Big Data @ Work:
Turning Customer Interactions into Opportunities

At the critical moment of customer contact, predictive insights from big data can spell the difference between success and failure.

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Introduction

How important is customer experience to a company's bottom line? Oracle RightNow's annual "Customer Experience (CX) Impact Report" found that 86 percent of U.S. adults say they will pay more for a better customer experience, and 89 percent who stopped doing business with an organization due to a poor customer experience began doing business with a competitor.[1]

Technology is increasingly disrupting how customers interact with brands; simply put, today's empowered consumer demands a great experience. The digital customer is always connected—on the web, via email, by phone, or text message—and fully informed, with the ability to quickly research companies and products through search and social media. Bad news—and bad experiences—travel faster than ever, eroding trust and, ultimately, a company's ability to compete. Today, your customers have far more control over your business success. So it comes as no surprise that your company can lose an average of 21 percent in annual revenue if you do not ensure their experience is a positive one. In fact, 93 percent of executives agree that delivering a great customer experience is critical to business advantage. The impact on performance is clear. In a six-year study, customer experience leaders outperformed laggards by 77 percent.[2]

It's clear, then, that disruptive change, plus increasing complexity and ineffective execution, all combine to create barriers to growing or even "running the business" sustainably. The steps required to integrate customer experience into all facets of the organization, however, can be complicated and uncomfortable—causing many to resist transformation initiatives. While 91 percent of senior executives say they want their organization to be a CX leader, just 20 percent consider their CX initiatives "advanced"—and 37% say they are just getting started with a formal CX initiative.[3]

The longer they wait, the higher the risk of becoming irrelevant to their customers and potential customers who can easily find out about how a company performs in terms of CX.

The Big Data Challenge for Customer Experience

For many organizations, big data holds the key to unlocking a superior customer experience. Imagine the impact you could have across all customer touch points by being

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able to accurately and precisely predict—and respond to—customer behaviors at just the right time. Turning the dream into reality requires a multidimensional understanding of past, current, and future customer behavior and tastes, which collectively drives business decisions that improve customer experience.

Although companies have had plenty of internal and external customer data at their disposal for some time, they've often struggled with both the quality of data and the ability to interpret it in an actionable way. The volume, velocity, veracity, and variety of the information being collected—especially from emerging sources such as social media, mobile devices, and sensors—can quickly outpace the ability of business users to consume it, and traditional database and business intelligence platforms to process it. Businesses need to find ways to dramatically shorten the time between insight and action, because real-time decision making at the point of interaction is essential to driving a superior customer experience.

Big data analytics offers a way to harness insights across the CX lifecycle to help businesses better understand customer segmentation, profitability, and expected lifetime value. The ability to collect and quickly analyze higher volumes of structured and unstructured data from multiple sources provides more precise monitoring to better understand a customer's needs and behavior, including more powerful, predictive insights such as "next likely purchase" for marketing and sales and "next best action" for service or support.

Some organizations are closer to achieving a 360-degree view of their customers, supported by real-time decision making and experimentation that is no longer theoretical. These companies are leveraging new analytical tools and processes to test and optimize the customer experience across all facets of the organization—from marketing campaigns to fraud prevention—as a way to increase loyalty, referrals, retention, and revenue.

Capture More, Know More, Sell More

Developing a modern, 360-degree view of the

customer involves capturing as many interactions as possible from an organization's myriad systems—those that support sales, marketing, the call center, point-of-sale locations, social media, mobile, and other operations—and then building sophisticated analytical models to discover relationships hidden in the data.

Combining traditional database modeling techniques with unstructured data will help marketers gain a deeper understanding of a customer's intentions. Integrating information from all of those data sources, however, can be a significant challenge. By examining both types of data in a non-relational environment, companies can form and test hypotheses more quickly, resulting in new insights they would have missed otherwise. This "change the business" approach can lead to adjustments to existing processes and systems to achieve better results.

An increasingly popular—and effective—way to integrate structured and unstructured data and make it more accessible for analysis is to combine an existing data warehouse with a platform such as Hadoop. Hadoop complements a relational database with its ability to store and process large volumes of non-relational data. This enables organizations to establish active archives with built-in redundancy that make structured and unstructured data more accessible—and therefore more valuable to an organization looking to mine fresh insights and gain competitive advantage.

For example, Dunnhumby, a customer science company, is leveraging Oracle Exadata Database Machine, powered by Intel® Xeon® processors, to streamline its operations and identify new growth opportunities. Running in-database analytics has enabled the company to reduce key deliverable runtimes, for example, from 40 hours down to an hour.

With structured and unstructured data more accessible, teams can then use a solution such as Oracle Big Data Appliance, powered by Intel Xeon processors, to develop advanced statistical models that drive more sophisticated segmentation and targeting based on actual behaviors, activities, and interests.

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Equally important is organizing the insights captured through this modeling into dashboards that drive decision making. Oracle Business Intelligence Analytic Applications encompass more than 80 functional and industry segments and offer more than 800 predefined metrics for fast, consistent business intelligence reporting and dashboarding.

To accelerate broader adoption and consumption of big data, organizations are also turning to applications that feature in-memory database technology. For example, Oracle Exalytics In-Memory Machine, powered by Intel Xeon processors, enables fast Google-like searches and makes it easy to visualize and understand big data through geographic heat map views of customer locations or activity on mobile devices.

