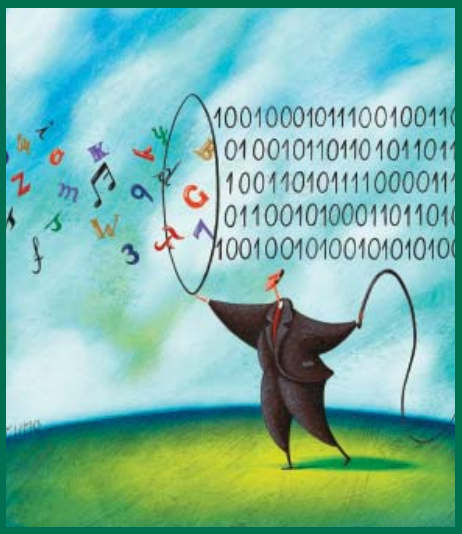
BCG PERSPECTIVES

Data to Die For



- *The digital revolution is creating numerous opportunities for companies to leverage information that they have, and that others don't, for competitive advantage*
- *The information asymmetries that result will increasingly shape markets and decide who wins, who loses, and even who gets to play*
- *Companies that find ways to know more than others could get a chance to devise and drive whole new business models*
- *Even though so much is at stake, many companies still find themselves on the wrong side of the information divide; worse, some don't know that that's where they are*
- *But there are ways to narrow the gap—and even to cross the divide*

Some record companies are trying to improve their odds of coming up with hit songs by using algorithms to discover winning sound patterns from hits of the past. A five-year-old biotech company in Cambridge, Massachusetts, called Genstruct is providing possible new explanations for the effects of prescription drugs by mining the dense universe of academic journals for seemingly unrelated clues. And Google, the online behemoth, is banking billions, having managed to turn search terms into bars of gold.

Using information to make one's name or fortune is hardly a new concept, of course. In 1978, Fred Smith, founder of FedEx, famously said that "the information about the package is as important as the package itself" and applied this insight to develop the real-time tracking tools that gave his company a huge advantage in the marketplace.

What is powering the efforts of the Googles and Genstructs of today's business world is the rapidly increasing amount of information—about everything from stock trades to hip replacements—that exists in digital form. Inexpensive to search and relatively easy to manipulate, the digital format is creating manifold opportunities for companies to more easily leverage the information that they have—and that others don't—for competitive advantage. The information asymmetries that result will increasingly shape markets and decide who wins, who loses, and even who gets to play. In short, in a world awash with information, some companies find ways to know more than others, and the difference can allow them to devise and drive whole new business models.

In some circumstances, shortcomings in collecting or understanding information have more than commercial ramifications: they can determine who lives or dies. Automakers, airlines, food service companies, and health care providers, among others, can put consumers at risk if data flows go awry.

Indeed, perhaps tens of thousands of preventable patient deaths occur every year in U.S. hospitals, according to a num-

ber of studies. These deaths often result from a breakdown in the transmission of information from those who have it to those who need it—a fatal form of asymmetry. For example, information about a patient's preexisting conditions or drug regimen may not get from one doctor to another.

Even though so much is at stake, many companies still find themselves on the wrong side of the information divide. Worse, some don't even know that that's where they are. But there are ways to narrow the gap—and even to cross the divide.

Why Do Companies Come Up Short?

Why do information asymmetries occur? Given that this is the information age, why don't those who can benefit from existing data routinely have access to all the bits and bytes that they need?

Often the problem is that companies do have access but don't recognize or appreciate what is in their grasp. With so many facts at hand about so many things—products, customers, sales, and more—it's easy to fail to connect the dots. Simply put, many companies have a competency issue in this area: very few have an advanced data-analytics capability or even a "home" for one. The operations side produces streams of data and IT ships them around, but no one has the time, tools, or ability to take the data apart to find opportunities for advantage.

Of course, the problem can also stem from not having enough data. Privacy concerns are one factor inhibiting the flow. In the United States, the Health Insurance Portability and Accountability Act (HIPAA) is just one law that imposes privacy requirements on data providers. Although the constraints are not absolute, many providers err on the side of caution and refuse to share or release any information about individuals.

Often, the owners of other types of data also put the brakes on sharing—for competitive reasons, for reasons of convenience, or because they want to limit their liability. Clearly, transparency does not benefit all players equally. Many companies depend on information asymmetries to lock in customers and maintain price levels—and until things change, they have little incentive to share data.

Then there is the cost issue. Information flows suffer from a variant of the "tragedy of the commons." In most supply chains, the *value* of digitized information is something that all players can share, but often a single player must bear all or most of the *cost* of capturing the data in the first place.

