

## Innovation in Predictive Analytics

Financial technology, or fintech, firms are revolutionizing the financial services industry. Unburdened by regulation and legacy IT systems, new entrants are focused on providing faster, cheaper and more user-friendly products and services. Fintech customer expectations are high and are increasing every day as significant technology advancements are generating faster, nearly friction-free financial transactions. To meet, and even exceed, such sky-high expectations, fintech companies are deploying data analytics to reduce that friction further to almost anticipate customer requirements.

In this paper, part of Protiviti's series exploring how new technologies are disrupting financial industries, experts Shaheen Dil and John Harris discuss advances in the use of predictive analytics.

### How are predictive analytics currently being used?



**Shaheen Dil, Managing Director and solution leader of Protiviti's Data Management and Advanced Analytics practice:** There are many types of predictive analytics: customer analytics;

workforce analytics; and operational analytics, which includes process optimization as well as predictive surveillance tools for compliance or internal audit.

Customer analytics model customer behavior, encompassing customer attrition, customer loyalty, customer experiences and marketing analytics. This type of analytics work caters to heads of marketing, business development, or heads of strategy, for example. Digital and social analytics give firms the ability to monitor and measure digital social sentiments to gauge brand awareness and reputation and can be used for other types of predictive modeling, as well.

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Workforce analytics are used by human resources and recruiting teams to determine how to hire high-quality people, identify key motivators and appropriate compensation, for example. Business leaders may also be interested in determining employees' propensity to churn.

Operational analytics have a wide variety of applications, from process capacity modeling and process optimization to vendor risk management, transaction monitoring and continuous auditing. These sorts of analytics are very valuable for the second and third lines of defense because they give firms the ability to probe their data and flag potential issues before they happen. Compliance and internal audit functions are interested in developing predictive surveillance tools to enhance the effectiveness of their programs.

## How are companies using predictive analytics to their advantage?

**Dil:** Firms have an avalanche of data sitting on their systems, including unstructured assets such as emails. Using predictive analytics, firms can sift through that data to reveal insights they never knew existed. Larger organizations have improved the efficiency of their regulatory compliance programs through the use of predictive surveillance tools. Internal audit is using predictive and data analytics to optimize scoping and utilization of their people. However, financial institutions are still playing catch-up in their use of predictive analytics in the customer analytics space compared to retail, for example.

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For small- and medium-sized players and new entrants, such as fintech companies, predictive analytics provides a significant competitive advantage. These companies are starting to look at the data that they capture and protect, including what customers are purchasing when they use their services. At the higher level, this may be analyzing if they buy more food rather than hardware products, but on a more granular level they can analyze the customer's average spend. Financial services firms are starting to sell that information back to the merchants. Big data technology gives firms the ability to aggregate all of this information quickly and provide a rapid response to improve the customer experience and to aid marketing efforts. For example, some firms are leveraging information on credit profiles and spending habits to try to tease customers to transfer balances from competitor credit cards to their own products.



**John Harris, Senior Manager, Data Management and Advanced Analytics, Protiviti:**

Financial institutions are also starting to use predictive analytics to analyze loan or credit portfolios that they buy in bulk. Predictive analytics tools can be deployed to help firms understand the risk profile of those loan portfolios and conduct their own risk evaluations.

Customer analytics can also be used during the due diligence process for a merger or acquisition to help firms really understand the customer base and value of the target acquisition.

Companies can deploy workforce analytics to better understand human resource (HR) risks and costs. Some firms use analytics to determine the risk of losing key staff, for example. Many banks are already using customer analytics but often that activity isn't aligned with the work they conduct for determining credit risk, for example. We conduct a lot of work in developing models and understanding the risk of whether or not the consumer is actually going to pay back the loan, but I'm not sure that banks are particularly good at taking both of those things into account at the front end when they launch marketing efforts. This is difficult for larger financial institutions to do because much of the required information is siloed within the organization. Implementing Governance, Risk and Compliance (GRC) systems makes this easier but there is still much work required in connecting the data to be able to actually develop the analytics.