Linking big data discovery, through solutions such as Oracle Endeca Information Discovery, with self-service business intelligence can also improve insights that drive better customer experience. Land O'Lakes, a leading distributor of crop protection products and agricultural seed in the United States, uses Oracle Endeca Information Discovery to combine transactional data from customers with non-relational data from its marketing database that tracks which farmers have been targeted with offers for specific seed types. The discovery engine combines complex data from multiple sources—soil types, locations, crop yields, and government statistics on the acreage of each crop—which salespeople access easily and quickly to match farmers' needs with the right seeds.

Land O'Lakes estimates that the switch to Endeca Information Discovery from traditional business intelligence tools has already saved $4 million and the equivalent of 1.5 years' worth of IT hours. In addition, the data-driven approach helped "change the business" by increasing sales in the company's crop inputs division by 20 percent and profits by nearly 30 percent.

Commerce Anywhere

As Land O'Lakes has demonstrated, using big data to personalize customer offers can have a direct impact on conversions for new and existing customers. Dynamically tailoring content and offers to a customer's behavior, profile, and preferences can help sales and marketing teams guide the customer experience to increase sales.

Solutions such as Oracle Real-Time Decisions can help teams dynamically test and adapt offers based on customers' in-the-moment activities, such as clicks on a website, to deliver a more targeted—and more persuasive—

Driving Big Data Performance

Oracle and Intel are collaborating on engineered systems that are designed to help customers access and analyze relational data together with non-relational data efficiently and cost-effectively, so they can uncover new business insights more quickly. The engineered systems, which are powered by Intel® Xeon® processor E5 and E7 families, include the following:

Oracle Exadata Database Machine: Oracle Exadata is scalable, secure, and redundant. It handles both OLTP and data warehouse workloads, so is an ideal platform for consolidating databases.

Oracle Big Data Appliance: Oracle Big Data Appliance enables rapid provisioning of a single system that's scalable, highly available, and optimized to transform massive amounts of data into a valuable asset for the business.

Oracle Exalytics In-Memory Machine: Oracle Exalytics provides extremely fast solutions for BI, modeling, forecasting, and planning. In-memory analytics means more data analyzed, more users supported, and more timely reports.

Oracle Exalogic Elastic Cloud: Oracle Exalogic Elastic Cloud is a fully optimized, integrated platform for deploying and running business applications—improving business performance as well as the bottom line.

experience. Real-time decision management also brings together non-relational contextual data with transactional records to improve the customer experience and business results by optimizing:

- ▶ What to say (right recommendation)
- ▶ How to say it (right message and image)
- ▶ When to say it (right time)
- ▶ Where to say it (right channel)

These messages can be personalized for each customer, across the entire customer journey, and delivered consistently across all channels. The ability to deliver tailored messaging, imagery, products, and services for every customer—automatically and in real time—is a game-changer for marketing, sales, and customer service.

For example, cascading a series of personalized experiences from a content library—through banner ads, imagery, and product or service messaging—on an e-commerce site can lead a visitor down a conversion path. In a call center, Oracle Real-Time Decisions can prompt a customer service representative with the "next best action" to take to resolve issues as quickly and effectively as possible—as well as when to present an up-sell or cross-sell offer.

Holland America Line, a premium cruise ship company, is using Oracle Real-Time Decisions to capture incremental revenue through its website while improving the customer's experience. The company tracks millions of records to present returning guests with customized offers for ways to enhance their cruises through add-ons such as shore excursions and spa packages. The best product or service for each passenger is determined in real time and presented to customers as they navigate the site. Just six weeks after implementing the solution, the cruise line saw a "change the business" 14 percent improvement in cross-selling of shore-excursion purchases versus the status quo.

"We no longer have to live in the world through assumptions and vagaries—we have actual data that is material to our business," said Therron Hoseftz, technology director, Holland America Line. "This gives us a huge opportunity to learn about what imagery, messaging, products, and services are most important to our guests."

Similarly, marketers at Dell use Oracle Real-Time Decisions to better understand customers' buying patterns and interests and how they change over time, enabling Dell to stay more relevant with the customer. Targeted promotions have helped drive a 30 percent increase in email click rates and a 40 percent gain in revenue per click.

"The insights are amazing," said Mark Sucrese, marketing director, Dell. "You can really see customers' buying patterns and interests, how they change over time, and we can take action on that."

Conclusion

Businesses continue to look for innovative ways to improve the customer experience and maximize the value of every customer interaction at the moment of impact. Most are finding that capturing this value requires more comprehensive insight and smarter decision-making. Oracle provides a range of flexible analytical tools and applications that aggregate the volume, velocity, veracity, and variety of big data, leveraging existing IT investments to help business users and data scientists consume and apply their expertise for making more empirical decisions.

These solutions—both relational and non-relational—help organizations maximize the value from the rapidly growing and changing sources of customer data. They enable organizations not only to gain more insights from this data, but also to drive actionable intelligence at high velocity at the point of interaction. To succeed today, organizations need to dramatically compress or eliminate the time from data acquisition to analysis to actions, based on these insights.

Integrating analytics models with existing data warehousing, web, and other internal applications can lead to more diverse data and richer analysis, which drive better business outcomes and competitive advantage.

For more information, visit www.oracle.com/bigdata and www.oracle.com/goto/nosql

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3 "Global Insights on Succeeding in the Customer Experience Era," Oracle, 2013, http://event.on24.com/event/56/45/37/rt/index.html?eventid=564537