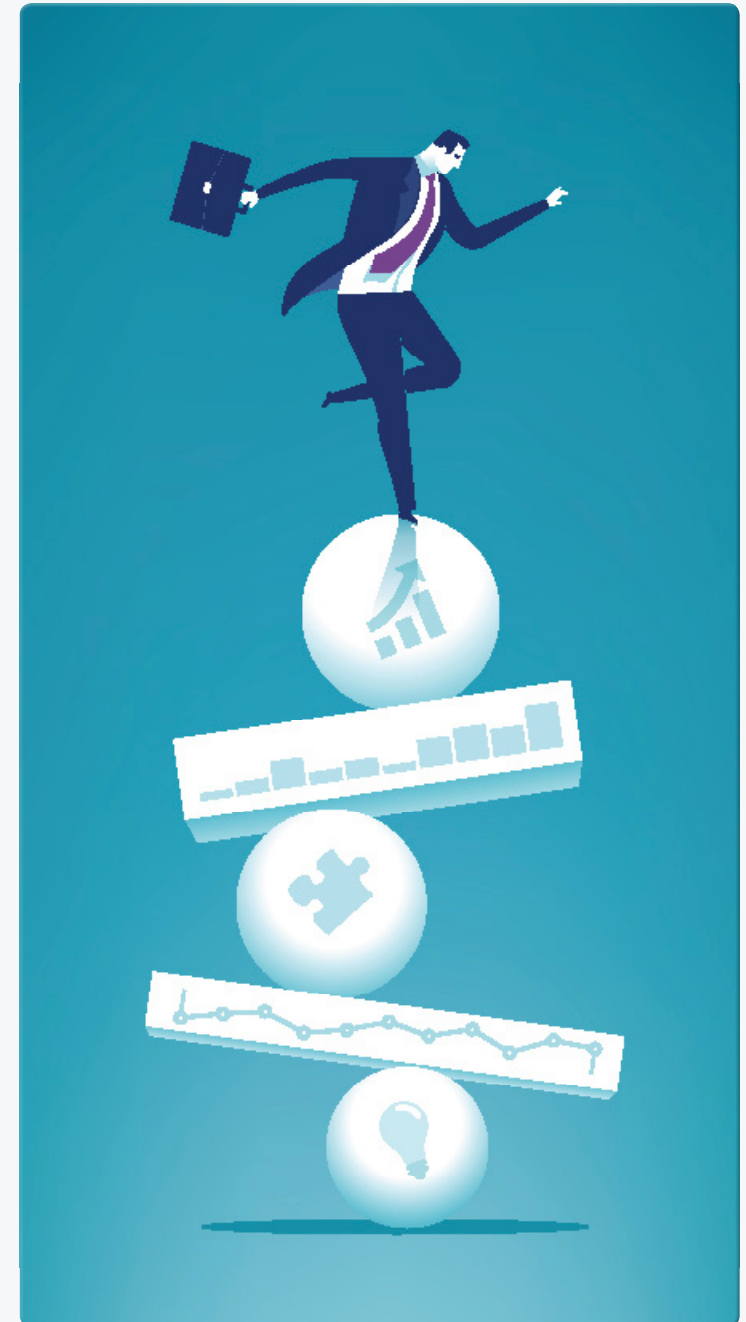




In-Memory Predictive Analytics 6 Big Sales and Marketing Challenges Solved

In-memory technology is driving down the cost and complexity of predictive analytics for sales and marketing, enabling smaller teams to uncover valuable insights. Here are six ways sales and marketing can use the predictive analytics solution from Dell EMC, SAP, and Intel to convert more prospects into customers.

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For small to midsize enterprises, big data represents a golden opportunity. Studies show that businesses that leverage data effectively experience 50% greater revenue growth than their competitors.¹

With this in mind, organizations are investing heavily in big-data analytics. According to IDC, companies spent \$122 billion on big-data and business analytics applications in 2015 and are likely to increase that spending to \$187 billion by 2019.²

Much of that spending is on predictive analytics technology that can analyze historical data to forecast future events. These solutions are particularly useful for sales and marketing teams, helping to create targeted campaigns and touches that increase sales.

However, using predictive analytics for sales and marketing poses challenges. Some predictive analytics applications are so complex that they can be used only by data scientists, who command high salaries. In addition, some predictive analytics solutions require large clusters of expensive high-end servers. As a result, until recently, only very large organizations could afford the staff and infrastructure needed to use predictive analytics effectively.

Today, in-memory technology is changing that reality. It lets less-expensive servers process large quantities of data quickly, so that more businesses can afford the necessary hardware. These new in-memory solutions also feature intuitive interfaces that let sales and marketing staff members self-service their own needs. "Marketing and sales modeling used to require intensive computing power from lots of servers

and were therefore restricted to larger enterprises," explains Dr. Jack Y. Chen, marketing decision science director at Dell EMC. "However, with today's optimized in-memory computing platforms, such as SAP HANA, Edge Edition, even midsize and small businesses can benefit from this type of analysis, with results available in real time."

To demonstrate how sales and marketing teams at smaller organizations can use predictive analytics, this guide follows an imaginary company as it deals with six common challenges.



