Customer data analytics best practices from top performers

Companies are challenged in a number of areas in effective utilization of customer data analytics. However, a few capabilities and best practices stand out among the top-performing companies.

In this E-Guide Readers will get learn:

- Customer data analytics best practices from top performers
- Customer data you should collect for your customer analytics program
- Tips and insights into analytics and integration software

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Customer data analytics best practices from top performers

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Customer data analytics best practices from top performers

By Leslie Ament, SearchBusinessAnalytics.com Contributor

Companies are challenged in a number of areas in effective utilization of customer data analytics. However, a few capabilities and best practices stand out among the top-performing companies. It was not surprising to find that top performers are more mature in their use of customer data analytics techniques when leveraging customer information. Understandably, these organizations have an easier time securing both budget and organizational buy-in as a result of the tangible business case justification and return on investment metrics they provide to executive sponsors.

Companies less mature in their use of customer data analytics lack the critical expertise necessary to establish and measure meaningful performance metrics. These organizations tend to take a “throw the spaghetti at the wall and see what sticks” approach in their development of customer interaction practices. Interestingly, this deficit in expertise does not seem to affect their ability to secure budget. It merely has a negative on the overall bottom line.

Customer data analytics best practices: processes, techniques, technologies

Before investing in magic-bullet solutions, companies should audit the maturity of internal capabilities such as:

- Ability to measure performance metrics per set goals
- Establishment of measurable goals/KPIs
- Success in securing budget/resources
- Ability to create actionable predictive models
- Quality and completeness of customer data
- Organizational buy-in
Customer analytics best practice predictions: Managing the customer experience will continue to gain importance

In today’s highly competitive global economy, knowledge of consumer and business behavior, socio-economic, lifestyle and/or demographic information, should be transformed into actionable insight. It is this insight that provides ammunition to companies that seek to gain a competitive edge.

Every customer interaction offers an opportunity to influence purchasing decisions that affect profitability. With customer expectations for personalization and relevance (why should I care?) higher than ever, companies need to have that “single view of the customer” available to them at every touch-point.

Conversely, customers want self-service data such as in-stock levels, ship dates, and customization in product ordering available to them 24/7.

Hypatia’s crystal ball reveals the following customer analytics best practice predictions for 2010 and beyond.

**Profitable** customer interactions will result from organizations appropriately responding to consumers of their goods and services. This means knowing which interactions, channels, brands, products, messages, pricing, and promotions influence your customers’ purchasing behavior.

**Content** will drive customer interactions across all media channels and touch-points. Savvy marketers will develop business rules, algorithms and dynamic analytics to optimize communications. This may include customer profiling, segmentation, predictive and cluster modeling techniques.

True **customer-centricity** may actually become a reality for organizations that invest in delivering a seamless customer experience and brand throughout every distribution or customer interaction channel.
Use of customer analytics will gain importance as companies leverage their legacy information and BI infrastructures to support a return on investment-driven culture.

Scores of companies offer analytical tools, platforms and services, but major players continue to serve midmarket to larger enterprises primarily.

Next, map the gap and determine how to get from your organization’s maturity level to the following competencies as illustrated in the figure below:

**Figure 4:** Customer intelligence challenges: Development of actionable interactions

Source: ©2010 Hypatia Research, LLC

This is more than a mere academic exercise! Between 35% and 55% of companies employ best practices -- and, as a result, realize a solid return on their investments in customer data analytics.

Consumer, or B2C, sectors are vastly different from B2B industries in their use of customer data analytics. For example, grocery, retail, consumer banking, telecommunications providers and consumer goods companies seek to track and analyze “market basket” and/or “attachment” rates. Knowing the frequency, store location, total dollar value and assortment of products purchased for each store trip is of great interest to these companies. Merchandising executives consider market basket analysis a key performance metric and use it extensively for everything, including planning store layouts, advertising and trade promotion campaigns. Conversely, attachment rates are tracked in order to understand customer buying patterns by lead products. This information is used for pricing and promotional decisions.