## As startup firms, are fintechs building in analytics capability from the outset?

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**Dil:** There is some evidence they are doing that. But rather than using predictive modeling to gain a good understanding of the customer that everybody in the organization can leverage, they are utilizing machine

learning techniques because they are fairly cheap to implement. The challenge with machine learning is that it doesn't tell the business executive anything about the customer. If the business tries a new marketing or sales approach, machine learning will not be able to predict the likely outcome. However, with predictive modeling techniques, we can identify patterns of behavior and extrapolate. Machine learning is often used as a black box. It can select the best option among the existing options. Predictive modeling can drive insights that business leaders use to formulate new options based on a better understanding of the customer.

**Harris:** One of the challenges for financial institutions is determining who owns the data gathered on spending habits. The retailer? The payment processor? The bank? The retailer has the biggest claim on the ownership of their customers' spending data and as such they are able to conduct detailed analyses on spending habits. Financial institutions don't own that information but they can leverage the data they have and sell it back to the merchant to assist with up-selling or cross-selling opportunities.

### What is the estimated ROI for designing and implementing predictive analytics tools?

**Dil:** Predictive analytics projects can pay for themselves and more. The return on investment (ROI) varies considerably depending on what firms are trying to model, but we have completed with ROI ranging from a few thousand dollars to millions of dollars in savings and additional revenue. Typically, we target 10 percent or greater return on investment.

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The real challenge for firms, and what yields the most benefit, is to integrate predictive analytics into their core operational workflow. Even if firms have run a successful project, built a good, precise model and learned some critical insights about their customers,

they need to follow up on that knowledge to implement operational change to leverage the results. If they fail to do so, the insights they have gained are not useful.

**Harris:** The main investment required for implementing predictive analytics into the enterprise is hiring skilled staff that can identify, scrub, clean and analyze the data from different parts of the firm, and then have the managerial skills to communicate the results and the bottom-line impact to senior management. Data acquisition costs are also added into the mix, but it may be that firms can implement sophisticated analytics using existing systems with a little customization.

**Dil:** Scale is also a consideration here. Implementing a large-scale predictive analytics program embedded into an organization's operational workflow will dramatically improve the return on investment. It requires the same amount of effort to conduct customer analytics on a small data set as a large data set; while a sales model from that data would be more valuable and create more returns for a larger, national retailer. The expense of rolling out that model at the large company may be much greater, but the return will also be higher. We have had successes with cutting costs that directly impacted the bottom line. Typically, we predict a 10-11 percent return on the investment from a modeling perspective.

### Should traditional financial institutions seek to acquire technologies or develop their own predictive analytics centers?

**Harris:** This depends a lot on the organization, but at some point most financial institutions will seek to develop some in-house capability. That could range from building a centralized team staffed with data scientists with the ability to conduct modeling in-house, to firms that can own and develop the full life cycle of deploying analytics through the use of a centralized model designed and implemented by a third party that has the additional resources to assist with the change management program and implementation.

There is a need for most organizations to have some form of competency centered on being able to leverage analytics. The question is how deep they want to go in terms of owning all aspects of it. There is a lot that can be outsourced, but at a minimum,

most organizations are realizing they are going to have to train their own teams to at least understand the output of an analytics model and how to leverage it inside their systems.

**Dil:** Our recent analytics survey shows that although firms have invested significantly in the build-up of the internal advanced analytics capabilities, hired talented people and acquired expensive technology, the outcomes are not aligning with the expectations of senior management. When we speak to clients who have built up their own analytics function and models, the piece they are struggling with is how they align the people, the tools, the technologies, the processes, and the data governance aspects to deliver successful solutions to the enterprise. While firms may be building their own models, they find it difficult to re-engineer themselves. We have seen many different situations, not only best practices

but also worst practices, which makes it easier for us to diagnose where the problems lie. This goes beyond the analytics, beyond the modeling, beyond the statistics and into the core operations, the organizational and infrastructural models and the ability to tie it all together to ensure it is aligned with the expectations of the C-suite.

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