FLIGHT DELAY PREDICTION MODEL

BUSINESS REQUIREMENTS
As part of its travel insurance offering, a leading U.S. insurer launched a Flight Interruption product that paid a flat benefit for cancellations and delays over two hours. The client turned to Xceedance to develop its flight delay prediction model, allowing it to better predict delays at the point of sale.

PROJECT TEAM
A team of Xceedance data scientists was formed with proficiency in predictive analytics, machine learning and travel insurance. This team worked closely with the client to gather use cases and product offerings and then developed a set of models which could predict delays and classify delay risks.

DEVELOPMENT AND DELIVERY
After applying multiple iterations and modeling techniques, project timelines were successfully observed and the solution was delivered on time.

TOOLS AND TECHNOLOGY
At the core of the solution was cutting edge machine learning technologies such as h2o.ai, R, Spark and Steam.

OVERCOMING CHALLENGES
Xceedance formulated a solution architecture and then gathered data from multiple publicly available data sources. The Xceedance solution combined flight, airport and weather data to form an analytical data set. The overall accuracy of the model was low but, when flight delay prediction probability was arranged in descending order, Xceedance was able to identify and group the flights which have similar risk characteristics. This approach was used to support dynamic pricing of the Flight Interruption product.

SUCCESS FACTORS
Xceedance data scientists created more than 50 models and conducted a business impact viability analysis on each model. Multiple versions and modeling techniques were tested that led to the final solution architecture. The model is now being used to provide a dynamic risk-matched price at the point of sale.
Despite weaknesses in the models, Xceedance leveraged insurance knowledge to develop delay risk cohorts to drive business decisions. The model is used to rank flights based on the predicted probability of delay, and to create cohorts for flights with comparable risks of delay.