Examples of proven customer attachment analysis include:

- Customers who buy high-definition television sets also order installation services and/or longer warranties.
- Women always purchase matching shoes when they buy dresses priced over $250.
- Customers who buy computer equipment more often select peripheral items such as mouse, storage capacity, and printer ink at the same time.
- Men purchase baby food, diapers, and newspapers with beer at super grocery stores.

Customer data analytics in B2B industries differ drastically from B2C because in a supply chain, customers may well be suppliers and partners as well as customers. For example, business partners such as Owens Corning or other commercial/residential contractor services both purchase products from, and sell products to, Home Depot. Moreover, credit history, incorporation documents, and business transactions between partners, suppliers and customers is taxable and, thus, traceable. Many of the information analysis and services providers also rely on subscriptions to professional and industry-specific publications, online business purchases (example: office furniture or computers purchased on corporate accounts), legal filings or complaints to reporting agencies such as the Better Business Bureau.
Figure 5: Customer data analytics: Information supply and demand chain

Source: ©2010 Hypatia Research, LLC

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Previously, Ament served on management teams and led global marketing and market research groups at Demantra, Inc. (acquired by Oracle), Arthur D. Little Management Consulting, Harte-Hanks, Banta Corporation, International Thomson Publishing (Chapman & Hall, U.K.) and Carnegie Hall, Inc. She is a member of the American Marketing Association, Society for Competitive Intelligence Professionals, Customer Relationship Management Association, DataShaping Certified Analytic Professional, Arthur D. Little Alumni Association, Software Industry Information Association and a board member of the Product Management Association.

Ament completed her doctorate Phi Kappa Phi at the University of Illinois, Urbana Champaign and her master's and bachelor's degrees at Indiana University-Bloomington.
Customer data you should collect for your customer analytics program

By Richard Snow

When we’re collecting customer data via interactions, what is the most important type of data that we should make sure we get for use in our customer analytics program? Geographic? Attitudinal? Other?

What customer data is important? Basically, everything. The attributes of a customer are critical for a range of analytic purposes. These attributes should include demographic data, products purchased, financial records (invoices, payments, etc.) and all customer interactions – for example, calls to the contact center, visits to your website and to retail stores or branch offices, letters, surveys, emails, text messages, social media posts and service calls. Amassing that is no easy task, though; the storage and management of the varying types of data related to a customer can be quite challenging and must be considered in the context of an organization’s customer information management needs and resources.
Analytics and integration software for collecting customer data

By Richard Snow

Is there software out there that can help us with collecting customer data for analytic purposes? For example: We know a customer’s name and location but want to find their Twitter page so we can track what they think of us. Is there any kind of tool that does that?

There are plenty of methods for collecting customer data – from existing internal applications and systems to cloud-based rented applications to third-party systems that provide externally collected data (for example, Dun & Bradstreet). Usually, organizations will use data integration technology that has evolved over the past decade to create an enhanced source of customer data.

When it comes to social media sources, there is text integration software that can be used to extract names from Twitter handles – for example, to match them to names from an internal customer system. Moreover, there are methods of applying data quality and master data management techniques to location-related information to ensure that the mapping process is semi-automated.
Big Data Poses Big Challenges for Traditional Analytics Approaches

By Beth Stackpole, SearchBusinessAnalytics.com Contributor

*Deploying new analytics capabilities to transform raw data into business intelligence gold is where the real opportunity lies in today's massive influx of big data.*

With terabytes, even petabytes, fast becoming a comfortable benchmark for corporate data stores, many companies are fixated on the volume and variety of “big data.” Yet what's often underplayed in the challenge of storing massive volumes of both structured and unstructured material is the analytics -- transforming raw data into useful, real-time business intelligence (BI) that goes hand in hand with smarter decision making.

