

Digitizing and Informating

Jim Euchner

"We shape our tools, and thereafter our tools shape us."

—Marshall McLuhan

Twenty years ago, Shoshana Zuboff published *In the Age of the Smart Machine*, a seminal work on the nature of automation. Her focus was on the capability of machines that automated work to also *informate* their environment, a term she coined. Informating is the generation of information as a by-product of an action. Zuboff observed that "the same systems that make it possible to automate office transactions also create a vast overview of an organization's operations, with many levels of data coordinated and accessible for a variety of analytical efforts" (p. 9).

The same thing is now happening, not just with our machines, but with our lives. Digital technology is allowing us to do things we could never do before (or do as easily), but we are spinning off information as a consequence, with profound implications for our experience of life.

Jim Euchner is editor-in-chief of *Research-Technology Management* and vice president of global innovation at Goodyear. He previously held senior management positions in the leadership of innovation at Pitney Bowes and Bell Atlantic. He holds BS and MS degrees in mechanical and aerospace engineering from Cornell and Princeton Universities, respectively, and an MBA from Southern Methodist University. euchner@iriweb.org

DOI: 10.5437/08956308X5802002

This was driven home to me on a recent visit to San Francisco. Here's what I did in one day with my phone:

- I set an alarm to get up (unplugging the alarm clock in my hotel room in order to charge the phone).
- I read daily readings for my church and headlines from the *Wall Street Journal* and *New York Times*.
- I captured data on my morning run, including how fast and how far I ran, and I listened to music while running.
- I got the address for my meeting from my calendar and used GPS to guide me to the meeting.
- When I had some time to kill, I looked for information about nearby museums. One was the Autodesk museum, which I had heard about.
- I used the GPS (in walking mode) to guide my walk to the museum, and on the way, I looked up a friend who worked there (who kindly gave me a tour).
- While in the museum, I took a photo of a LEGO dinosaur, which I thought would be interesting to a friend. I sent it to her with a text message.
- I made a few phone calls!
- I downloaded my boarding pass and checked the flight status to make sure it was on time.
- On the way to the airport, I got directions to a convenient gas station where I could fill up the tank on my rental car. When I returned the car, I checked the trunk using my phone's flashlight.

- I killed time by playing solitaire and checking email.

This was all fantastic. Without the phone, there are things that I would not have done, people I would not have seen; the time that I would have spent doing low-value things was made productive. But in the process, I left a trail of data that revealed details about me and my life. In real time, my phone captured:

- My location
- Data about my health, including sleep patterns and activity
- Where I drove, along with data that could be used to infer something about how I drive
- Data about my interests
- People I know
- What I read

I'm sure there are other details that were captured that I'm not even aware of.

Several of the articles in this issue provide insight into the business implications of this data and the informating of our world. In this issue's interview, Professor Youngjin Yoo discusses the creative destruction of digital technology, which is largely driven by this informating process. The resulting products are generative: they engage people not only in their use, but also in their co-construction. They are not just digital versions of the old, but platforms that meet needs and engage users in starkly different ways. He argues that the roles of designers and managers

need to change to take advantage of the opportunities created by this shift.

Platforms like those discussed by Yoo are built on the creation, flow, aggregation, and repurposing of data. The data we generate as users, in both our personal and business lives, is a significant resource, and not just for marketing. In “Using Unstructured Text Analytics to Support New Product Development Decisions,” Stephen Markham and Michael Kowolenko address how companies might leverage unstructured text, a significant category of the “big data” we generate, to guide product development decisions. They use cases to illustrate the use of text analytics to develop new services, find new customers, and assess new product acceptance.

The rise of digital technology and the accompanying informing of more and more of our worlds has disrupted numerous markets, and promises to bring even more disruption. Heidi Bertels, Peter Koen, and Ian Elsum, in “Business Models Outside the Core,” examine how incumbent firms respond to disruption like that spawned by digital technology. They find that the high failure rate of “outside the core”

innovation projects is most dependent on “false assumptions about the distribution channels, cost structure, unit margins, and velocity elements of the innovation, which are often carried over from the incumbent business model.” These are precisely the elements of the business model that are being disaggregated, redefined, and reconfigured by digital technology.

Finally, in this issue’s Resources section, MaryAnne Gobble discusses what happens when digital disruption gets ahead of the regulators. The Internet has operated in what Vint Cerf calls a “permissionless innovation” space, a space so new that existing regulatory frameworks simply don’t apply. This lack of regulation has created a very generative space, but as these innovations have bled into our physical lives, through services like Uber and AirBnB, they raise questions about who, if anyone, should be regulating their implications for health, safety, the environment, and our privacy.

Zuboff focused on the informing of machines to facilitate automation, but her insights (and warnings) are relevant to the informing of our personal lives,

as well. She argued that the information captured through automation might be used either to create more meaningful work or to engender alienation by rationalizing, routinizing, sub-dividing, monitoring, and fragmenting work.

There may be similar consequences to the informing of our daily lives. The direct, empowering benefits are clear, and we seek to embed them more and more into our lives. But the collection of increasing volumes of data that is both the engine and the output of these applications is a double-edged sword. It enables a truly better user experience in a host of contexts, but the data can be assembled into a detailed picture of our lives and behaviors that can be used to rate us, intrude on our daily routines, or reduce our economic leverage. The cascading effects on our privacy, our attention, and our connection to others need to be understood so that the choices we make create a world that we want to live in.

References

Zuboff, S. 1988. *In the Age of the Smart Machine: The Future of Work and Power*. New York: Basic Books.

Number 1 of 1

AUTHOR QUERIES

DATE 12/01/2015

JOB NAME RTM

ARTICLE 3039

QUERIES FOR AUTHORS Jim Euchner

PLEASE ANSWER THE AUTHOR QUERIES WHERE THEY APPEAR IN THE TEXT.

THERE ARE NO QUERIES