

# The Social Side of Information Networking

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Americans are a sociable people, and among the world's most technology-loving cultures. Just look at the enthusiasm with which we embraced the telephone, at least as soon as we began to see it as a social tool, not just a source for business news. In fact, across the first half-century that we used the telephone, telecommunications executives expressed concern that social use might overwhelm capacity, blocking the technology's viability as a business tool. We use the telephone much more heavily than Europeans do, even when we are close enough to make face-to-face contact, and even when it costs us measurable amounts of money.

Americans like to think they can reach essentially anyone essentially any time, and we generally want others to be able to reach us, according to a 1994 survey that Bellcore's sociological consultants conducted. About half of the 912 respondents agreed with each of the statements "My responsibilities require me to be 'easily' reachable," "People need to contact me about important matters," and "I stay in touch even when I am on vacation." A quarter of the respondents gave neutral responses to these statements. A slightly smaller number agreed that "There are often times when I urgently need to get through to another person."

We want to be in touch with each other and to have a lot of information available to us, and we're glad to use technology to get there. But we can't always see all of the implications of having that information or using the technologies, partly because we are inven-

tive in our sociability and sometimes expand the uses of technologies beyond their inventors' visions. And of course, we don't necessarily like all the implications once we do see them.

We can make better decisions by understanding a new technology's potential for both good and ill. Social research can help us see and understand what we're doing with technological and other changes, evaluate some of the implications, and take at least some control of those changes.

One of the most profound changes most Americans would recognize today is the rise of information networking as exemplified particularly by our growing use of the Internet. In late 1995, Bellcore researchers conducted a survey of a random sample of 2500 people. Eighty-five percent of those respondents had heard of the Internet, although only eight percent were current users.

The demographic details can also be revealing: Current Internet users were more likely to be male than female, somewhat younger, considerably better educated, and very much better off financially than the respondents as a whole. Just a few months later, however, new studies suggest that both gender and income gaps may be narrowing.

Respondents who used to use the Internet but didn't any more were likely to be male, but very much younger, slightly better educated and of average income as compared to all respondents. Those who had heard of the Internet but never used it were more likely to be fe-

male, but otherwise close to the general population, and nonusers who had not heard of the Internet were even more likely to be female.

### Good Form

The social importance of information networking and the technological changes associated with it is confirmed by the development of new forms and elements of etiquette—in the case of the Internet, sometimes known as “netiquette”—for handling them. The latest mass-market etiquette book by “Miss Manners” addresses some of the points, but mostly they are being worked out by society as we live with the changes.

Among the other social issues we’re still debating for many information-networking technologies are privacy and security: We want access to more information on others than we are often willing to reveal about ourselves. Some ground has already been covered. For instance there were sometimes vehement controversies over introduction of Caller identification services although, among other advantages, there is evidence to suggest that merely introducing Caller ID in an area reduces the incidence of obscene calls.

More recently, we’ve heard a great deal of discussion around an employer’s presumed right to read the electronic mail passed on its system. In one sense, this is both as innocent and as threatening as eavesdropping on the traditional water-cooler conversations, except that technology has vastly widened the scope of water-cooler society.

Many people have very serious concerns about the security of information they send over the Internet. Among current users of the Internet, concerns about paying for goods and services by sending credit-card numbers across the Internet were more likely to have been expressed in Bellcore’s survey by older respondents. In a sample of general consumers from the same survey, the same three fourths of respondents reported being concerned about fraud and error when shopping with their credit cards over the phone. The number jumped to 87 percent when the business called the respondent to solicit the order. But 41 percent were concerned or very concerned about fraud and error even when they did their credit-card shopping in person.

The wealthier and better educated reported fewer concerns but, in general, concerns appeared to be independent of gender or age. Among current Internet users, views on the convenience of Internet shopping did not correlate with any of a range of demographic variables. Shopping by the Internet was thought more cool by younger people, by the less well-educated, and by the less well-off. Those who had browsed at an on-

line store were more likely to be male and well-off. Those who had bought from an on-line store were also more likely to be male and older.

Fears get even more serious concerning fraud or theft of funds through entanglement in information-networking technologies: Fifty-three percent of current Internet users said they were very concerned. And two-thirds of the general-consumer respondents said they were concerned about fraud and error when they used the phone to find out their bank-account or credit-card balances.

