

# Book says 'Big Data' becoming a global nervous system

December 6 2012, by Chuck Raasch

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When Rick Smolan attended a parent-teacher meeting at his kids' New York City school recently, a spirited discussion broke out about why students were being allowed to text and post on social sites during school hours.

Parents asked: Aren't they supposed to be learning? Isn't it dangerous to put so much personal information out there? Can't the school stop it during school hours?

No, they couldn't, the school officials said. And Smolan knew why: Kids, he says, are "addicted" to technology and its connections to a bigger world.

But even as the debate raged, Smolan also noticed that many parents were working their own smartphones, "I assume for emails, texts or 'Angry Birds.' "

It was an everyday lead-in to Smolan's latest mega-project: "The Human Face of Big Data," an illustrated book he produced with his partner, Jennifer Erwit.

In pictures, charts and essays, Smolan is trying to show how a few [software engineers](#), analysts, and data entrepreneurs living in what he calls a "strange new land" in "labs and boardrooms from Palo Alto (Calif.) to Bangalore," are affecting humans everywhere.

The creator of the "A Day in the Life of America" photo book and other "day in the life" books says this latest project was the toughest so far. How do you show how an infinite sea of bits and bytes of information flooding [cyberspace](#) is affecting everyday lives? His answer: in pictures of that life, from weather to war to the games we play.

On Tuesday, Smolan and Erwitte shipped 10,000 copies of "Big Data" to opinion leaders around the world, hoping it sparks a global conversation about the oceans of data humans are swimming in. "Big data" is a label affixed by software engineers, [computer scientists](#), and [social scientists](#), a description of the revolutionary ability to detect, corral and compare data on scales few even dreamed possible at the beginning of the century.

Copies of the book were sent to everyone from President Barack Obama to Justin Bieber.

"We need to have the smartest people on earth aware of, and talking about this" Smolan said.

Smolan and Erwitte say "big data" have launched technological immortality, where "each of us now leaves a trail of digital exhaust, an infinite stream of phone records, texts, browser histories, GPS data, and other information, that will live on forever."

Others say a new kind of human is evolving from the data soup.

"As we double the amount of data generated by all humans within the next five years, we can begin to model, build and scale to the point where we begin to directly and deliberately guide the evolution of ourselves and many other species," said Juan Enriquez, author of "As the Future Catches You: How Genomics and Other Forces are Changing Your Life" and one of several essayists in the book.

Smolan, a former National Geographic photographer, built the book around a simple premise: That "big data" are becoming a "planetary nervous system," the potential and consequences of which few have even started to contemplate.

It's "an extraordinary knowledge revolution that's sweeping, almost invisibly, through business, academia, government, health care and everyday life," he says.

That revolution, he says, is being built on "a set of technologies coming together at just the right time, brought about by widespread and low-cost sensors that can now communicate with each other, the plummeting cost of computing power, the ubiquitous everywhere and always-on aspect of the Internet, the rapidly proliferating spread of smart devices."

The book is chocked with "wow" facts. Eric Schmidt, Google's executive chairman, says that humankind produces in two days the same amount of data it took from the dawn of civilization until 2003 to generate. In 2010, AVG, an Internet security company, estimated that 90 percent of U.S. kids have an online presence before the age of 2, and that a fourth of babies born in the U.S. have an "online birth," often in the form of a sonogram, while still in the womb. To some, big data are allowing humans to design their immortality.

Enriquez, chairman and CEO of Biotechonomy LLC, a Boston-based life sciences research firm, points out that "today a street stall in Mumbai can access more information, maps, statistics, academic papers, price trends, futures markets and data than a U.S. president could only a few decades ago," he said.

Big Data was underwritten by data giant EMC, data-management company Cisco, FedEx and others. Smolan said he and Erwitte had editorial control. The book tries to depict, in photographs, charts and

factoids, the practical effects of big data collection and analysis on everything from - from weather forecasting to disease diagnosis to anti-terrorism work. One page shows the volume of data collection and analysis necessary to show the velocity, location, spin and angle of a single baseball pitch that takes less than a second to deliver that baseball fans have now come to expect as routine.

Nicholas Carr, the author of "The Shallows: What the Internet Is Doing to Our Brains," said that "we crave information the way we crave sex, down into the synapses of our brain."

But Marc Goodman, an expert on cybercrime and co-founder of the Future Crimes Institute, worries about the cravings of the dark side.

"Today, the ability of a single person to affect many, for good or evil, is now scaling exponentially," he warned.

Esther Dyson, who has invested in several big data companies, says the world now has "billions of intelligent devices that are self-aware, that communicate among themselves as well as with computers and, ultimately, with people."

Jonathan Harris, a writer, computer scientist and co-creator of WeFeelFine.org, a search engine for human emotions, said new reams of data will soon routinely come from inside human bodies, "through pacemakers, biometric monitors, cancer-fighting nanobots, brain-based Wi-Fi connections and so on."

At that point, he writes, big data could become either another addictive drug, or a pathway to a "healthier, gentler, more compassionate, more humane and more self-reliant" human race.

"Through the Internet, we are developing a species-level nervous system,

capable of transmitting thoughts, ideas and information," he writes in "Big Data." "The resulting mega-organism - this 'global human being' - is also beginning to exhibit physiological reactions and even 'higher' human traits like empathy and compassion."

As an example, Harris cited a "visceral sense of pain and disgust" from Internet images of Occupy Wall Street protesters being pepper-sprayed on a California campus.

Big data have helped spawn revolutions in Libya and Egypt; created showdowns between global governments and the website Wikileaks; and made Facebook and Google into global forces, bigger than many governments.

In August, George Church and Sriram Kosuri, molecular geneticists at the Wyss Institute for Biologically Inspired Engineering at Harvard, revealed that they had encoded onto DNA the text of 70 billion copies of a new book on synthetic biology that Church co-authored. They told Time magazine they did it to show how much more efficiently that data can be stored on DNA, the building blocks of life, than electronically.

Smolan included a technological wrinkle in the Big Data book: downloadable "secret videos" available with a [smartphone](#) swipe.

"The world is about to change forever because of this sudden ability to measure and sense the world in real time," Smolan said.

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