Traditional relational data warehouse and BI initiatives exploit well-defined practices and mature product offerings to aggregate a fraction of available data in a highly structured and ordered fashion. Their intent is to allow business users to slice and dice data and create reports that deliver answers to generally known questions around what is happening and why it's happening. For example, "What are sales for a particular region during a specified time period?"

The notion of applying analytics to big data shakes up these well-established conventions, opening the door for companies to uncover patterns in information, pose questions they may not have otherwise considered and, ultimately, establish strategies designed to deliver a competitive edge.

"Over the last 20 to 25 years, companies have been focused on leveraging maybe up to 5% of the information available to them," said Brian Hopkins, a principal analyst at Forrester Research Inc. "Everything we didn't know what to do with hit the floor and fell through the cracks. In order to compete well, companies are looking to dip into the rest of the 95% of the data swimming around them that can make them better than anyone else. "

Traditional RDBMS struggles to keep up

Unlike the aggregated, mostly structured transactional data that comprises traditional relational database management system (RDBMS) efforts, big data stores are flooded with data streams coming from a variety of sources, including the constant stream of chatter on social media venues like Facebook and Twitter, daily Web log activity, Global Positioning System location data and machine-generated data produced by barcode readers, radio frequency identification scans and sensors. Stamford, Conn.-based Gartner Inc. estimates that worldwide information volume is growing at an annual clip of 59%, and while there are hurdles around dealing with the volume and variety of data, there are equally big challenges related to velocity, or how fast the data can be processed to deliver any benefit to the business.

This whole notion of extreme data management has put a strain on traditional data warehouse and BI systems, which are not well-suited to handle the massive volume and velocity requirements of so-called big data applications, both economically and in terms of performance.

"There is a paradigm shift in terms of analytics as to how you use this finer-grained data to come up with more accurate or new types of analyses," said David Menninger, vice president and research director for Ventana Research, a consultancy specializing in data management strategies.

Big data analytics, bigger data processing

Key to the paradigm shift is a host of new technologies designed to address the volume, variety and velocity challenges around big data analytics. At the heart of the new movement is massively parallel processing (MMP) database technology, which automatically splits database workloads across multiple commodity servers and runs them in parallel to garner significant performance boosts when working across extremely large data sets.

Building on this core architecture are columnar databases, which store data in columns as opposed to rows, serving to shrink the amount of storage space while greatly accelerating how quickly a user can ask questions of data and get results. In-database analytics, built
specifically for large-scale analytics and BI workloads, is yet another technology that companies are evaluating to efficiently and economically provide fast query response and deliver access to larger amounts of detailed data. The same goes for data warehouse appliances, an integrated and packaged set of server, storage and database technology tuned to the needs of large-scale data management applications.

While these capabilities tend to play off core RDBMS technology, there's a relative newcomer garnering a significant amount of attention when it comes to big data analytics. Hadoop, with roots in the open source community, is one of the most widely heralded new platforms for managing big data, particularly the flood of unstructured data like text, social media feeds and video. Along with its core distributed file system, Hadoop ushers in new technologies, including the MapReduce framework for processing large data sets on computer clusters, the Cassandra scalable multi-master database and the Hive data warehouse, among other emerging projects.

According to a new Ventana Research benchmark, "Hadoop and Information Management," more than half of the 163 survey respondents (54%) are currently using or evaluating Hadoop as part of big data initiatives, driven by their desire to analyze data at a greater level of detail and perform analytics that couldn't be done previously on large volumes of data. However, despite this early wave of enthusiasm, the reality is that the Hadoop open source community is still relatively immature, and there are only a handful of packaged analytics tools available today designed to shield users from the inherent complexities of the open source technology.

While new technologies present a challenge to data warehouse professionals, the real issue for firms looking to make a go at big data analytics is to get past the emphasis on big volume or risk missing out on the broader opportunity for business.

