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The insight economy
Big data matters—except when it doesn't

More crunchy questions
Deloitte Analytics

The goal is more insight, not more information

The hype around big data is enough to give anyone a headache. Some say it's key to sustainable competitive advantage. Some worry there could be more risk than reward. And many have come to believe it can be tackled just by purchasing hardware and software. Two excerpts from participants in a recent Pew study on The Future of Big Data nicely frame the challenge[1]:

> **"Big data is the new oil. The companies, governments, and organizations that are able to mine this resource will have an enormous advantage over those that don't."**

> **"Big data will generate misinformation and will be manipulated by people or institutions to display the findings they want."**

Both are right.

To help business leaders sift through the swirl of competing perspectives, we developed this executive guide, a primer on things to keep in mind when contemplating big data investments.

About crunchy questions

Crunchy questions are practical, detailed inquiries into tough business issues—roll-up-your-sleeves questions for people who don't have time to mess around with fluff. Crunchy questions are designed to lay the groundwork for action.

You can learn more by reading our other analytics mini-book, *Crunchy questions for sticky issues: Using analytics to outsmart competitors.*

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What is big data—and why should you care?

Big data generally refers to datasets so large and complex they create significant challenges for traditional data management and analysis tools in practical timeframes. Beyond that, things get complicated fast. From technical issues related to data storage and real-time processing to pragmatic concerns involving information and privacy, big data can disrupt business-as-usual.

The sources of big data are numerous and growing. Think about transactions from financial markets and e-commerce sites, chats on social networks, signals from RFID tags, cell phone conversations, urban traffic cameras, surveillance cameras, web search and browsing patterns, and even weather satellites. Big data covers all these stores of information and more.

For industries such as telecom, media, and banking, big data collection is already table stakes—with data streams exploding in size and complexity every year. Companies in these industries had no choice but to dive in.

In other industries, the move to big data is more of a choice. A choice to explore and seek competitive advantage through greater insight. But it is not a choice that comes without risks.

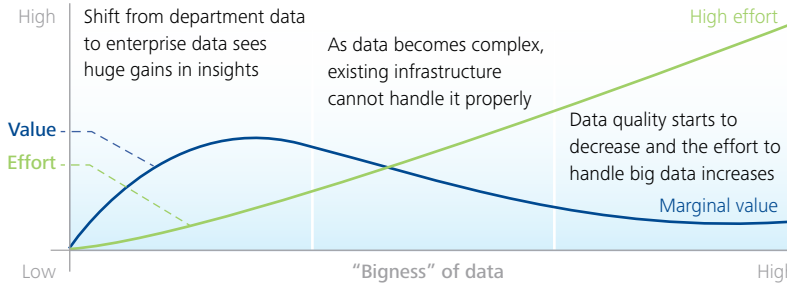
Crunchy questions

- Which companies in your sector seem to be capturing the most value from big data?
- How and when are they using big data to drive decisions?
- What other sectors should you track to see how big data might benefit your own organization?

What is your company's data-value profile?

Good business decisions often depend on insights that emerge from good data analysis. Yet different companies clearly find different levels of value from different data sources. For many, decisions involving unknown unknowns—where new insights and discoveries can be especially valuable—are where big data may have an impact. But before you dive in, be very clear about which questions you're looking to answer.

"Bigness" of data vs. value of data and effort



The analyst perspective

"We are starting to hear it from our largest institutional investors… they want to know which companies have a high analytical IQ. They buy certain companies because they are looking for security and reliable growth. Those companies that have the analytics to better forecast their earnings, and then use insights to navigate to those targets, are often seen as safer investments. Big data can give these companies even more opportunities to get it right. We are starting to be able to tell which companies have these capabilities, and that's starting to be reflected more and more in our reviews."[2]

How big is big enough?

True believers in big data argue that more is usually better. You'll never know what might trigger a breakthrough, they say, so why not go all in? The answer is simple: Big data comes with benefits and costs. You have to make the business case. You have to be thoughtful about whether more data will likely yield valuable insights.

