



Backgrounder

The Data Society: Creating Value from Your Digital Information for Everyday Life

What's the big deal about "big data?" It's certainly nothing new. If you think about it, we've been obsessed with gathering data for millennia – since the Romans started taking a census. Data includes your digital media – music, docs and e-books – and also – your GPS history, social media activity and loyalty card information – even what you buy online. Public data is also available to individuals through urban sensors, online public resources and census information. So what makes today's big data so fascinating?

With emerging technology capabilities, we are starting to explore what happens when data sets can "talk" to each other and even forge new connections – some which are hard, if not impossible, for us to see. New insights – derived from data – will play an important role in our daily lives and the decisions we make.

Want more serendipity in your life? Imagine your data doing things for you without instruction. A friend of a friend knew you were both at the same conference and your smart devices arrange a meeting over coffee to talk about a great new opportunity. While you were at this coffee appointment, tickets to a sold-out concert suddenly appear in your online shopping cart. When your flight was delayed, your appointments were rescheduled. When data is working for you, these moments of luck, happenstance and "serendipity" will occur more often and require less attention from you.

When we share data, we can tackle big problems together. When we pool our individual data and add open data – information from public agencies or private companies – good things can happen. For example, traffic could be better managed by collecting and comparing the data from traffic-light sensors, GPS systems and our own driving habits. When we share more, we can learn more and solve more real life problems.

You've got a valuable asset and may not even know it. Your data is valuable but most of us don't know how to harvest our own personal data or how to exchange it for something that really matters to us.

Challenges Facing the Data Society

Data sharing isn't a one-way street: Data is one of those powerful tools that will revolutionize the way we make sense of the world and our lives. If we just have cars sharing information with one another – without information from traffic lights, insurance companies or emergency responders– we won't readily learn how to make a morning commute faster.

Data ownership remains a concern: The most value comes when digital information can be safely shared and exchanged with other data. But people want assurances that their data isn't misused. 32 percent of users surveyed by Microsoft* said trust was a consideration when

visiting websites and services, and 85 percent of users have taken actions to protect their privacyⁱ.

Today, we do not control most of our personal information. People in the future may want to have more transparency and control over the use of their data. For instance, 65 percent of users have deleted cookies on the Internet, and 44 percent have opted out of targeted online advertisingⁱⁱ. Creating technology systems that people can have trust in is imperative to their willingness to use it. The industry and society are just beginning to figure out these new requirements.

We don't know enough about our own data, and its value: We create 2.5 quintillion bytes of data every day. 90 percent of the data in the world has been created in the last two years aloneⁱⁱⁱ. Big corporations understand the value of personal and collective information. But there is also potential for individuals to learn how to access and use their data to create meaningful insights. By creating a platform that enables secure handling of data, business opportunities, not yet imagined, can benefit individuals and companies alike.

Not everyone has access to the kind of data that give us insights: While data can make the world a better place and provide opportunities to more people than ever before, it can also leave behind those without access to the right kinds of technology. To ensure that everyone has a place in this data society, everyone must have access to devices that allow them not just to consume but also add value to their lives.

The New Data Society

The Data Society represents research within Intel Labs to unlock the power of data for everyone. In addition to pushing the boundaries of what institutions can do with data, Intel Labs has put an emphasis on the exploration of meaningful data exchange among individuals. Intel researchers are working with individuals, corporations, start-ups and government institutions to encourage a better understanding of data exchange principles: What is personal data, how do different data sources relate, and how can individuals access it and use it to better their lives. Guided by these findings, Intel Labs is looking at ways to adapt our digital infrastructure to capture, move and work with digital information easily and effectively. There are tremendous opportunities for all of us to learn about the value of data and how we can grow from its meaningful use.

As the backbone of the computing industry, Intel helped usher in the PC era, the birth of the Internet, the age of mobility and is now a driving force behind the monumental shift to a data society. Throughout computing history, technologies that were once for the elite and corporations alone have been democratized. Now data will evolve from being a resource for companies to a valuable tool for citizens.

Data Exchange Helps Me Today

Walmart handles more than 1 million customer transactions every hour, which is imported into databases estimated to contain more than 2.5 petabytes (2,560 terabytes) of data. That is the equivalent of 167 times the information contained in all the books in the U.S. Library of Congress^{iv}. Big data and data exchange is estimated to create almost half a million jobs in five years and a shortage of up to 190,000 qualified data scientists^v.

