Asian and African geographies, the focus of the model is usually on how to reach the markets efficiently, while in the North American and West European geographies, this model is used mainly for revenue and workload allocation activities. It’s also extensively used for allocation of territory for managing operations, among channel intermediaries in pre-pay business units.

Social Network Analysis

Traditionally, customers have been measured in terms of the revenue they bring to the telco. In this age of social media, how can a telco measure the value of a customer who is ‘socially influential’ among his/her peer groups? It is well-known that early adopters in families and offices influence a large number of followers. Such ‘influencers’ require a special, differential treatment, even though their billing is often low and customer lifetime value is not very high. This kind of differentiation is possible through Social Network Analytics. This model is of great help in the areas of churn prevention of profitable customers, cross-selling of new products and so on. There have also been instances where social network analytics have been used to test advertisements.

Social Media Analytics

Listening to the customers and understanding their needs is crucial, especially in this era of viral communication. While it has been an established practice to undertake sentiment analysis based on content from call center logs and social media through reporting and dashboards, predictive models can be utilized in social media analysis to listen to the written word. Data mining techniques add tremendous value in this area. Similar feedback around key discussion areas pertaining to the telco’s activities can be clustered using various algorithms.

Web Analytics

Web Analytics has traditionally been an area where only reporting or dashboarding was implemented. Now organizations are utilizing predictive analytical models to take web analytics to a new level. Using data mining techniques, customer profiles that help determine which factors differentiate the behaviors of one group from another, may be generated. Models can be used to identify new visitors and predict their future behavior, for example, if they will subscribe to a particular service or not.
Conclusion

As elaborated in the earlier sections, predictive analytics can bring about a quantum change in the way various activities are viewed and executed, across functions and hierarchies. The key benefits that telcos reap out of predictive analytics are diverse— from identifying and seizing new opportunities, and risk management, to reducing cost and improving efficiencies.

So how does a telecom operator start using predictive analytics? While the best models to prioritize would vary across organizations, it is easier to start with models like churn modeling and campaign analytics modeling, purely from a data readiness perspective. Though we have covered the key opportunities available to a telco for applying predictive analytics in this paper, more opportunities and a number of models are also available to the organizations that opt to use predictive analytics.

References

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TCS’ Telecom Business Unit is the second largest vertical contributing higher percentage to the overall TCS revenues. With a dedicated pool of professionals and an accumulated experience and ongoing associations with world-class Telecom service providers and equipment manufacturers, TCS has acquired unparalleled understanding of the Telecom domain.

TCS helps wireline, wireless, broadband, and cable service providers redefine their markets with innovative solutions that help them become more agile, reduce fixed operations costs, and introduce next generation services. TCS sets customers apart from their competitors with instant access to industry solutions, best-in-breed technology, assets, and frameworks.

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