

Case Study: Communications, Media & Technology

## Tackling customer churn with machine learning and predictive analytics

A software company gains a 360-degree customer view to feed renewals and additional sales.

With a central hub of customer data and predictive analytics, a successful software company is now able to predict customer churn more accurately and spot cross-sell and upsell opportunities.

It's always costlier to acquire customers rather than to retain them. But as subscriptions for its software and services approached renewal, the company had no window into customers. Sales managers and senior executives lacked a central repository of information on past transactions, key decisions makers on accounts, and product-related issues – the kinds of details that help sales expand and close more deals.

With the company's decision to move all of its transactional systems to the cloud, the time was right to act on its interest in predictive analytics and churn probability.

### At a glance

A software company's implementation of a central data repository and predictive analytics enables it to predict customer churn more accurately and spot cross-sell and upsell opportunities.

### Outcomes

- Customer churn algorithm predicts at 80% accuracy.
- The solution's automation reduced manual efforts by 75 to 80%.
- Identified \$12 million in possible cross-sell and upsell opportunities.

## Incorporating Machine Learning

Cognizant was an existing partner for the software company. We'd worked with the company's data warehouse and business analysis for several years. Based on our longstanding relationship, the client chose our team for the customer 360 analytics project.

Incorporating machine learning (ML) into the analytics model elevated the customer 360 solution in several ways. For one thing, applying ML would enable the client to proactively take steps to retain customers who are about to churn and unlikely to renew their contracts. It would also let them prioritize churning customers, targeting those that are high risk and high value.

What's more, ML would allow the dynamic recommendations that the client sought. Instead of segregated customer bases for its products, the company would be able to connect the dots across its portfolio, spotting patterns and trends and dynamically leading it to customers most receptive to cross-sell and upsell.

## A Solution for Determining Customer Churn

The big data and ML solution our team developed uses Cloudera to host the transactional data and Hive for transforming the data. The Apache Spark in-memory processing engine determines customer churn probability and cross-sell/up-sell options.

Our team partnered with the client on an agile delivery approach to design and implementation. Following are the solution highlights:

- **Automated ETL.** By automating the extraction, transform and load of transactions data to the Cloudera data lake, the client collates data from multiple sources into a central location for easy access and analysis.

- **360-degree view.** The 360 view derives from pre-processed, customer-centric data that feeds into the QlikView dashboard. Data includes details such as account hierarchy from MDM, contact details, and bookings history.
- **Identification of churn probability and potential cross-sell opportunities.** Apache Spark relies on 28 features per customer to build the core engine.
- **Flexibility.** The solution can be used for as many as 20 product types and 150,000 customers.

## Client Benefits

The solution's flexible dashboard enables views of customer performance at all levels, such as how many orders they have booked and products they have purchased. Data that's fed to the dashboard details churn probability, propensity-to-buy scores, and customer lifetime value. With the information in hand, sales managers can extend offers of discounts and premium support to reduce churn. Segmentation enables the company to identify potentially high-value customers.

Use of the model has helped the company to identify the key factors driving customer churn and to estimate total revenue at risk. The algorithm predicts customer churn with 80% accuracy. The solution's automation of data ingestion, massaging and analytics reduced manual efforts by 75 to 80%. It identified \$12 million in possible cross-sell and upsell opportunities.

---

## About Cognizant Communications, Media & Technology

Cognizant Communications, Media & Technology (CMT) business unit helps clients transform into people-centric enterprises – enabling businesses to create new business models that deliver more personal and relevant customer experiences. We combine human insights with advanced technology to translate customer needs into differentiated content, products and services that power our clients’ future. Cognizant applies domain expertise and digital know-how to help CMT companies optimize performance for today and accelerate digital transformation for tomorrow. Our technology innovations, proven solutions product and software engineering expertise, creative interactive prowess and global delivery excellence enable businesses scale to meet the needs of the market. Visit us at [www.cognizant.com/communications-media-technology](http://www.cognizant.com/communications-media-technology).

---

## About Cognizant Digital Business

Cognizant Digital Business helps our clients imagine and build the Digital Economy. We do this by bringing together human insight, digital strategy, industry knowledge, design, and new technologies to create new experiences and launch new business models. For more information, please visit [www.cognizant.com/digital](http://www.cognizant.com/digital).

---

## About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world’s leading professional services companies, transforming clients’ business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 193 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at [www.cognizant.com](http://www.cognizant.com) or follow us [@Cognizant](https://twitter.com/Cognizant).

---

# Cognizant

### World Headquarters

500 Frank W. Burr Blvd.  
Teaneck, NJ 07666 USA  
Phone: +1 201 801 0233  
Fax: +1 201 801 0243  
Toll Free: +1 888 937 3277

### European Headquarters

1 Kingdom Street  
Paddington Central  
London W2 6BD England  
Phone: +44 (0) 20 7297 7600  
Fax: +44 (0) 20 7121 0102

### India Operations Headquarters

#5/535 Old Mahabalipuram Road  
Okkiyam Pettai, Thoraipakkam  
Chennai, 600 096 India  
Phone: +91 (0) 44 4209 6000  
Fax: +91 (0) 44 4209 6060