

# Seizing the potential of ‘big data’

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*Companies are learning to use large-scale data gathering and analytics to shape strategy. Their experiences highlight the principles—and potential—of big data.*

Large-scale data gathering and analytics are quickly becoming a new frontier of competitive differentiation. While the moves of companies such as Amazon.com, Google, and Netflix grab the headlines in this space, other companies are quietly making progress.

In fact, companies in industries ranging from pharmaceuticals to retailing to telecommunications to insurance have begun moving forward with big data strategies in recent months. Together, the activities of those companies illustrate novel strategic approaches to big data and shed light on the challenges CEOs and other senior executives face as they work to shatter the organizational inertia that can prevent big data initiatives from taking root. From these experiences, we have distilled four principles that we hope will help CEOs and other corporate leaders as they try to seize the potential of big data.

## 1 Size the opportunities and threats

Many big data strategies arise when executives feel an urgent need to respond to a threat or see a chance to attack and disrupt an industry’s value pools. At AstraZeneca, for example, executives recognized the power that real-world data (such as medical claims) gave the pharmaceutical company’s customers in evaluating the cost effectiveness of its products (for more, see sidebar “AstraZeneca’s ‘big data’ partnership,” on page 2).

In the case of a retailer we studied, big data was part of a difficult battle for market share. The company’s strategy had long been predicated on matching the moves of an efficient big-box rival, yet now a different online player was draining the retailer’s revenues and denting its margins. At the heart of the threat was the competitor’s ability to gather

and analyze consumer sentiment and generate recommendations across millions of customers—a capability that was neutralizing the retailer’s sales force. Meanwhile, the competitor was becoming a platform where vendors could sell excess inventory by using publicly available price data aggregated across the industry to help pinpoint the size of discounts the vendors could offer to customers. The retailer’s board asked whether it could leverage its own information resources to counter these challenges.

Data-related threats and opportunities can also be more subtle. After using an innovative product-bundling approach to improve

market share, for example, a European telecom company saw large-scale data analysis as a way to boost momentum. The company’s executives believed it could press its newfound advantage by pinpointing exactly where its sales approach could make further gains and by studying the behavior of customers to see what factors motivated them to choose one brand or product over another. Doing so would require interpreting two massive and growing volumes of information: online search data and real-time information—shared by consumers across social networks and other Web-based channels—about the company’s products and services.

Executive perspective:

## AstraZeneca’s ‘big data’ partnership

*Mark Lelinski, an executive at the global drugmaker, explains how the company is using data to build customer relationships that focus on the total cost of care.*

We have always designed and manufactured our products with the mind-set of “make it effective, make it safe, and make sure it meets regulatory approval.” Historically, at the early prelaunch stage, we were not thinking about the willingness of payers to pay for it—whether that’s a patient, health plan, pharmacy benefit manager, employer, or the government. We weren’t asking, “How do customers perceive our products relative to alternatives?”

But willingness to pay has obviously become extremely important in recent years—to the extent that more and more of our customers began complementing our clinical-trials data with their own proprietary data to conduct comparative-effectiveness studies. They were asking, “In a real-world setting, product X performs at this level and costs me this much. And product Y performs at this level and costs me this much. How do they compare?” Eventually, this practice created an imbalance in our payer conversations, as the dialogue became more transactional—more about unit cost and more about the data that our customers were bringing to the table. And from our perspective, few of the comparative studies that payers were conducting focused on health outcomes. So we decided that we needed to

## 2 Identify big data resources . . . and gaps

Framing the basics of a big data strategy naturally leads to discussions about the kinds of information and capabilities required. At this point, executives should conduct a thorough review of all relevant internal and external data. The audit should also consider access to analytical talent as well as potential partnerships that might help fill gaps. Such an audit will not only create a more realistic view of a company's capabilities and needs but can also spark "aha" moments—for example, as executives identify "data gems" cloistered inside their business units or recognize the

value of creating the right kind of partnership.

The retailer's audit focused on internal data the company gathered but wasn't using to potential. This information—about product returns, warranties, and customer complaints—together contained a wealth of information on consumer habits and preferences. The audit also revealed an obstacle: none of the information was integrated with customer identification data or sufficiently standardized to share within or outside the company. Therefore, the information was rarely analyzed for marketing insights and couldn't be marshaled to assist sales reps in customer interactions



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get beyond our single focus on the controlled environment of the randomized clinical trial and see the business from the other side as well.