Information about you that may be exchanged by others is seen as almost as much at risk. Forty percent of current Internet users reported being very concerned about having their medical information intercepted and used against them. But over all, concerns were higher for financial issues than for privacy issues. People with less education and less money were more concerned about accounting errors when they used the Internet to order their money transferred; better-educated respondents were more concerned about unsolicited commercial contacts.

These worries may reflect general perceptions in our society that we are subject to high levels of crime. In particular, respondents to the Internet survey appear to believe there are lots of snoopers on the net, sifting messages for credit-card numbers and potentially embarrassing data. But there are also nuances to the findings, such as a lingering distrust of automated processes. Many people still feel that, while it might be more efficient to automate financial activities, machines may not be as adroit as humans in sensing and deterring fraud and error.

Consumer respondents were eager for new safeguards, but they wanted the providers of communications and financial services to take care of it for them. They especially indicated that they wanted to avoid solutions that increased their cognitive load, such as having to use longer or multiple personal identification numbers (PINs).

The availability promised by information networking also gives rise to a set of conflicts. The borders of work and leisure time are blurring, especially for Americans. Consider this special case: Young children or people who tend to become disoriented because of disease or disability could be easier to track if they wore transponders. But would it be fair to their privacy and anonymity? Who would decide who needed to be tracked by whom?

Every communications technology is potentially a new channel for social control. This includes formal controls by such institutions as the police and the courts,

formal organizations that can impose sanctions (such as industry regulators), quasiformal agents such as bosses and managers, and the informal influences of people with whom we have social relationships, such as friends and family.

Technology can also give us ways to evade social controls. Seventy-one percent of the current Internet users in Bellcore's survey agreed or strongly agreed with the view that Internet shopping avoids hassles with sales representatives. Similar views were expressed by respondents who were former users and by nonusers who had heard of the Internet.

We can also agree to accept some controls in exchange for what is known as distributive justice. Essentially, you get paid for the use of your personal information or your availability, for instance, to telemarketers. Thirty-four percent of current Internet users reported being very concerned about their vulnerability, over the net, to unsolicited commercial contacts. They might be less concerned if they got a small rebate for each contact that appeared on their screens.

Economics also sometimes motivates closer management of our use of technologies. Mobile-phone users are charged air time for incoming calls, something unheard of in traditional land-line telephony. The shock of this realization often makes cell-phone users more judicious about giving out their phone numbers, except as they are authorized to do so by the employer who may be footing the bill.

On the other hand, availability and submission to social controls can have side effects of democratization. Small businesses can appear to their clients as large and as capable as big ones. This factor could in turn reduce the outflow of people from rural areas by making dispersion and isolation less burdensome. In fact, some surveys have already found that people in rural areas are more likely than individuals in urban areas to be equipped with personal computers with access to the Internet. And the Census Bureau reports that rural areas are growing again after decades of population loss.

Communications technologies are driving a new convergence, but also new fractures, in global culture. Networked computers appear to be largely responsible for the shrinkage of middle-management layers throughout corporate America. But the convergence of telecommunications—telephone, computing, and what has been broadcast and cable TV and radio—under new regulatory constructs is liable to make information networking even more indispensable.

We often blame technology for changes in our society that we don't like. But technology is not an imper-

sonal force; it is controlled by human decisions. On the other hand, the more directly individuals control and use a technology, the harder it is to predict how it will be used. The effects of any social revolution, whether powered by technological change or by some other force, are usually of several "orders." Direct, or "first-order," effects will be immediately perceptible and may well be remarked upon in popular culture and the press.

Among the first-order effects of information networking and its increased availability is a reduction of the time we waste trying to straighten out our schedules and keep up to date with each other's plans. But as we "waste" less of our time traveling, either because we hold a teleconference and don't travel at all or because we are too busy on the airphone to chat with our seatmates, will we lose the easy social commerce in chance encounters that has strengthened the web that unites us as a people?

Indirect or "second-order" effects follow on. They include delayed experiences or feelings that people have or may observe in others. In the case of technology-driven social change, second-order effects come from using the technology over time or arise as a collateral consequence of the technology's use. The popularity of wireless communications technologies itself might be seen as a second-order effect of the social changes and technologies that made us such a mobile society.

