Big Trends in Big Data: Four Ways Businesses and Individuals Are Becoming Masters of Information

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BIG TRENDS IN BIG DATA

FOUR WAYS BUSINESSES AND INDIVIDUALS ARE BECOMING MASTERS OF INFORMATION

BY OVETTA SAMPSON
Ninety percent of the data that exists in the world today has been created since 2010. The consulting firm IDC predicts that by 2020 this digital universe will expand by a factor of 300, from 130 to 40,000 exabytes.

How much is that? One exabyte has 18 zeros behind it. In people terms, that’s more than 5,200 gigabytes of data for every man, woman and child on Earth by 2020.

Consumers are the main source of this growth, creating more than two-thirds of the data in cyberspace through videos watched, photos shared, social media messages sent and purchases made online. Add to this a mountain of machine-generated data from smartphones, tablets and networked computers, plus supermarket scanners and other sensors, and what has come to be known as big data certainly lives up to its name.

Big data is usually viewed in terms of aggregate numbers, such as millions of cell phone calls culled by the National Security Agency or billions of pages created on the Internet. But for people who really want to understand how this phenomenon can affect their business, professional and personal lives, it’s useful to reduce the term to its essence: fragments of our lives ensconced in digital code.

“The businesses that will thrive in this space will realize that value and convenience to the consumer—to individuals—is at the center of this big data evolution,” says Sheila Colclasure, global public policy and privacy officer at Acxiom, an international digital data brokerage. “The consumer is the primary constituency. The technology and data are the means to enable businesses to meet the needs of the consumer.

“Our job in the business world is to deliver value and positive brand experiences to the consumer,” Colclasure continues. “In relation to the technology and data used to do that, we’ve got to help consumers get an understanding of how it works and provide relevant choices and controls.”

So, just how do we find value in this data-driven world as businesspeople and consumers without drowning in numbers? We asked alumni, industry and academic experts to provide their perspectives on the top four trends in big data.

**TREND ONE: DATA SECURITY IS EVERYONE’S JOB**

Hackers have gained access to more than 534 million personal records, including Social Security and financial account information, since 2005, according to the Privacy Rights Clearinghouse.

In 2014 alone, more than 273 breaches have been reported, involving 22 million personal records.

If you think big-box retailers and credit card companies are the only ones who need to worry about this problem, think again. Anyone who collects consumer data—from corporations to mom-and-pop operations—must develop strategies for securing and using customer data properly.

“Consumers want data about themselves protected, which means keeping it secured from unauthorized or unintended access. Consumers also want data to be used to create value, benefits and conveniences,” says Colclasure. Not all data are the same, however, and it is important to develop security practices that correspond to the type and sensitivity of the data. Good starting points include establishing formal policies and practices for securing sensitive data in transit, such as encryption policies, and implementing security industry standards advocated by the Payment Card Industry Security Standards Council when collecting and/or processing credit card payments.

Businesses also must ensure security compliance for service providers and other third parties with access to internal systems. In December 2013, Target discovered that credit card data from 110 million of its customers had been stolen electronically. Media reports suggest the cybercriminals may have introduced their data-stealing malware into Target’s network through software used by one of Target’s vendors.

“Companies should continually monitor their environment, as threats can originate from internal as well as external sources,” says Eileen T. Carlson (MBA ’85), director of information governance at Baxter Healthcare. “They need to think seriously about what services they outsource and what partners and vendors they engage. Regardless of how the breach occurs, the company is ultimately responsible, and it is their brand that is impacted.”
One day is today. We are in the age of the quantified self. Big data is no longer the sole purview of businesses. More than one million people use the computational search engine Wolfram Alpha to analyze their Facebook data. More than 55 million Americans track their diet or fitness activity using apps such as Lose It!