The focus, we realized, needed to be on the total cost of care. Don't just talk about the unit cost of a drug, but learn about the total cost that it takes to manage, say, a diabetic patient—including the diagnostics, the outpatient visits, the emergency room visits. This led to an "aha" moment: if we could combine medical-claims data with clinical data collected in an electronic-medical-record system for a defined patient population, we might actually discover ways to improve health outcomes and manage the total cost of care at the same time. And why not collaborate with customers? Prescription drugs represent

about 11 percent of total health care spending in the United States. For the other 89 percent, our interests are completely aligned. By working together, we all get access to a broader, richer data environment, and we can work together on creating state-of-the-art access tools and real-world methodologies.

So we took this idea to potential partners. From the beginning, this was about true collaboration and strategic fit, not an "I'm gonna win more than you win" mentality. When we presented our vision to HealthCore<sup>1</sup> and its parent company, WellPoint, we quickly realized that their views on all of these things were so similar to ours that everyone's jaws kind of dropped. It was a quick connect. We announced our collaboration in February 2011.

*(continued on next page)*

or supply chain executives in serving vendors. Happily, the audit also helped identify a team that could help solve these problems: in-house data analysts whose siloed efforts were underused.

For the European telco, the discussions centered around how it might tap into the rising tide of online conversations about individual companies and their products—the millions of relevant microblog posts, social-media conversations, search term keywords, head-to-head brand comparisons, and customer feedback postings that were now available on the Web. Recognizing the importance of the effort—and the

company's relative lack of econometric and analytical skills to manage it—the telco's CEO helped recruit an outside analyst with the necessary stature to lead a new “collective insights” team.

### 3 Align on strategic choices

Once companies identify an opportunity and the resources needed to capitalize on it, many rush immediately into action-planning mode. This is a mistake. Data strategies are likely to be deeply intertwined with overall strategy and therefore require thoughtful planning when a

Certainly, there was some internal resistance at first. In some cases, we were asking our people to think in dramatically different ways than they had for the bulk of their careers. This is especially true in R&D, where we're now bringing in the voice of the payer much earlier in the development process so we can “lose the losers” quickly and not take products to market that won't be valued by the people paying for them. And of course we still negotiate with WellPoint on individual drugs, so the increased transparency acts as a double-edged sword: if the collaboration helps us get new evidence that supports a price point we set, that's extremely valuable. But sometimes it goes against us too.

The key to turning around the resistance and getting to where we

are today has been the senior-level involvement and support we've received from the start. Our leaders recognized that this approach is a long-term play: there may be quick wins and short-term gains for the company, but to really have a broad impact on the company and the industry, we have to manage the complexity and growing pains. One example was the way we brought together top-notch biostatisticians, epidemiologists, health economists, and programmers working throughout the company and created a new group focused on real-world evidence. Without the support of engaged and interested leadership, making that happen would have been like pushing a rock uphill.

While this partnership is still in the early stages, HealthCore and

company decides how its resources should be concentrated to achieve the desired results.

In some cases, that could mean putting powerful data analysis tools in the hands of frontline workers. In others, it might mean amassing data and ramping up analytical talent to create a first-mover advantage.

It's also important to view big data in the context of competing strategic priorities. When one CEO looked closely at what it would take to boost the data orientation of his company's sales and marketing function, he discovered that it would be necessary to acquire some

key data vendors, replace a strategy leader, and invest heavily in analytical talent. In the end, deciding not to pull the trigger, he said, "I can see how this has moved to our industry's backyard, but until I consolidate five acquisitions and deal with major revenue shortfalls from products coming off patent, we'll need to think small." While backing off was the right answer for this company at that time, it clearly carried risk. Before demoting big data on your strategic-priority list, ask whether you've thought hard enough about its long-term strategic potential and about what your competitors may be doing while you wait.

AstraZeneca personnel are operationally aligned and set up, and working together very well. We have a number of joint studies under way and are in the throes of completing the first one, which will be ready for discussion with payers soon. Still, both sides see this as the first phase of a broader, industry-wide collaboration. Eventually, we expect this will include other health insurers, pharmacy benefit managers, providers, employers, other pharmaceutical manufacturers, and even federal and state governments. It won't be just about pharmaceuticals but about much more: Which diagnostics make sense and which don't? Which medical devices? What leads to errors or high readmission rates in hospital settings? What key health issues need to be addressed in a given local community? Through big data, we

can learn things about health care that we could never get at before. And that's really what we're setting out to do. [O](#)

<sup>1</sup> A research subsidiary of US-based health insurance company WellPoint.

*This commentary is adapted from an interview with Sam Marwaha, a director in McKinsey's New York office.*

As for the retailer, its executives determined that the goal was to create an information grid that would provide for a range of data-sharing and -analysis activities across the company. However, the leaders decided against a company-wide initiative, since the retailer's culture generally favored innovation at the business unit level. Therefore, the retailer tapped an executive with technology and entrepreneurial experience to launch a study across key business units—an effort that ultimately surfaced 80 potential big data projects. Each was then ranked by its net present value and mapped against the company's strategic objectives.

