Cognizant

Case Study: Banking

Causality AI Informs Credit Card Collections

US financial services company uses causality to analyze behavior of customers in default on credit card debt, to improve collections efficiency and cut costs.

Collections is a laborious, costly business. Collections agents expend hours trying to cajole payment from customers in default – making telephone calls and sending texts, emails and letters to people who do not pay their bills on time. Since agents receive commissions based on how much they collect, turnover soars if failure rates are high.

Deciding how much effort to expend on seeking payments from debtors in default is an enormous challenge for credit card issuers. Some cardholders cannot pay and never will. How do you know when collections efforts will never pay off – and when they may?

Know when to hold, when to let go

A large US-based issuer of branded credit cards is writing off nearly $1 billion in consumer credit debt every year. It employs thousands of agents to recover

At a glance

Using a "white-box" artificial intelligence engine, we helped a large credit issuer to more fully understand behavior of consumers defaulting on credit card debt and the likelihood of collections.

Outcomes

- Designed model to review voluminous data on slow- and no-paying credit customers.
- Identified factors determinative of consumers' payment behavior.
- AI engine forecast $10 million in call-center savings.

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a portion of amounts owed by consumers in default. Collections costs more than $30 million annually, and agent turnover runs at more than 40%.

In a solution development project that arose from discussions in our Cognizant Collaboratory, our client asked if our **AI-based causality engine** could help them refine collections activities. The goal was to learn if particular strategies – such as texts vs. calls, days vs. evenings – were more effective than others.

A causality engine is a type of AI derived from information theory. It applies a query about *why* something happens to a large volume of data, without preconceptions or relying on predetermined algorithms. A causality model's self-learning capability allows it to produce outcomes even in a volatile business climate, ignoring outlier data or missing data, taking in new data rapidly and adjusting accordingly.

Rather than developing an algorithm and model based on preconceptions of a desired result and then testing it for efficacy, a causality model adopts an hypothesis as an outcome, then parses massive amounts of data to determine what variables relate more than others to that outcome. Our causality AI engine separates relevant and causal factors from non-relevant correlative ones, giving business users insights into what drives certain outcomes and allows them to choose the next best action.

How what leads to why

A number of variables affect consumers' ability to pay debt. Some important information is gleaned when they apply for cards: address and zip code; employment, salary and wage information; FICO score, and whether they own or rent their home. Other variables seem to offer information relevant to predicting if they could pay: how much debt they carry and other types of credit.

We applied our causality engine to large volumes of monthly data on creditors already in default, to identify which of the company's collections activities were most determinative of the likelihood of payment. The information our client wanted to analyze is protected by regulations governing the use of personally identifiable information (PII). So, our client sanitized monthly data on collections activities; we then created an automated process to formulate comma-separated values (CSV) files as usable information, using Python scripts and R-scripting, before inputting them into our causality engine.

Our AI agent yielded a significant finding: the factors our client thought most determinative of collections success were not relevant to payment outcomes. Instead, we showed that certain consumers will never pay no matter how much effort is expended, while others will pay over time, before a debt must be written off.

However, for a third group, our causality engine showed that collections efforts could pay off, literally, by encouraging non-payers to pay down outstanding debt. Our proof-of-value determined that directing collections activity toward that third group would result in $5 to $7 million in increased revenue, and as much as $10 million in annual savings would be realized by applying all these findings to collections. These higher collections are expected to increase employee commission compensation and, at the same time, reduce turnover rates, hiring expenses and training costs.

We are now engaged in conversations about improving processes for gathering data and upgrading internal systems, and how our causality engine could help improve risk management, including in lending.

For more information on our AI solutions, visit www.cognizant.com/ai.

About Cognizant Banking and Financial Services

Cognizant's Banking and Financial Services business unit which includes consumer lending, commercial finance, leasing insurance, cards, payments, banking, investment banking, wealth management and transaction processing, is the company's largest industry segment, serving leading financial institutions in North America, Europe, and Asia-Pacific. These include six out of the top 10 North American financial institutions and nine out of the top 10 European banks. The practice leverages its deep domain and consulting expertise to provide solutions across the entire financial services spectrum, and enables our clients to manage business transformation challenges, drive revenue and cost optimization, create new capabilities, mitigate risks, comply with regulations, capitalize on new business opportunities, and drive efficiency, effectiveness, innovation and virtualization. For more, please visit www.cognizant.com/banking-financial-services.

About Cognizant Artificial Intelligence Practice

As part of Cognizant Digital Business, Cognizant's Artificial Intelligence Practice provides advanced data collection and management expertise, as well as artificial intelligence and analytics capabilities that help clients create highly-personalized digital experiences, products and services at every touchpoint of the customer journey. Our AI solutions glean insights from data to inform decision-making, improve operations efficiencies and reduce costs. We apply Evolutionary AI, Conversational AI and decision support solutions built on machine learning, deep learning and advanced analytics techniques to help our clients optimize their business/IT strategy, identify new growth areas and outperform the competition. To learn more, visit us at cognizant.com/ai.

About Cognizant

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