According to recent research, three-quarters of corporate executives in large companies say they're not getting value from half of the data they already own.[3] But that hasn't stopped many of them from moving ahead with attempts to mine large social media databases and other unstructured content. If the Pareto principle applies—where 80 percent of the value comes from 20 percent of the data—then there's a whole lot of waste going on.

Of course, it is important to take advantage of whatever data you already have—regardless of whether it's small, big, structured, or unstructured. And before you start spending to acquire even more data, you should know exactly what you're going to do with it.

Crunchy questions

- What are the five most critical business decisions your organization made last year?
- How many of them should have been supported with better information?
- Who within your organization is making sure you have better information next year?

Big and small

Don't pursue your big data dreams at the expense of small data value. There's plenty of room for both—and each offers different strengths for different challenges. The guide below shows how they can be put to their best use.

Where big data makes sense

Exploit faint signals.
In some situations, the ability to use data to gain insights can be limited more by the strength of available signals than by the analytical techniques. Big data can overcome this challenge by making the most of weak signals from multiple and disparate data sources. This is a case where the Law of Large Numbers typically applies. The result? Organizations can extract value from information that simply wasn't possible in the past.

Nurture experimentation.
The marketplace itself is a powerful laboratory for exploring human behavior and complex systems—and especially for distinguishing between correlation and causation. Big data takes advantage of this environment by allowing data from wide-ranging sources to be segmented, analyzed, and controlled.

Imagery and video analytics.
Big data makes it possible to gather intelligence from unstructured data—things like photographs, online videos, social media, voice recognition systems, and more. This intelligence can provide deeper insights to support workforce planning, supply chain optimization, security and risk management, and more.

Deliver real-time impact.
Velocity is a foundation of value from any data—and that's especially true for big data—from the growing array of sources to up-to-the-minute impact on organizational decision-making. The winners will likely be those who provide insights efficiently to the frontline workforce—and the marketplace—leaping across "the last mile" in big data adoption.

Where small data makes sense

Deliver more precision faster.
Sometimes small data can more readily show trends or patterns that might be diluted or go undetected in big data, without special techniques. For example, a fraud pattern discernible in a single week of transactions might leap out at the analyst, while it might not be apparent at all if 10 years of financial data are being analyzed.

Work with constrained budgets.
Small data can be analyzed more readily with less expensive management and advanced analytics tools—which most companies already own.

Manage privacy and security risks.
Big data can come with big legal and regulatory concerns that have complexities and limitations due to sheer size. Many companies already have control and data management procedures in place for small data—and a comfort level that those controls are appropriate. Given the growing impacts of regulation and oversight, some organizations are steering clear of big data—or at least proceeding judiciously—simply because of the risks.

Basic performance management and forecasting.
Enterprise financial and accounting data are inherently small data. For covering the fundamentals of business performance analysis, basic forecasting, and such, big data may not even be relevant. Not all important data has become big.

Performance payoffs

Thousands of companies and other organizations are moving to use big data to make more effective decisions. Tapping into a growing stream of social media, transactions, video, and other unstructured data, they're tracking consumer sentiment, testing new products, navigating the marketplace, managing business relationships, and building customer loyalty in new and more powerful ways.

Some are driven by a desire to improve profitability or supply chain performance; others target workforce planning, business modeling, fraud detection, or forensics. It's all about the business. It has to be.

Not surprisingly, many of the early success stories came from Internet and telecommunications giants and large financial services companies. With so much data generated in the course of daily operations, these companies had no choice but to tackle big data early and aggressively. They figured out what questions needed to be answered as their industries raced forward with innovation—and they expanded from there.

Ironically, companies that don't generate huge amounts of transactional data may have even more to gain in terms of disruptive innovation. Social networking data, for example, can supplement limited internal data and offer potentially outsized insights into customer relationships, pricing, channel management, marketing, trend forecasting, and more.

Which of the following big data opportunities holds the most potential for your organization?