1. CUSTOMER SEGMENTATION

Customer segmentation helps ensure that products are developed and positioned so they appeal to the target market. Predictive analytics lets organizations easily identify key characteristics that determine which prospects are most likely to buy specific products.

To see how this works, consider GoBottle, an imaginary company that sells filtered-water bottles, filters, and coolers to consumers. GoBottle's marketers feed data on customer traits in three key categories to the analytics solution:

- **Geography:** In which region or climate does the customer live? Are they international or domestic? Urban, suburban, or rural?
- **Demographics:** What are the customer's age, gender, ethnicity, education, occupation, family status, and income? (Business-to-business, or B2B, companies would use firmographics, such as annual revenue, industry, and number of employees.)
- **Psychographics:** What are their values, attitudes, beliefs, and lifestyle? To obtain this information, B2B companies can use data from information

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brokers such as Dun & Bradstreet. Business-to-consumer companies such as GoBottle can use company surveys, loyalty programs, social media activity, and purchased credit card data.

Next, GoBottle marketers correlate these traits with behavioral interactions customers have with the company. Can specific traits help predict products purchased and the frequency of purchases, as well as average margins, order sizes, time spent on the website, or annual spending? They do a similar analysis for potential customers who have abandoned their online shopping carts, identifying their traits and where they went when they left GoBottle's website.

To do this analysis, the GoBottle marketers use a decision tree that they can easily combine with the business rules defined by their business analysts. And because they're using a predictive analytics suite with advanced data visualizations, they can also use more advanced techniques, such as polynomial, exponential, and logarithmic regressions, as well as principal component analysis (PCA).

2. PRODUCT PROMOTION

The next challenge for GoBottle is getting more people from target groups to buy its products. It plans to run some promotions, but which will



be most effective?

To find out, it analyzes historical data from past campaigns, including contests, coupons, product giveaways, social media, and referral programs. It enters its marketing touch-point spending data into the predictive analytics solution. In addition, it pulls in the corresponding response rate data for each campaign. It then determines which promotions offered the best return on investment overall. It also performs an analysis to see which promotions offered the best ROI for specific segments.

Marketers can drill down into campaign data to see which messaging was most effective so they can duplicate those efforts in future campaigns.

GoBottle's customer segmentation shows that suburban soccer moms living in the South who place a high priority on getting the best value for their money are most likely to buy the lower-priced GoBottle Sport, and urban, male hipsters who live west of the Mississippi and care about good design are most likely to buy the higher-end GoBottle Pro. The promotion analysis reveals that GoBottle gets the best response rate from GoBottle Sport customers when it places end caps in big-box retailers, but it gets the best ROI for GoBottle Pro customers from

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social media campaigns. Marketers also can drill down into campaign data to see which messaging was most effective so they can attempt to duplicate those efforts in future campaigns.

GoBottle's predictive analytics solution allows its marketers to use techniques such as data preparation; decision trees; polynomial, exponential, and logistics regression; PCA cluster analysis; and survival analysis (Kaplan-Meier estimate). And because its solution uses in-memory technology, the work gets done quickly, even though GoBottle is analyzing many years of historical data for many different segments.

3. MEDIA MIX

More than a century ago, marketing pioneer John Wanamaker said, "Half the money I spend on advertising is wasted; the trouble is, I don't know which half." And that problem continues to pose challenges for today's marketers. Which media vehicles result in the best ROI?

As GoBottle gets ready to launch its advertising campaign, it again turns to predictive analytics. In this case, the team analyzes historical transactional data that shows revenue, units, and margins for all lines of business. (If GoBottle were a B2B firm, it would also analyze sales activity data for each of its accounts.) In addition,

GoBottle brings in historical marketing spending data and sales and marketing operational expenses. It also analyzes brand equity data from both internal and external sources, weekly ad exposure data, and brand-related keyword search terms from Google Analytics.

GoBottle marketers do their own data preparation and then use Bayesian inference, polynomial regression, exponential regression, time series, and Naïve Bayes algorithms to uncover valuable insights. They discover that while some media outlets offer an excellent cost per impression, they bring in customers who buy only low-margin products. The team narrows down advertising spending to those media outlets that do the best job of reaching their target markets, and it tailors the messages for each outlet so that they align with the needs and wants of the target customers most likely to view each ad.

4. CROSS-SELL AND UP-SELL

In addition to broadening its customer base, GoBottle's marketers want to get existing

customers to spend more money on GoBottle products. They're hoping to get customers who already buy GoBottle's less-expensive products to upgrade to premium ones. And they want to convince people who already buy GoBottle water bottles to buy GoBottle coolers, too.

For this project, the marketers build on the analytics they already have.

They go back to key customer segments and analyze them against the transactional data, looking for trends in their customers' past purchasing behavior that point to new opportunities.

For this analysis, GoBottle marketers will again rely heavily on decision trees, as well as polynomial regression, exponential regression, logistics regression, PCA, cluster analysis, and survival analysis. They discover that quite a few of the soccer moms who like to purchase GoBottle Sport also buy GoBottle ice coolers, so they tweak their website to recommend the coolers to people from that customer segment.

