



DataRobot Helps D&G Find Success When the Price Is Right

By focusing on customer satisfaction and personalization, Domestic & General (D&G) has become the largest appliance and gadget insurance company, with 9 million customers in the UK and 16 million customers globally. As experts in specialist warranties, D&G will fix, or replace, appliances covered under their warranties (which offer more coverage than other warranty providers)., D&G's aim is to deliver personalized and relevant offers for complementary services and products that make sense for that customer.

Personalizing and delivering relevant offers to customers – such as a product or service plan they need, at a price point that makes sense and makes them more likely to convert – required the D&G pricing team to build a lot of models for each customer. With million customers in the UK alone, it became clear very quickly that D&G were resource-constrained for the scale of personalized customer service and offerings they were trying to reach.

Paul Davies, Head of Data Science at D&G, knew they needed to automate the building of their predictive machine learning models to deliver the customer experience they wanted.

There's no way we can be as personal or customer-focused as we would like without the help of machine learning.

Paul Davies
Head of Data Science, Domestic & General



Domestic & General

Company Info:

Name: Domestic & General (D&G)

Location: London

Industry: Insurance



Experts in providing specialist warranties for household appliances, Domestic & General (D&G) has been giving customers peace of mind for over 100 years.

Headquartered in the UK and with more than 16 million customers in 14 countries, D&G protects over 200 different types of electrical items today.



Why Pricing Optimization Matters

Charging customers too much for products and services is not only unfair to consumers, but can put companies at serious risk of losing those same customers. Once their subscription runs out, if D&G's customers don't feel they are getting value from their service, they will not renew their service and will stop being customers.

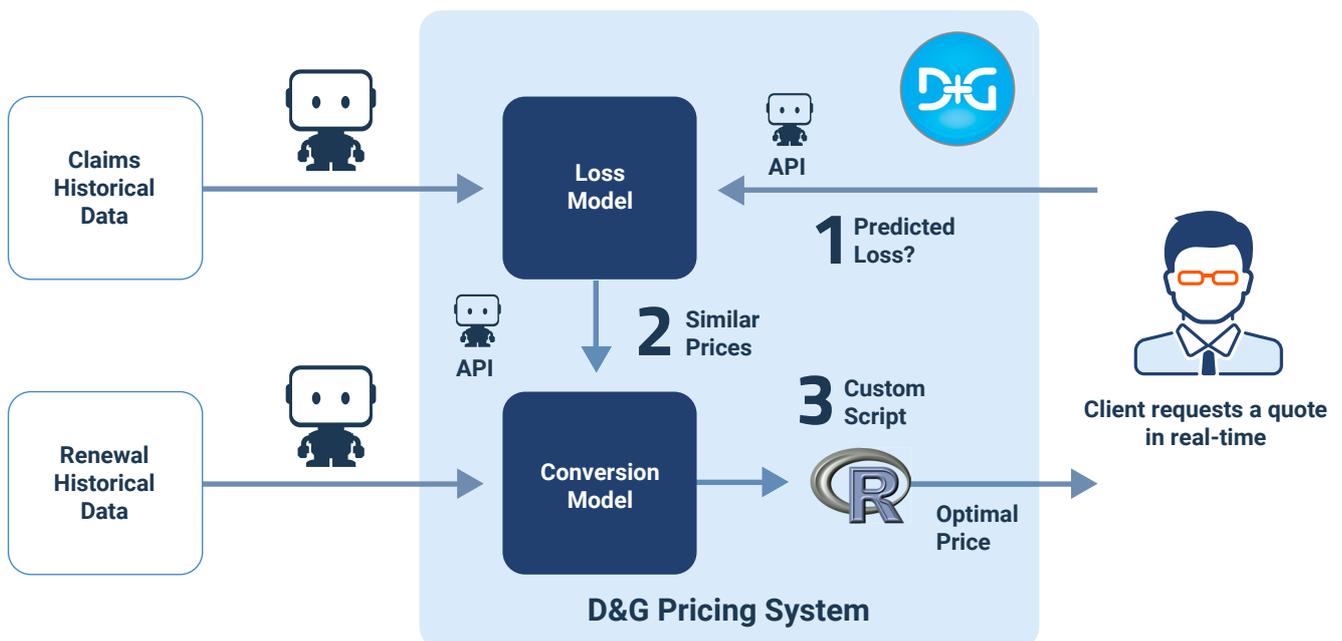
D&G wanted to predict the likelihood of churn when customers are up for renewal and settled on pricing optimization to determine the price point at which customers are most likely to be happy with the warranty coverage they receive and renew their policies. If a customer was more likely to renew for a particular service at a lower price point, D&G's pricing algorithm would deliver a personalized offer that makes sense for both the customer and D&G. But delivering this level of personalization to individual customers required building a lot of pricing models.