"The volume aspect has been around for a long time, but it's really more about extreme data," said Yvonne Genovese, a vice president and distinguished analyst at Gartner. The ability to turn data into information and information into action is where IT and data warehouse executives can really make their mark, she said.
Big Data Analytics Fulfilling the Promise of Predictive BI

By Beth Stackpole, SearchBusinessAnalytics.com Contributor

*While conventional BI drills into historical patterns, big data analytics adds a forward-looking dimension to unlock insights not possible with existing technology.*

What kind of price tag can you put on the value of big data? Try a whopping $300 billion potential annual value to the U.S. health care industry, a 60% possible increase in a retailer's operating margins and a $149 billion savings related to operational efficiency improvements for the developed economies of Europe -- and that's just a start.

These big-time examples, touted in a recent McKinsey Global Institute research study called *Big data: The next frontier for innovation, competition, and productivity,* may seem a tad overreaching, but they point to the scale of what's possible with effective big data analytics initiatives. Organizations at the forefront of mining the data pouring in say they are able to unlock insights never possible with traditional data warehouse and business intelligence (BI) tools, and those efforts are proving to be a boon for business.

While there are benefits to traditional after-the-fact BI analysis, big data analytics paves the way for organizations to comb through the minutiae in myriad data sources to model trends and uncover unknown variables that can have a huge impact on advancing strategy, boosting efficiency and reducing costs.

"When you look at the new proposition and opportunity around truly monstrous data, you tend to look at advanced analytics," said Shawn Rogers, vice president of research for BI and data warehousing at consulting firm Enterprise Management Associates Inc. "You're talking about tools that let you build models and algorithms to parse through data, look for patterns and find the nuggets of gold."

In some sense, what Rogers is referring to is predictive analytics on steroids. Instead of creating algorithms and models using only historical, structured information from a transactional data warehouse, big data analytics opens up the practice to the sea of
unstructured data pouring in from the Web, social media feeds and machine-generated content like that from radio frequency identification (RFID) tags or sensors. Mining real-time data from Twitter feeds and mashing it up with brick-and-mortar sales information can deliver critical market intelligence, helping companies understand trends and consumer sentiments, predict churn, respond to customer issues and tweak strategies in a more timely fashion. At the same time, tracking product movement on a global basis with RFID tags allows retailers to understand purchase behavior, helping them to better manage inventory, optimize product portfolios and prepare for peak buying cycles. And by capturing and evaluating every detail of data emanating from complex machinery, manufacturers can correct defects before they become problematic to customers, while allowing the companies to improve product quality over time.

**The best of both worlds**

While applying such forward-thinking analytics to big data sets has obvious appeal, the practice doesn't come easy and it doesn't supplant the role of traditional data warehouse and BI efforts, experts say. On the contrary, most companies in the early and even mid-stages of big data analytics adoption are combining both technologies when and where it makes sense.

"There are places for the traditional things associated with high-quality, high-reliability data in data warehouses, and then there's the other thing that gets us to the extreme edge when we want to look at data in the raw form," explained Yvonne Genovese, a vice president and distinguished analyst at Stamford, Conn.-based Gartner Inc.

In the hybrid scenario, companies will continue to push conventional BI out to mainstream business users to do ad hoc queries and reports. They will supplement that effort with a big data analytics environment optimized to handle a torrent of unstructured data and tuned to the needs of data scientists for building complex predictive models. For example, an analytics sandbox might archive three to four years of raw information used for pattern matching and modeling.

The environments don't necessarily have to be information silos, either. In fact, an increasingly popular model is to employ the open source distributed file system Hadoop in
particular, as a "dirty" operational store for extreme extract, transform and load (ETL) processes.

"Hadoop is not only an interesting analytic tool, it's an interesting ETL tool," said Marcus Collins, a research director at Gartner. "One model that is becoming quite popular is for organizations to take the fire hose that is Twitter, triage the data using Hadoop and put the aggregated results back into the data warehouse for further analysis."

In some ways, creating a blend of the two environments brings companies closer to where they've been trying to go with traditional data warehousing for some time.

