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Editor's Overview: Technology, Governance, and Public Policy

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Editor's Overview

Barbara Molony

From monitoring traffic and parking to manipulating the tiniest of cells, or from spreading the scope of participatory democracy to defining the optimal limits of government, new technologies are leading to revolutionary interactions in public policy and governance. These innovations have grabbed the attention of some of Santa Clara University's finest scholars. Since 1999, the Center for Science, Technology, and Society (CSTS), through its Research Grant Program, has funded 26 faculty scholars in a variety of disciplines in Arts and Sciences, Business, Law, and Engineering. These grant recipients have produced books, articles, and conference papers. This issue of STS NEXUS presents the work of five CSTS grant recipients whose works address one of the key issues of the day—the mutual interaction of technology, governance, and public policy.

That new technologies affect governance and public policy is nothing new. Military technologies in late medieval Europe spurred the rise of the modern state, and revolutions in transportation and communication accelerated the global reach of powerful nations in the nineteenth century. Access to information has both permitted the consolidation of central political power—in states controlled by propaganda machines—as well as the erosion of that power as citizens gained their own sources of information—as in Eastern bloc nations immediately before 1989. The discovery of penicillin in the mid-twentieth century freed humans, for the first time, from the scourge of bacteriological diseases which, among other results, transformed ideas about the role of the state in delivery of medical care. Just as new technologies have led to changes in governance, state-supported research has influenced technology—the U.S. space program is well-known for encouraging innovations. In countless ways, then, new technologies and public policies interact dynamically with one another.

While no one would deny this interaction, scholars and public officials interpret it in a variety of ways. The scholars in this issue of STS NEXUS are no different. Their disciplinary diversity is a hallmark of the lively exchange of ideas among scholars at the Center.

Elsa Chen's work is a sophisticated analysis of a local phenomenon—the use of e-mail at the level of city and county government—and its connection with larger systems of citizenship. Chen, a political scientist, conducted a detailed study of the ways in which local governments used e-mail to promote political communication, awareness of policies, and actions between citizens and public officials. City and county government officials are active users of e-mail, but find that it is no substitute for some other forms of communication. Chen discovered a disconnect in perception of the

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importance of e-mail between its senders and its receivers. She also contends that politicians will have to pay more attention to e-mail and Internet communications lest they alienate a growing segment of the electorate. As she shows for the Dean and Kerry presidential primary campaigns and the Schwarzenegger gubernatorial campaign, e-mail got the candidates' messages out to voters very quickly. Technology clearly is influencing policy.

Sociologist John Ratliff's work on technology policies in Japan and the United States makes the bold statement that "globalizing phenomena are always experienced locally." In the 1970s and 1980s, Japanese industry, well suited to the types of products and production dominant in that era, seemed untouchable. By the 1990s, Japan seemed to have run out of steam while American high technology industry surged ahead. Pundits argued that Japan's earlier successes had been primarily due to its status as a follower, a role it could no longer play in the 1990s. Ratliff contests that assertion; Japan's earlier success and America's later success were due, he states, to "different national economic systems and systems of innovation that provided optimal conditions for different technologies." The dominant products of the 1970s (cars, TVs, VCRs) made use of Japan's national strengths. Microprocessors and operating systems for personal computers and networks did not have the same production requirements as consumer durables, and their production was more attuned to strengths in the U.S. industrial economy, particularly that of Silicon Valley. Ratliff discusses NTT DoCoMo's attempts to claim dominance in the wireless Internet market by focusing on distinct national strengths in the Japanese market and means of production.

Law professor June Carbone also addresses the connection between types of technology and public policy. In the development of information technology, advances were fueled by consumer demand in a decentralized, globalized marketplace. In the new world of biotechnology, will access to information be as open? Biotechnology, Carbone notes, touches on "our deepest hopes and fears," as it incorporates genetically modified foods, mood-changing drugs, medicines to help with aging, and work on the nucleus of cells. Carbone offers two examples of the last type of research: production of new reproductive cells by insertion of DNA into a donor egg, which alters the genetic make-up of the offspring; and the insertion of a patient's own DNA into a donor egg to grow cells to cure the patient's disease, which does not alter the patient's genes. The former, undertaken in private clinics for infertility patients, is increasingly common, while the latter, which would need to be studied in university settings, fails to get the necessary federal funding. Carbone calls for wider public discussion to arrive at a consensus of what types of research are moral and appropriate and then to support that research.

Dorothy Glancy, also a professor in the Law School, discusses privacy concerns about new technologies and legal approaches to those concerns. People have always been tracked by others, and new technologies make that tracking easier. Many new surveillance technologies have apparently benign origins. Monitoring systems were developed to combat traffic congestion. Toll tags speed up collection of tolls. The OnStar™ and similar systems offer navigation and search assistance for motorists. And Automatic Location Identification capability allow cell phone users to be found when they call the "911" emergency number. But taken together, these systems, as well as the "vehicle black boxes" and the license plate photography at parking garages and airports, raise questions for people worried about invasion of privacy, whether by government officials or by private enterprises. Glancy analyzes court decisions and methods to build privacy protection into these new surveillance technologies.

Economists Daniel Klein and Fred Foldvary offer a different thesis. They argue that new technologies, rather than calling for regulation, make much regulation obsolete. "Technological advancement," they note, "tends to

enhance the case for free enterprise policy." Highways and parking are two good examples. The metering technologies, also discussed by Glancy, make expressway tollbooths unnecessary and allow private individuals with some curb space to monitor and charge those who park in their curb space. Air pollution can be controlled by billing car owners for the pollution detected by monitors rather than charging all motorists, through unnecessary regulations, for the pollution produced by some. The enormous expansion of information available to consumers through the Internet, Klein and Foldvary assert, gives them the power to monitor products for safety, medical practitioners for proper credentials, and banks for quality assurance. The authors note that though the government may still need to intervene in some areas—such as patent enforcement and national security—new technologies, especially in the areas of metering, monitoring, dissemination of information, and delivery of energy, water, and postal services, change governance radically by making regulation unnecessary.

The diversity of approaches and philosophical points of view represented by these studies reflect the stimulating scholarship on critical issues of our day encouraged by the CSTS.