“Life logging” is creating new industries and opportunities for entrepreneurs and companies, says J-P Contreras (BUS ’97, MBA ’01), general manager of IBM business analytics at Perficient, an IT-solutions-driven consulting firm. “Companies that think entrepreneurially in this space will identify an analytical need for the data that hasn’t been served yet,” he says. “People are looking for data on themselves that will benefit them.”

The opportunity for growth in the personal analytics arena is expanding each year. A Pew Research study found that 69 percent of adults track a personal health indicator, and one in five use at least one form of technology for this tracking. In addition, 34 percent of health data trackers share that information with others, including their doctors or spouses and partners.

Moreover, customers are using their personal analytics to influence companies to make products better.

Increasingly, companies are looking inward and using aggregate data to improve their operations, experts say.

Fitbit Force, a hot-selling item during the 2013 Christmas season, allows users to track physical activities through a wireless-enabled wristband. Selling at $129, the device took over the wearable fitness market with a 60 percent share, beating similar products by Nike.

But just months after it became the top seller in its category, Fitbit Force wearers began doing some data tracking of their own on how many users were developing rashes. They created an online Google Docs forum detailing rash symptoms, duration and cures. In all, more than 500 users uploaded personal data for the world to see—pictures included. Shortly thereafter, Fitbit voluntarily stopped sales of the Fitbit Force, recalled the product and issued refunds.

Experts say businesses shouldn’t be threatened by consumers’ grasp of their own data, but embrace it as a way to improve their companies. Says Carlson, “If you’re coming up with ways to provide value to new and existing customers, consumers will want to do business with you. The general public will be more forgiving if you make a mistake and are viewed as a consumer-conscious company.”

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mass recall. Other companies are improving their operations by using radio frequency identification (RFID) sensors to watch their planes, trains, and automobiles move through the supply chain in real time, and then using the data to improve delivery and production times.

Big data also is forcing companies to destroy old silos that keep internal departments from sharing information. "A startup company should be looking at implementing totally integrated systems and processes," Carlson says. "Many companies segregate their sales force from their customer service organization. The sales force is not aware that a customer has called customer service multiple times for the same issue. Yet, the sales force starts telling the customer how important she is and that they want to build a relationship, while the customer is thinking, 'If I am so important, why don’t you know that I called three times in the last month for the same issue.'"

**TREND FOUR: EMERGING BUSINESS TECHNOLOGISTS**

By all accounts, the team of well-educated attorneys who work with Colclasure at Acxiom are smart and capable. Yet, she has asked them to become students again: ""Your challenge,' I told my team, 'is to become technologists.'"

For the last two years, Colclasure and her team have been immersed in understanding technology and what the data scientists are doing at Acxiom. They are not merely looking at data output, but at the architectural schematics of the data itself, combing through it bit by bit. No longer will they depend upon the IT crowd to interpret and protect the data. They are learning firsthand about the technology engineering necessary to parse big data.

Acxiom is not alone. Peers who work in compliance at high-tech companies "are saying they’ve got to apply analytical thinking to this space, and they need the technology skills to do it," Colclasure says.

This trend of merging skill sets—where understanding the creation, interpretation and protection of data is as essential as knowing profit and loss statements—has begun to affect the job market. According to a recent Manpower survey, about one in three jobs go unfilled because applicants lack the required technical skills.

That’s why DePaul’s Kellstadt Graduate School of Business offers an MS in Marketing Analysis and has partnered with the College of Computing and Digital Media to launch an MS in Predictive Analytics degree. Sue Fogel chairs the Department of Marketing, which offers both programs. "Graduates of these programs understand how data fits into creating best business practices, what all that data can tell a company and how it can affect a company’s decision-making process," she says. "They are in high demand for everything from digital marketing to risk analysis to telecommunications."

**BIG DATA’S FUTURE**

Big data as an industry is still in its adolescent phase—both enhancing and disrupting industries, lives and careers as it inserts itself into our daily life. The key to understanding big data personally, professionally and within business, our experts say, is to never forget its purpose—the individual customer.

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