The first project the retailer pursued was a revamp of its fragmented customer-relationship-management (CRM) system and the creation of a single data pool that company executives plan to use in multiple ways. One pilot project, for example, is exploring the use of tablet devices by salespeople, in hopes that easier access to inventory data, customer profiles, and product information will help them close more sales. A second initiative enlisted online developers to create virtual storefronts for third-party Web sites. By using algorithms, survey market prices, and predetermined discounts to link the storefronts to the inventory systems of the retailer and its vendors, the initiative is helping it counter its competitor's third-party sales strategy—while also improving the commissions of its sales force and vendors.

In the case of the telecom provider, a cross-functional executive com-

mittee was created to oversee the analytics team and ensure that its efforts were aligned with the company's strategy. The committee focused the team's efforts on answering two questions: "How competitive are our brands in the minds of users when they make purchase decisions?" and "What key buying factors matter for users, and how well positioned are we to communicate with customers about these factors?"

The team then created targeted data "mash ups"<sup>1</sup> of customer data that it could analyze quickly to gain actionable insights—for instance, sports and other premium TV programming was a key differentiator in purchasing decisions, and customers would be more inclined to purchase a "triple play" service offering (television, high-speed Internet, and voice telephony) if the company deemphasized voice telephony in its marketing messages. This was the *opposite* of what consumers indicated in traditional market research interviews. What's more, the analysis underscored, and helped quantify for executives, the importance of a bigger strategic imperative: the need to add mobile telephony as a fourth service to complete a "quadruple play."

## Understand the organizational implications

Finally, it's important to note that the threats and opportunities associated with big data often have organizational implications that only concerted senior-executive attention

can address (to learn more about what types of questions executives should be asking, see sidebar “Big data for the CEO,” on page 8). To be useful, data must cut across internal boundaries, yet this often goes against the grain of an organization and creates friction.

At one insurer, for example, a senior leader observed that crunching the numbers on highly detailed aspects of customer behavior would allow the company to price risk more finely and probably help to increase market share. But that knowledge also represented a threat—an internal one—that impeded action: sales agents worried that their bonuses, which were tied to profitability, would suffer if the market share increases came at the expense of margins.

Similarly, the European telecom’s collective-insights team learned that two things led to the most rapid dissemination of negative word of mouth about the company on social-media and microblogging sites: network outages and any perception by customers that the company had made false advertising claims about its products or network. Yet the marketing and network organizations, rather than cooperate, initially blamed one another for the findings. Only when senior executives forced the two sides to work more closely together and build trust could the company capitalize on the information, by tailoring marketing messages to better explain new-product rollouts and network upgrades.



Too few leaders fully understand big data’s potential in their businesses, the data assets and liabilities of those businesses, or the strategic choices they must make to start exploiting big data. By focusing on these issues, senior executives can help their organizations build a data-driven competitive edge. ○

<sup>1</sup> A mash up is a Web application that combines multiple sources of data into a single tool.

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# Big data for the CEO

Because the means of securing competitive advantage from big data are still evolving, some CEOs believe that big data initiatives should be the sole responsibility of a company's IT or marketing departments—the functional groups where large-scale data sets are most often gathered, analyzed, and applied.

Bad idea. In our experience, big data projects need concerted senior-management attention to succeed. To improve the odds, CEOs should push themselves and their senior teams to answer questions like these:



## 1. What's the prize?

Opportunities may range from improving core operations to creating new lines of business—even in the same industry. Insurance companies, for example, can use big data to improve underwriting performance now, while over the longer term use it to serve formerly unprofitable customers and ultimately even develop entirely new risk-based businesses. Companies that keep a clear-eyed view of their goals at each stage will have the edge.



## 2. How do I build a skill base?

By 2018, the United States alone will face a shortage of up to 190,000 workers with deep analytical skills and will need an additional 1.5 million managers and analysts to interpret big data and make decisions based on their findings. CEOs should be thinking now of the critical hires that will help jump-start a big data initiative.



## 3. How do I get the organization behind me?

To be useful, data must cut across organizational boundaries—yet this often causes friction. Only a dedicated and focused senior team can dispel the various “not for us” objections that will inevitably arise as employees are challenged to work in new ways.



## 4. How do I scale this up?

Whether a company is planning a single, large initiative or multiple smaller ones, its senior team should be actively planning to take advantage of the resulting opportunities at scale. Stay mindful of the resources required (technological and otherwise) to shift quickly from pilot to implementation modes.