Effects that are generally not attributable to a technology by its users, but can be traced to it by an outside observer, are known as "third-order" effects. When the society, changed by the technology, loops back and changes the technology and the way it is used, that is also a third-order effect.

It's not always easy, however, to distinguish between why people say they do something—such as buying into a new technology—and why they actually do it, or between what even they may think they bought in for and how they actually wind up using the technology.

There is almost certainly no going back on information-networking technologies, but we can make individual decisions about how we will use the technologies available to us. Individual decisions will be aggregated into social decisions. We in the telecommunications industry will respond to these individual and societal decisions in the services we offer and the technological developments we promote. And somewhere in the complex of decision making and response, a new society will be built.

Telecommunications is in the throes of a technological transformation that responds to one of the great

characteristics of American society: mobility. A study in the mid-1980s found that a typical American between the ages of 18 and 65 devoted more than 75 minutes a day to personal travel. This confirmed the general findings of another study in the late 1970s. We are fast approaching one registered vehicle for each licensed driver, and a typical motorist racks up enough miles every year to drive halfway around the Earth. From only a couple hundred thousand users in 1985, the industry counted more than 32 million cellular phone subscribers in the U.S. in 1996.

### A Sociable, Restless People

Probably the first familiar example of private wireless communication was in dispatching operations, such as for taxi cabs. There may be as many as 17 million such users in the U.S. But the reliance of many kinds of businesses on wireless is growing. In a 1993 survey for Motorola, 660 adults from "above-average-income" households claimed, on average, that a cellular phone increased their productivity at work by 34 percent, added almost an hour to each productive working day, and increased their own or their company's revenues by 19 percent. Equipping anyone out of the office with a beeper or cell phone allows managers to contact and redirect their people. It offers a substitute for in-person supervision and adds up to control over far-flung organizational resources that nearly matches the control over those close at hand.

Wireless offers a special boon within the boon of information networking for the smallest businesses in that the smallness of their operations can become transparent to their clients. This is again primarily a matter of availability, allowing potential clients to "get through" every time they try to make contact.

Although the cellular phone originated as a business tool, its predominant use today is as a device for personal communication. As of 1994, three out of five cell-phone subscribers gave personal reasons for their primary use of the service.

The more ways there are to reach you, however, the more attention you have to pay to managing those methods. People who may or may not remember devising codes of "ring twice and hang up" to signal the person with the deeper pockets to make the long-distance call, now may be receiving coded beeper messages that indicate whether we should call back from where we are or wait until we reach a land line. Or we may give just our beeper numbers to certain people, reserving the more-expensive cell-phone numbers for the people we really want to be available to or to impress.

Like many information-networking technologies, wireless communication allows each of us to know more about a larger circle of the work and about the activities of others, but it also lets the world know more about our activities and more easily call us to account for them. Privacy is both eroded and created. We can maintain family ties at a distance, which facilitates closeness and supervision in single-parent or dual-earner households. But it also makes it easier to think you're supervising children who are out of sight, allowing them to be out of sight more often and earlier in their lives than was possible before we have wireless communications.

Personal security can also be bolstered. In 1994, 38 percent of cell-phone users said the most important reason they purchased a wireless phone was personal security, and in 1993, more than 90 percent of users agreed with a statement that their cellular phones enhanced their sense of safety and security.

But personal privacy can also be compromised. It is mostly a matter of what kind of security you're talking about. You can call for help from the roadside, using your cell phone, but that phone is notoriously susceptible to eavesdropping. If you get your hands on someone else's beeper or cell phone, you can see who is sending them what messages. When we conducted Bellcore's beeper study we were told of a boy who took his girlfriend's beeper for several days to find out who was calling her and see to it that she wasn't encouraging the attentions of other boys.

With a cell phone, it's easier to report to civil and emergency authorities on dangers you observe, or on the behavior of others of which you disapprove, so you may be more likely to do so. Just remember, though, that your neighbors with cell phones may also be more likely to report on your behavior—or your need for help.

In that Motorola survey, three-quarters of cell-phone users said the device made their lives less stressful, and only about a fifth of them said it made their lives more so. Of course, those were the users talking, not the people who fearfully watched them driving along, attending to their phone conversations instead of the traffic.

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