Customer & growth	• Pricing and profitability • Customer segmentation • Brand and sentiment analysis
Supply chain	• Supplier and procurement analysis • Supply chain optimization • Product profitability
Finance	• Financial performance management • Advanced forecasting • Governence, risk, and compliance
Workforce	• Performance management • Workforce alignment • Compensation and benefits
Risk & regulatory	• Regulation and compliance • Fraud and forensics • Cyber and reputational risk

Options for action

If you're spending most of your time on the technical side of big data, stop. Expand your focus and start multitasking. Concentrate more energy on uncovering the business questions you need to answer. This way you can keep the organization focused on practical opportunities and tangible outcomes.

But remember, data complexity is happening whether you like big data or not. Get ready for it.

Crunchy questions.
Start with highly specific questions and clarity around the business problems driving your quest. Get clear about their linkage to organizational strategy, management metrics, and specific performance indicators. Those—and only those—data sources deemed important for action to achieve business objectives should receive care and feeding.

A 15-degree view of the customer.
Don't let people get hung up on creating a single, unified, canonical data store across virtually all sources and types. Instead, focus on two or three targeted questions. Fiercely protect scope around these areas, leaving the other 345 degrees of visibility untouched until needed. Don't try to solve all problems and answer all questions at the outset.

Nimble everything.
The structure of incoming data is often not known in advance, and it can change over time. Plus, different business outcomes require data with different levels of accuracy, granularity, and availability. The artistry comes in fine-tuning the governance discipline with the need for agility. Make sure teams have wiggle room and that your technology can support such flexibility.

Co-existence.
Data should be a common asset across the enterprise, with a common architecture and operating model. Focus organizational silos on strategic goals—and don't tolerate political arguments between conventional analytics teams and big data advocates. They're both right. Big data is still just data. Focus instead on making sure everyone understands the most effective applications for each.

Build your bench.
Good talent is scarce. Finding that magic combination of hard science and business acumen is scarcer still. Blending a staff of left-brained data scientists and right-brained visualization teams is a new workforce management paradigm. Start by cultivating the talent you already have—then gear up to attract new contributors.

Crunchy questions

- In what specific ways are your CIO and CFO collaborating to get the most strategic value from big data opportunities?
- How well developed are your capabilities for data visualization? When you come up with great insights, how will you help others best understand their potential in more digestible forms?

Rocket scientists wanted

"The emerging big data scientist is distinctly different from other data professionals. For instance, nearly half of big data scientists use R—an opensource language and environment for statistical computing and graphics—despite the fact that it is used by only 13 percent of other practitioners. They are also twice as likely to use big data storage tools such as Hadoop,® Netezza, and AsterData. Big data scientists are also remarkably educated—40 percent have a master's degree, and an additional 17 percent have a doctorate. Over 90 percent have at least a college education."[4]

Whether you're looking for quants who understand business or up-and-coming leaders who "get" analytics, there are simply not enough data scientists to go around. Fortunately, you already have some of the talent you need in-house. Identify them. Understand them. Take care of them. And make sure they have opportunities to learn, grow, and be fulfilled.

Will big data really help?

What insights do you need to make your organization more competitive? Do you need big data to get there? If so, how should you begin?

Taking advantage of big data doesn't necessarily require a broad analytics capability. Many companies are getting into the action with resources they already have. In practical terms, they're working in parallel with related investments in information management, business intelligence, data mining, and traditional analytics.

But before you do anything, stop and think through the issues. Don't get swept up in the hype. Big data means different things with differing levels of value for different organizations.

Getting big data right means aligning information capital, human capital, and organizational capital to build a culture of disciplined decision-making. Analyzing data. Converting data into actionable insights. Generating foresight. And creating incentives for people to make effective decisions no matter where they work in the organization.

For some companies, big data may be an important or even central component of their strategy. For others it could be an expensive distraction. Where does your company fall on that continuum? Find out by identifying the most important business questions you need to answer.

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Endnotes

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