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Embedded Experimentation at Intuit Yields a Successful Data Product

By Thomas H. Davenport and George Roumeliotis

[Intuit](#) Inc., like a growing number of innovative companies these days, is trying to provide value to its customers from the vast amount of data it stewards on their behalf. Intuit is entrusted with the collective data of 45 million customers – a unique pool of data that covers the financial spectrum, ranging from individual purchase history to business inventories. The company has a culture of experimentation, and its founder, [Scott Cook](#), has encouraged employees to experiment ([rather than listen to their bosses](#)).

But the company has found that fully bottom-up experimentation is not enough to create great new data products and services. It learned that it also needs professional data scientists to surface and implement business opportunities based on data and analytics, and [it has hired or acquired a substantial number of them](#). There are still not enough data scientists to serve everywhere in the company, however, so the central Data Science and Analytics organization did its own experiment: it requested business proposals from product teams competing to have an embedded data scientist for 3 to 6 months.



Alison Yin/Associated Press

Entrepreneur, author and reality star Bill Rancic, left, and Brad Smith, CEO, Intuit, Inc., speak at Intuit QuickBooks Connect on Oct. 22, 2014 in San Jose, Calif.

In one early case, the experiment was successful. One of the winning product teams was QuickBooks Financing (QBF), [a nascent “two pizza” team](#) whose mission was to leverage the power of QuickBooks data to simplify the loan application process and match qualified small businesses with lenders. QBF got an offering off the ground, in part with help from its assigned data scientist, Diane Chang.

Intuit's experience suggests not only the virtues of experimentation and the importance of data products, but also the value of a "forward deployment" / "embedded tour of duty" / "special forces" model for strategically deploying data scientists. Other companies, [including Procter & Gamble](#) have also gotten great value from the embedded analyst model.

The QBF team knew that many small businesses, especially new ones, have difficulty getting the financing they need. Analysis revealed that the majority of SMBs (60% of QuickBooks users) sought financing in the last 2 years, but 70% of those applications were rejected. Credit risk underwriting for small businesses is often not based on the health of the business, but rather on the personal credit scores of the principals. Banks also have a bias toward the specific industries that they understand best.

The system doesn't always work well for banks either. They often find it hard to find qualified leads, and the low approval rates due partly to the focus on personal data lowers their productivity and their ROI, particularly for loans under \$50,000.

So Intuit's vision was to deliver one-click funding to all QuickBooks SMBs who needed and deserved it. Ms. Chan was asked by the QBF team to dive into the data. She initially looked at the historical QuickBooks data under the hypothesis that it could directly predict a small company's default risk. However, it quickly became clear that Intuit could provide the highest value by carefully matching a small business to a financing provider based on the historical QuickBooks data of the small business and the attributes of the financing provider.

Ms. Chang developed a matching process that accesses the small businesses' QuickBooks data, including details like yearly revenue, number of years in business, industry, and so on. The process then compares these numbers against each lender's criteria to find the best match. QuickBooks Financing only recommends applicants to vetted lenders who are likely to approve them, can offer the best terms (in many cases the banks offer QBF-screened applicants better rates than if a SMB walked into a branch) and offer an easy closing process.

Since its debut a year ago, QBF has connected over 2,000 small businesses to over \$100 million in funding. Seventy percent of pre-screened applicants are approved, compared with a 70% rejection rate for the industry. And because applicants complete a single, simple form, those applicants are delighted with the ease of the experience.

Furthermore, the QuickBooks Financing product team has grown, and has hired its own full-time data scientist and a couple of data analysts. The success of this "data product" in QBF has inspired other groups within Intuit to look for more, with heavy encouragement from Mr. Cook and Intuit's management team. Ms. Chang has moved on to work with other teams and the corporate group, but she and other data scientists who have been assigned to opportunities like QBF believe that it's a great way to connect data science expertise with real business opportunities.

Thomas H. Davenport is a Distinguished Professor at Babson College, a Research Fellow at the Center for Digital Business, Director of Research at the International Institute for Analytics, and a Senior Advisor to Deloitte Analytics.

George Roumeliotis is currently a Senior Data Scientist at Intuit, where he leads strategic initiatives to drive business growth through innovative applications of data and analytics. He also leads company-wide programs to develop and mentor early career data scientists and data analysts. Prior to Intuit, he has extensive experience leading the design and implementation of data-driven business solutions in fields ranging from computational advertising to just-in-time supply chain planning. And, in a previous life, he was an astrophysicist studying magnetic and plasma phenomena on the Sun.