Personal data use combined with big data analytics present tremendous opportunity for a better, more efficient, cohesive and collaborative society. In fact, we're already beginning to see what this society looks like and the ways it will benefit our lives and the world:

Avoid an Allergy Attack: If you are someone allergic to specific pollens, it's important to be able to manage your contact with the plants and trees that produce them Intel researchers have figured out how to use data collected from open sources to create visual representations of pollen locations. These visualizations allow people to identify pollen activity by specific types of

trees and plot a block-by-block route to avoid specific allergens. In the future, this information will be accessible on mobile devices.

Park Easy: It's a situation we can all relate to: you drive into a city, excited to meet friends or go to an event but after the half-hour it takes you to find a free or reasonably-priced parking option, you wish you had stayed at home. Parkatmyhouse.com solves this problem by making use of data to show you available spots in private driveways or in parking lots whose owners subscribe to the service.

Book a Trip: Essentially a virtual travel agent, Olset fully automates the online travel experience by knowing the preferences of its users. The system pulls in user information from sites ranging from Facebook* to Expedia* to get a sense of how its users like to travel, the types of hotels they prefer and more. From there, it suggests itineraries and makes bookings based entirely on those preferences.

Manage My Health: When we get sick, doctors capture all kinds of data about us in their office or at the hospital: blood work, scans, interviews, probes. But in between the time we're at the doctor's office, information about our health is never collected. PatientsLikeMe.com fills this gap by offering people with conditions such as multiple sclerosis, diabetes, Parkinson's with the tools to report the daily details of their moods and treatments to other patients like them. Now patients can learn things about themselves and their conditions based on the experiences of others, like what medications might work best, what are common side effects for people of my blood type – all without a visit to the doctor.

Monitor My Every Move: From questionnaires and consumer panels to movement sensors in retail stores, marketing research teams are constantly looking for new ways to quickly gather our data. However, for the first time in history, we are able to voluntarily measure ourselves and generate huge amounts of first-hand information on our behaviors. Saga is one such mobile app that integrates with Facebook*, Twitter*, Instagram*, BodyMedia*, FitBit*, RunKeeper*, TripIt* and Foursquare*, so almost everything you do gets logged. This lets you see how you spend your days and how you can make your life more efficient. By reviewing your logs, you can become more productive and focus on what makes you better.

How Data Exchange Can Help the World

Prediction: The Intel Collaborative Research Institute (ICRI) is addressing big, social, economic and environmental challenges of city life with computing technology. Using London as a test bed, researchers are exploring technologies to make cities more aware by harnessing real-time user and city infrastructure data. For example, a sensor network could be used to monitor traffic flows and predict the effects of extreme weather conditions on water supplies, resulting in the delivery of near real-time information to citizens through citywide displays and mobile applications.

Prevention: Following a natural disaster, the world mobilizes to help those affected. Each time, we're reminded of how vulnerable some people are to weather and conflict. Programs such as the United Nations' [Global Pulse initiative](#), affords people, governments and organizations the ability to harness digital data to better understand where people are most vulnerable and both predict and prepare for disasters before they happen.

Protection: We've come a long way from Columbus and other explorers who charted the world with sextant and wind-powered ships. Today's explorers understand data and use tools such as Google Earth* to make sense of the world's satellite imagery – trillions of scientific measurements dating back almost 40 years. These scientists are able to mine this massive quantity of data to detect changes, map trends and find differences on the Earth's surface, such as deforestation and the effects of climate change.

About Intel

Intel (NASDAQ: INTC) is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. Additional information about Intel is available at newsroom.intel.com and blogs.intel.com.

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ⁱ Microsoft, *Microsoft Data Privacy Day Survey Results*, published 2013, [access here](#)

ⁱⁱ Microsoft, *Microsoft Data Privacy Day Survey Results*, published 2013, [access here](#)

ⁱⁱⁱ IBM, *Bringing smarter computing to big data*, 2011, [access here](#)

^{iv} Economist, *Special Report: Managing Information – Data, Data Everywhere*, published 2010, [access here](#)

^v McKinsey Global Institute, *Big Data: The next frontier for innovation, competition and productivity*, published 2011, [access here](#)