As recently as early 2017, there was no real data science function at D&G. At the time, Paul's pricing team wrote models in R and Python (coupled with a bespoke algorithm) to get optimal pricing for each customer, which required building pricing models, demand models, cancellation models, and more. This laborious manual process just wasn't scalable.

"If you have to build four models just to optimize price and each of those models takes one day, that's four days for just one batch of customers," said Paul. "Data science existed at D&G before DataRobot, but personalization was for only a small amount of our customer base and clients. Before DataRobot, we went from 10,000 customers getting an optimal price using custom models up to about 40,000. We were ramping up, but at too slow a rate."

D&G was already collecting massive amounts of historical data, much of it given by the customers themselves when they applied for the warranty. With data points on who they are, where they live, how likely they are to claim, what appliances they own, how long they have been a customer, and how many plans they have, among other important predictive data, D&G could easily deliver personalized and optimized price predictions for each customer. All they needed was some help automating their manual process for building multiple models at speed.

They needed DataRobot's automated machine learning platform.





The DataRobot Impact

D&G launched a POC engagement with DataRobot at the beginning of 2017. They tested a price optimization approach with the DataRobot API, and that POC delivered more accurate models – and in less time – than the status quo in R. The results were presented to D&G’s CIO and MD and once they got buy-in and security approval to move forward with the cloud, D&G was up and running and ready to optimize pricing for all its customers.

“When we put DataRobot in, we could build models much more quickly and ramped up to where we are today – about 300,000 customers a month getting an optimal price using a machine learning model.”

That massive improvement in scale and productivity was a direct result of using the DataRobot automated machine learning platform. Instead of taking one person a whole day or longer to build just one model with their old process, D&G can now build a model in just one hour with DataRobot. Now, all of their pricing models are built in DataRobot and fed into D&G’s price optimization system.

For each customer, D&G’s pricing system makes a call to DataRobot and identifies the customer’s profile. “If it’s a middle-aged bloke from Croydon who owns a washing machine, and all the hundreds of other variables from his data points, DataRobot will spit out 200 price points for him, with a prediction at each price point,” explained Paul. “At \$100, they’re 80% likely to renew. At \$101, they’re 79% likely to renew. At \$102, they’re 78%. And so on.”

The system then identifies the optimal price where this “middle-aged bloke from Croydon” will most likely renew and be happy with his service and delivers that to him at the time of renewal. D&G currently does batch predictions for 300,000 customers each month, using DataRobot to predict 200 price points for each of their customers. **And the business impact from this new automated process has been significant: uplifts from pricing optimization has gone from around 1.5% of revenue to close to 4%.**

And D&G is ready to take price optimization predictions to the next level. “We want to deliver optimized pricing in real-time for every customer, for every point in the organization,” said Paul. “Very soon all pricing throughout D&G – not just for renewals – will go through price optimization in real-time underpinned by models built in DataRobot. So that will be 500,000 to a million price quotes a month.”

The Future of Machine Learning at D&G

The productivity gains provided by DataRobot has been a huge hit among Paul’s data science team, both among incumbents and future prospects. With the Jupyter notebook within the platform, the team retains flexibility if someone wants to write their own code – something Paul encourages – while still having the benefit of automation in a pinch.

“When we bring up DataRobot to potential data scientist candidates, they’re quite enthusiastic to be able to use a piece of software that really improves your speed of working,” said Paul. “Especially since we sometimes just need a quick and effective model to answer a question, and building even a quick and effective model in R



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— Paul Davies

or Python takes a bit of time. But with DataRobot, we scrub the data down, throw it in, have a look at what's going on and we can have a model done in a couple of minutes."

Paul has already envisioned the near-future of machine learning with DataRobot to encompass much more than pricing optimization and quick and effective" answers. The company's goal is to look at each of their major function areas – reducing complaints, personalizing marketing offers, increasing product core with customers – and enhance each area of the business one-by-one through automated machine learning.

"We want to be truly customer focused with all our 16 million customers, and to do that we need to be able to predict the potential behavior for each of them to put the right offer in front of them at the right time," said Paul. "There's no way we can be as personal or customer-focused as we would like without the help of machine learning."



D&G's headquarters in Wimbledon, London

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Contact Us

DataRobot
One International Place, 5th Floor
Boston, MA 02110
USA
www.datarobot.com
info@datarobot.com