Finally, there is the problem of interoperability. Information not intended for sharing is generally stored and used in formats that make it difficult to share or combine—that is, the information is not interoperable.

All of these hurdles are being addressed in one way or another. But revisions in privacy policies and increases in interoperability, among other changes, can't overcome the most basic hurdle of all: the need for imagination. Frequently, it's a new question, insight, or view of the world that spells the difference between generating mounds of useless data and distilling information that actually confers an advantage. And when imagination, data, and new technology combine, the advantage is generally substantial.

Strategies That Pay Off

Information asymmetries occur in all industries. Wherever there's a market there's information, and generally, wherever there's information, there are at least temporary asymmetries in who has it. Hedge funds are known for using complex mathematical models to identify and exploit subtle and short-lived pricing opportunities in the financial markets. But consumer goods companies are in the game, too, investing millions in systems to forecast when the latest crop of coffee beans, for example, will mature—information that can help shape production and pricing plans. And so are those record companies that use algorithms for inspiration, as well as industrial goods companies that build complex options models to reduce their exposure to commodity price swings. Those who win do a better job with the information that everyone has, or they get access to information that no one else has.

So how can a company become a winner? Obviously, the answers vary widely by industry and situation, but here are some strategies that have paid off handsomely.

Leverage new information. Google sells something it doesn't own: words. The company tracks people's

searches to identify the most popular search terms and, through its AdWords program, prices these terms with extreme efficiency for sale to interested companies. Without search engines, however, there would be no market for search terms.

Invent new techniques for using existing information. Orbitz's success in employing new technology to sift through millions of flight permutations to find the cheapest fares is well known. Similar magic is being performed in other areas as well. As noted above, Genstruct, the Cambridge biotech company, uses proprietary techniques to search the academic literature for possible explanations of drug outcomes, providing a fast, rigorous way to turn a huge volume of data into information that can be used to solve specific problems.

Develop a "closed market" to create proprietary information. Comdata Corporation, a unit of the business services company Ceridian, is the leading issuer of "fleet cards," the credit cards used by truckers to buy fuel and supplies as they crisscross the United States. One huge advantage Comdata brings to this market is a proprietary network of some 8,000 credit-card terminals at truck stops around the country that provide both customized transaction control (only diesel fuel and certain other supplies may be purchased) and location information (such as the fact that employee X just bought 200 gallons outside Chicago). By controlling the processing of those transactions on its private data "pipes," Comdata can offer information-based services that other fleet-card issuers can't provide, since they use the "public" pipes owned by the big mainstream credit-card companies.

Provide the leadership needed to get disparate, often competing companies to share information. Wal-Mart and General Motors have both built networks and shared information with their first-tier suppliers to enable all the companies in the supply chain to work more effectively and efficiently.

Simplify and integrate complex information flows. In health care, many companies are seeking to build a more integrated, interoperable information platform that can be shared by all the relevant players. Such a platform would permit physicians in one part of the health care system to readily use data or images from another, improving decision making and saving time and money. This effort will require collaboration among many companies and sectors, the adoption of common standards, and substantial investment. An analogue from the retail world is the adoption of the universal bar-code system.

The Need for a Strategy

Not every company can hit the information jackpot as dramatically as Google or Orbitz. But finding a smart strategy to deal with data flows and information asymmetries is no longer optional. Databases are becoming bigger and bigger, more widespread, more subject to manipulation, and increasingly interoperable. Fewer and fewer industries can be described today as "information light."

Consider the probable impact of the digital information revolution on just one industry: health care. The revolution will bring greater clarity about what works and what doesn't across all of medicine. It will reinforce competition and consequently improve performance, especially as increased interoperability raises standards of care.

The revolution will also force a struggle over the ownership of data among patients, insurers, providers, and suppliers. That struggle may lead to another revolution by giving impetus to the development of life-cycle models of health care management. And it should clarify the value of investments in IT and in other innovations that can be measured.

All of this change in the health care industry will happen—if spurred not by the health care establishment itself, then by outside forces. Because increasingly in this Web 2.0 world, the battle in health care—and in other industries as well—is not just to control data but to monetize "metadata," or the data about the data. Potentially disruptive competitors such as Google and Microsoft surely see an untapped opportunity in managing health care information—and in using metadata to fuel their online advertising growth. In this environment, the status quo is much less assured.

Similar waves of change are coming to every industry. That piece of information is clear—and is available

to all companies. On that point, at least, there should no longer be any asymmetry.

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