

Who You Are With

By David Alan Grier

It was one of those moments when I didn't know "who I was with," if I can steal the famous line from *The Godfather*. I was at a reception and had joined a clutch of people who seemed to be discussing the newest models of smartphones. I paused for a moment, as the conversation seemed insufficiently technical to come from engineers but far more detailed than I might have expected at this gathering. After a few moments, I was asked to join the discussion, but all that I offered were tentative words, a brief display of appreciation. After all, I didn't know how they would react to my ideas—I *didn't know who I was with*.

It didn't take long for me to recognize that many in the group were nursing a deep grudge against the technology and had concluded that the smartphone had destroyed all that was good and holy in industrial civilization, much as television or radio or the telegraph had wreaked havoc on prior versions of that civilization. In particular, they railed against the smartphone as a tool of information gathering. Twitter, Snapchat, Facebook, and Reddit: these apps were the real targets of their wrath. They argued that the tools that allowed the public to gather and disseminate information had destroyed newspapers and were spreading ignorance and false ideas through the body politic.

At roughly this point, I began to realize that many of people in the conversation were former newspaper editors. At least one had led the efforts of a major paper to establish a large online news service. For most of them, the discussion

was not about an abstract shift in the news business. It was personal.

I engaged the group cautiously. I know all too well that I can appear to be an arrogant know-it-all, a character that is rarely welcomed in a conversation. I gently pushed and prodded, suggesting that the problem was not the smartphone or even the Internet but that it was a fundamental aspect of mass marketing, an aspect that had moved beyond the ability of the social structure of the newspaper to address.

At this point, one person in the group objected to my analysis. He said that his marketing department had raised the same issue time and again, and he added that he did not like their approach. Instead of talking about how news informed the public, the marketing department was discussing how the paper could engage the consumer. At this point, I was saved by the announcement that the reception's guest of honor was going to give a speech.

If I had been allowed to talk, I would have agreed with the marketers. Mass consumption, the last stage in the industrial trinity that also includes mass production and mass distribution, requires businesses not only to know their customers but also to engage them in activity. Often, you have to go beyond merely engaging them and have to follow where their actions lead you.

MASS CONSUMPTION AND CONSUMER ELECTRONICS

Of course, consumer electronics provides the technologies and the products that have supported mass consumption. Its role in creating large markets is well known and was well discussed long before the recent rise of the smartphone.

Television, radio, and even the telegraph have been important consumer technologies. However, smartphones have allowed more people to think about the problems of mass consumption and to experiment with possible solutions. Mass consumption, together with mass production and mass distribution, is generally viewed as the aspect of industrialization that poses the hardest problems.

Mass production, the first element of industrialization, poses problems of assembling complex goods, but these problems are described in the simplified world of the factory—or in our age, networks of factories. These problems were first studied at the end of the 19th century and the start of the 20th century. Early pioneers in this field include Frederick Winslow Taylor and Henry Ford. Their ideas about how to manufacture goods and services remain part of the industrial world.

Mass distribution involves two related but inverse problems. The first involves getting a common good to a large number of places. The second, usually called the supply-chain problem, assembles many different kinds of goods in a single place to support manufacturing. Both tasks are optimization problems. In trying to solve them, you are looking to make a collection of decisions that moves goods with the greatest speed and least costs. One of the major contributions to the theory of mass distribution was the invention of linear programming by George Dantzig at the end of the Second World War.

Mass consumption, the last of these categories, is the most complex and the messiest aspect of industrialization as it

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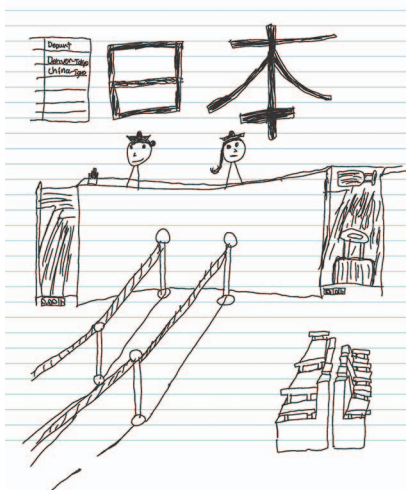


FIGURE 4. A drawing by young product tester Thomas Sanitate, age 13. (Image courtesy of Thomas Sanitate.)

make it easier for its users, but if the users want to print their own paper, they

can visit the Livescribe Web site (http://livescribe.custhelp.com/app/answers/detail/a_id/37/kw/60013).

So what is the deal about the special paper? As Halle explained, the Livescribe has a built-in camera near the tip of the pen that “looks” at the surrounding area for a set of specially sized and arraigned dots, which it refers back into a predefined mask table inside the ARM 9–based processor inside the smart pen. The unique coordinate system that Halle’s team has designed allows for enough pattern space to cover the entire United States with pages. This special dot pattern allows the camera to reference the location and provide “pointers” in its onboard memory for later recall when the data is transferred to a computer or other smart mobile device. Halle estimates that thousands of pages (several notebooks) can be stored in the

smart pen before a transfer is needed to offload the content. The Livescribe 3 Pro pack retails for US\$199.95, but I found it as low as US\$149.95 on Amazon.com. I would recommend this product; it is cool, sleek, and functional.

As always, the views expressed in these reviews are my own, and *IEEE Consumer Electronics Magazine* does not endorse any product, as per the policy of the IEEE.

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involves a market. However, it includes more than merely presenting products to potential customers and getting them to make purchases. It requires us to understand the customers, to know how they think, what they value, and how they work. It involves the work of engagement, the term that so bothered my fellow conversationalist at the reception.

Engagement moves beyond issues of display and advertising, which are part of mass marketing, and shifts to the problem of building a community from limited information. In dealing with the issues of mass engagement, you can never know all that you would like to know about neighbors. However, you probably know enough to build a working community.

One of the first engineers to think about the problems of mass engagement was Samuel Insul, the great builder of electrical utilities. He viewed his utilities as communities that work together both consciously and unconsciously. He spent a great deal of time gathering information

about his customers. Insul collected not only the data of their electrical usage but also the aspects of their lives that held them together as a community. He ascribed great importance to knowing the people that were part of his utility.

KNOWING WHO YOU ARE WITH

Far more than their predecessors, the latest generation of consumer electronics has moved our interest from distribution to engagement, from display to commitment. These products allow us to present a portrait of ourselves as consumers, ask that the world engage us according to that portrait, and be a bit surprised when they know more about us as we do.

If we want to date this era of engagement, we would probably point to the personal computer of the 1970s and the experiments with two-way cable television in the 1980s. However, it has been the technology of the last two decades that has really shifted the way we view industrial society. With these devices, we report

both the large events of our social lives and the small events that represent our fundamental values.

We can now know a great deal about “who we are with,” just as you now know a little bit about who I am from this first column. I trust that I will soon get some of the same knowledge about you. In the end, we are involved in building working communities based on shared information. It is now our challenge to build working communities based on that information, communities that don’t confuse display with engagement, or the display of one-way speeches with honest conversation.

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