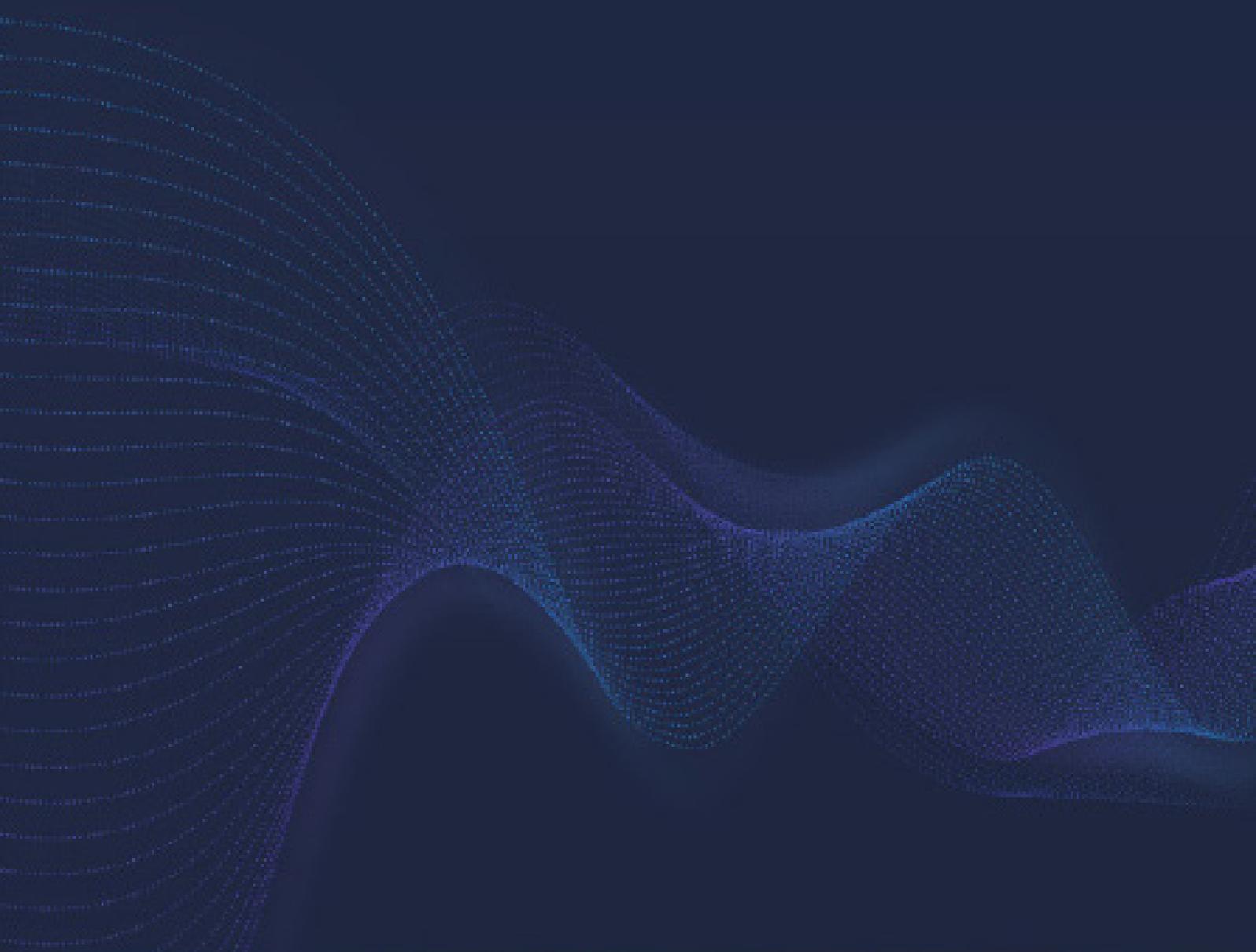


CONFIDENTIAL INSURANCE COMPANY

Predict Future Claim Risk



THE CHALLENGE

AMP Insurance was interested in evaluating the ability to predict the probability of future claims by prospects during their underwriting process.

Claims are both the main risk, and the main cost, for insurance companies. The heart of the insurance business model is the ratio between the income from new underwriting policies, and the costs of new claims. If an insurance company can reduce the number of claims, it directly increases its profitability.

Claims are typically associated with life circumstances—health conditions, accidents, thefts and so on. Therefore, the typical underwriting process tries to assess the risk associated with such circumstances: a prospect's health condition, personal car accident history, theft statistics in the prospect's living area, and so on.

However, many insurance claims are also related to the prospect's behavioral tendencies. People that take more risks, are more impulsive, careless, less responsible, less conservative, have lower personal integrity, are less organized, less self-disciplined, and have higher chances of being potentially involved in events leading to insurance claims, i.e. car accidents, life-threatening health conditions, victims of thefts, victims of fraud and so on. Therefore, it is probable that

accounting for such behavioral characteristics within the underwriting process will lead to reduced future claims. AMP insurance wanted to evaluate the ability to predict behavioral characteristics with the risk of future claim potential.

THE SOLUTION

The typical insurance underwriting process usually involves a phone interaction between the prospect and the insurance agent. Insurance companies operate large call centers that handle many phone interactions with the customers and prospects. The phone calls are recorded, and AMP realized that these ongoing interactions could serve as an information source for the behavioral assessment. They decided to evaluate behavioral speech analytics for assessing the behavioral characteristics of their prospects.

They chose to evaluate Voicesense and the Future Claim Predictor solution. The solution provides a risk classification score (probability) of the behavioral tendency, in this case of potential future claiming, based

on analysis of the prospect's voice. The evaluation objective was to assess the accuracy of Voicesense predictive analytics for future claiming.

The validation study consisted of 167 phone interaction recordings of insurance customers. The calls were from the initial underwriting call, when the customers purchased the policy. They wanted to assess if analysis of this initial call could predict future claiming in the years ahead.

The recordings in the sample were historical calls from a period of several years prior to the evaluation, so by the time of the evaluation the company already had claiming information of the customers. Consequently, each recording was labeled for future claiming (yes/no).

Voicesense received the call recordings audio from the company. According to predictive analytics best practices, the sample was divided into separate training and testing sub samples. The company gave Voicesense the future claiming labels (yes/no) only for the training sample.

Voicesense ran its vocal analysis with its machine learning modeling and trained the predictive model on the training sample calls. The model was then applied to the testing sample and Voicesense gave the company the future claiming risk predictions for the testing sample calls.

The company then compared Voicesense predictive classifications for the testing sample calls to the actual future claiming outcome.

THE RESULTS

Voicesense classified the risk predictions of future claiming into three categories—Low, Neutral, and How Risk. 23% of the customers were classified as High Risk for future claiming, 58% as Neutral Risk and 19% as Low Risk.

The results showed that the future-claiming rate among customers that were classified by Voicesense as High Risk, was over four times higher than the future claiming rate among customers that were classified by Voicesense as Low Risk. Over 52% of the High Risk group made claims in the future, while

only 12.5% of the Low Risk group made future claims.

The study provided strong validation support to Voicesense's ability to predict future claiming behavior through its acoustic speech analysis. The prediction was found to be highly significant statistically and very meaningful commercially for AMP.