They also discover that hipsters who like GoBottle are the most likely to upgrade to GoBottle Premium, an enhanced version of

The marketers craft an up-sell campaign using their predictive analytics solution to identify the advertising media and messaging most likely to appeal to the target group.

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GoBottle Pro. The marketers craft an up-sell campaign to target this opportunity, again using their predictive analytics solution to identify the advertising media and messaging most likely to appeal to this group. They'll monitor both efforts to see if they have the expected effect on sales.

5. CUSTOMER RETENTION

The GoBottle team doesn't like to admit it, but sometimes longtime customers stop using the company's water bottles and filters and instead start buying them from a competitor. The team members wonder if they can use their predictive analytics solution to help retain more customers.

For this effort, the marketers look at transactional data from their e-commerce site and identify customers who used to purchase GoBottle products regularly but stopped. They compare that data with customer activity data in the weeks and months right before purchases stopped and look for patterns. For example, did the lapsed customers make a call to customer service? Did they start abandoning full shopping

carts when they saw shipping costs? Were they doing web searches for competitors? Did their buying slowly taper off over time?

For this analysis, GoBottle marketers use a range of algorithms, including decision trees; polynomial, exponential, and logistics regression; PCA; cluster analysis; and survival analysis. The trends that they discover help them identify the "warning signs" that a customer is about to defect. The next time a customer exhibits those behaviors, GoBottle can step in with a special offer or promotion designed to increase customer loyalty. And the company can track those retention efforts to see which ones are the most successful for various customer segments.

6. SHARE OF WALLET

GoBottle has one more big question to answer: How much money do its customers have to spend? Knowing the answer to this question would help the company set marketing and sales goals, and it would help

GoBottle know how much it could spend on lead generation and customer acquisition and still be profitable. This information would also help GoBottle calculate its share of wallet so that it could identify opportunities to generate more revenue from existing customers.

The first step in this process is to calculate GoBottle's customer lifetime value (CLTV). (If GoBottle were a B2B company, it would likely be calculating its customers' buying power rather than CLTV.) To determine CLTV, GoBottle needs to know the margins it earns from its customers, how often they purchase, and the length of time that the company usually retains its customers.

It's relatively easy to determine averages for those numbers using historical business data, but thanks to the power of its predictive analytics solution, GoBottle can also determine CLTV for each of its many customer segments. For each segment, it multiplies margins by purchase frequency and then again by retention period to determine how much profit GoBottle can expect to make from a customer segment.

Armed with CLTV numbers, the company also determines share of wallet for individual customers: It divides the amount a customer is spending by the CLTV for customers in that segment. When the share of wallet is lower than usual,

Marketers can use predictive analytics to identify customers who are on the verge of defecting to a competitor and step in with a promotional offer to encourage loyalty.

GoBottle knows the customer could be purchasing more, so it targets that person with additional marketing efforts.

Those CLTV and share-of-wallet numbers will also help guide GoBottle's future segmentation and targeting efforts so that it can focus on the most profitable prospects. GoBottle's predictive analytics solution has been part of every step of the marketing and sales process, helping make the company more successful. ■

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1. "[Global Technology Adoption Index](#)." Dell. October 2015.
2. IDC Press Release. "[Worldwide Big Data and Business Analytics Revenues Forecast to Reach \\$187 Billion in 2019, According to IDC](#)." May 23, 2016.

GET IN-MEMORY PREDICTIVE ANALYTICS WITH SAP HANA EDGE FROM DELL EMC

One of the fastest and most cost-effective ways for sales and marketing teams at small and midsize enterprises to start experiencing the benefits of predictive analytics is with the Intel-based Dell EMC Validated System for SAP HANA Edge. It's an easy-to-deploy and -manage system that provides advanced analytics without the need for a highly skilled staff. "SAP HANA, Edge Edition, gives small and midsize business a serious competitive advantage and helps them develop a deeper understanding of their prospects, customers, and products," says John Vance Sullivan, director in innovation analytics at the SAP Analytic Center of Excellence.

This complete, preintegrated solution is the first of its kind on the market and arrives ready for business users to begin building models and analyzing data. Thanks to Dell EMC's industry-leading hardware with fast Intel® Xeon® processor families and SAP HANA, Edge Edition, in-memory technology, the solution provides blazing-fast, real-time analysis of very large data sets. The included SAP Predictive Analytics Suite offers an intuitive interface and point-and-click modeling that's easy for business users to master, even if they have limited data science experience.

The predictive analytics library includes 65 advanced statistical algorithms to address thousands of typical business use cases, and the system even suggests algorithms if users aren't sure where to begin. SAP Lumira software makes it simple to create advanced visualizations that provide valuable insights at a glance. In addition, the solution includes Dell EMC's unique Accelerator Services, including implementation, data migration, training, and workshops that speed time-to-value.

The Dell EMC Validated System for SAP HANA Edge also offers a low total cost of ownership. The solution is much less expensive than competing products, allowing small and midsize businesses to get enterprise-class capabilities with the benefit of Intel® Xeon® processor families while staying within their budgets. It increases productivity for sales and marketing staff without requiring companies to hire expensive data scientists.

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