"This augments the historical views of where we've been with predicting where we want to go," Rogers said. "That has always been the holy grail of BI and what we've always wanted."
Best Practices for Big Data Analytics Rely on Familiar Disciplines

By Beth Stackpole, SearchBusinessAnalytics.com Contributor

The terrain may seem foreign, but many proven data management and business intelligence best practices translate well to big data programs.

With new terms, new skill sets, new products and new providers, the world of big data analytics can seem unfamiliar, but tried-and-true data management best practices do hold up well in this still-emerging discipline.

As with any data warehouse initiative, experts say it's critical to have a clear understanding of an organization's data management requirements and a well-defined strategy before venturing too far down the big data analytics path. Big data analytics is widely hyped, and companies across all sectors are being flooded with new data sources. Yet making a big investment to attack the big data problem without first figuring out how and where it can really add value to the business is one of the most serious missteps.

"Don't get too hung up on the technology -- start from a business perspective and have the conversation between the CIO, data scientists and business people to figure out what the business objectives are and what value can be derived and drive backwards from there," said David Menninger, vice president and research director for consulting firm Ventana Research.

Defining exactly what data is available and mapping out how the organization can best leverage those resources is a key part of this exercise. CIOs and data warehouse practitioners need to examine what data is being retained, aggregated and utilized and compare that with what data is being thrown away. It's also critical to consider external data sources that are currently not being tapped but could be a compelling addition to the mix, Menninger said.

Even if companies aren't quite sure how and when to jump into big data analytics, there are benefits to going through this evaluation sooner rather than later. And beginning the
process of capturing data can also make you better prepared. "Even if you don't know what you're going to use it for, start capturing the information; otherwise there is a missed opportunity, because you won't have that rich history of information [to draw on]," he said.

**Start small with big data**

Analyzing big data sets is yet another instance where it makes sense to define small, high-value opportunities and use those as a starting point. As companies expand their data sources and create the all-important analytical models that will uncover patterns, they need to be vigilant about homing in on those patterns that are most important to their stated business objectives.

"If you end up in a place where all you're doing is looking for new patterns and you can't do anything with them, you've hit a dead spot," said Yvonne Genovese, a vice president and distinguished analyst at Gartner Inc.

ComScore Inc., which provides services around digital marketing intelligence, knew it would need some sort of big data strategy, yet it picked very targeted spots and built out its data analytics program over time.

"We started with small bites -- taking individual flows and migrating them into different systems," said Will Duckworth, comScore's vice president of software engineering. "If you're working with any kind of scale, you can't roll something like this out overnight."

Scale is something comScore is very conscious of, given the amount of data the Reston, Va.-based company processes. Back in 2009 when it started collecting 300 million records a day, Duckworth began searching in earnest for a new set of systems and infrastructure that could more efficiently handle its processing needs -- now over 600 billion records a month (23 billion a day) and still growing -- in a far more cost-efficient fashion.

Leveraging open source Hadoop technologies and emerging packaged analytics tools, Duckworth has been able to make the open source environment more familiar to business analysts who are trained in SQL. He says companies need to consider scale as a primary factor when mapping out a big data analytics roadmap. "You have to consider what the
ramp-up will look like -- how much data will you be putting in six months from now, how many more servers will you need to handle that, is the software up to the task," he explained. "People don't think about how much it is going to grow or how popular the solution might be once it's rolled into production."

The other thing companies commonly lose sight of as they get enveloped in the new normal that is big data is that the "old normal" rules around data management still apply.

"Information governance practices are just as important today with the notion of big data as they were yesterday with data warehousing," said Marcus Collins, research director at Gartner. "Even though companies want flexibility in terms of processing, remember that information is a corporate asset and should be treated as such."
Skills Shortage, Training Present Pitfalls to Big Data Analytics

By Beth Stackpole, SearchBusinessAnalytics.com Contributor

A shortage of skilled data scientists and a user-unfriendly set of technologies are the biggest obstacles impeding big data analytics programs.

The biggest challenges related to big data analytics boil down to a simple one-two punch: The technology is still fairly raw and user-unfriendly, and there aren't enough skilled experts to go around.

A lot of big data technologies like Hadoop and MapReduce hail from the open source world, developed by Internet pioneers like Google and others to take on the problem of cost-effectively processing big data volumes. As a result of this orientation, most of the technologies lack the maturity and accessibility of traditional out-of-the-box, packaged offerings, and there is still a limited selection of complementary analytics tools available to make these environments feel familiar to traditional data warehouse professionals.

"There's a steep learning curve to all this, with a lot of new technologies, and unwritten lore as to how to make things work," said Ron Bodkin, CEO of Think Big Analytics, a consulting company specializing in big data analytics. "The majority of people are used to working with relational database management systems [RDMS], which have a different model of storing and processing data."

While data management professionals have a well-defined set of expertise around managing and organizing highly structured data and modeling and creating reports in SQL, those conventional skill sets don't translate well to the unstructured, flat-file world of big data, where command lines and NoSQL technologies are the core building blocks of most of the emerging platforms.

"You have to be willing to get your hands dirty," said Will Duckworth, vice president of software engineering at comScore Inc., a provider of digital marketing intelligence, which has developed and implemented a big data analytics strategy in recent years. "This isn't a
fully shrink-wrapped product where you open the box, install it on servers and it runs fine. You need a good set of system administrators and solid practices around how to build out these environments."

**Bring on the PhDs**

Because much of what big data analytics brings to the table is predictive modeling or a look into future trends, the discipline of developing the models is not within the skill set of the average business user or even the traditional business intelligence (BI) data analyst. A lot of the data is in a raw form, be it in Web logs or from sensor data, thus companies need access to a cadre of experts who are versed in statistical and mathematical principles to build the advanced models that uncover patterns and actually make big data useful.

"Not only do you need the IT operational skills to be able to realize value, the biggest shortage we see around big data is ... data scientists -- people with PhDs in statistics," said Brian Hopkins, a principal analyst at Forrester Research Inc. "Most of the data is raw -- it's not something you can read and get value out of. There will always be a need for a skill set of people who know what to do with the raw information ... and you have to build the acquisition of talent into the business case."

At Reston, Va.-based comScore, where the business model is predicated on crunching through volumes of Web data to unearth trends for customers, many users are trained in predictive modeling and are also technically savvy enough to understand the impact of a particular query on overall system performance. Others, however, don't possess this level of expertise, so comScore has invested time and money in re-educating users, to orient them to think about the scale of the data and to spend time considering such details as data partitioning and load size when they are building out models and queries. At the same time, comScore has designed its big data system with checks and balances, so for example, if someone issues a query that could potentially crash the cluster, the system pops up a note to ensure the user is fully aware of the ramifications of that job.

"At scale, things break pretty fast," Duckworth said. ComScore has also brought in a packaged application that adds a SQL-like environment to its Hadoop big data analytics offering, so it feels more familiar to traditional users.
Training was also an integral part of the big data analytics strategy for Zions Bancorporation, a commercial bank holding company in Salt Lake City that has deployed the technology to do modeling and risk management for various loan portfolios. Yet the training wasn’t just about learning Hadoop skills or serving as a crash course in statistical science. Rather, a considerable amount of time and energy went into acclimating the technical team so they were able to comfortably transition to a totally new way of managing data.

"This is new technology that traditional and very conservative IT shops may be reluctant to implement," said Clint Johnson, senior vice president of data warehousing, BI and analytics at Zions. "You have systems administrators or database administrators who've built an entire career around a particular skill set, and then you thrust some new technology at them and say they have to learn it. There are cultural challenges you have to deal with in terms of supporting the new model."

**About the Author:** Beth Stackpole is a freelance writer who has been covering the intersection of technology and business for 25-plus years for a variety of trade and business publications and websites.
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7 Reasons You Need Predictive Analytics Today

Five Steps to Improving Business Performance through Customer Intimacy

Five Predictive Imperatives for Maximizing Customer Value

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