

# Making Technology the Servant of Democracy

---

 [www-chronicle-com.silk.library.umass.edu/article/Making-Technology-the-Servant/93335](http://www-chronicle-com.silk.library.umass.edu/article/Making-Technology-the-Servant/93335)

January 12, 1994

## Archives

By Richard E. Sclove January 12, 1994 Premium

The Clinton Administration and Congress are trying to promote economic competitiveness by forging an ambitious new technology agenda. Measures proposed or already adopted include support for development of advanced manufacturing technologies such as robotics and for a national network of manufacturing-extension centers. Other measures include establishing new industrial partnerships for the national weapons laboratories and investing in "green" technologies and in new infrastructures (such as the information superhighway, high-speed trains, and upgraded roads and sewage systems). New technology is seen as the genie that will enable American companies to prevail in the global marketplace.

It's a beguiling vision, but it overlooks a major factor: democracy. Few citizens, workers, or communities are being consulted about the decisions that their taxes will help support, decisions that will profoundly affect their lives.

It *is* possible to involve citizens more directly in making technology policy. Last year, for example, a panel of ordinary Danish citizens spent several days hearing expert presentations on genetic manipulation in animal breeding. After cross-examining the experts and deliberating among themselves, the citizens decided that it would be "entirely unacceptable" to genetically engineer new pets, but ethical to use genetic manipulation to develop a treatment for cancer.

To organize this type of "consensus conference," the Danish government's Technology Board selects panels of citizens of varying backgrounds and then publicizes their judgments through the news media, local debates, leaflets, and videos. Surveys show that the Danish public and politicians are better informed on issues addressed in this way than are the citizens of other countries facing similar questions.

During a recent briefing at the U.S. Office of Technology Assessment, Norman Vig, a political scientist from Carleton College, argued that consensus conferences represent a promising model for the United States to use to broaden the range of people who influence technological decisions. Universities could contribute substantially to democratizing technology if such a model were adopted -- by helping citizen advisory panels analyze complex technical issues, by preparing "social impact" statements on technological proposals, and by creating community-research centers to help neighborhoods evaluate and influence alternative strategies for economic development.

Government officials report that today just three groups dominate policy making concerning technology: the Pentagon and the national weapons laboratories, elite academic scientists, and business. The political scientist Philip Frankenfeld has called the resulting range of opinion "the sound of one wagon circling." Public-interest groups, grassroots organizations, and ordinary citizens represent a negligible force.

Equally troubling, the military establishment is beating out civilian agencies for control of federal programs to develop commercial technologies. The Pentagon-directed Technology Reinvestment Project is slated to receive \$474-million in the current fiscal year, more than twice the amount appropriated for the comparable Advanced Technology Program at the Commerce Department. Thus the Pentagon's penetration into the civilian economy may be increasing, and, given military traditions of secrecy and centralization, that could mean diminished opportunities for democratic influence over decisions.

Citizens need chances to influence technology decisions because their lives are so deeply affected by the consequences. Historians have shown how the design and construction of U.S. infrastructure -- including energy, water, sewage, transportation, and telephone systems -- helped weaken local democracy by isolating citizens from decision making. Similarly, the noise and danger of automobiles, coupled with the allure of air conditioning, central heating, and television, have eroded the custom of outdoor neighborly gatherings and the civic engagement that accompanies such interchanges.

Feminist scholars report many cases in which technologies designed by men reproduced women's subordinate social status. Secretaries and key-punch operators, the majority of whom are female, are among the workers most prone to computerized job surveillance, as well as repetitive-motion injuries. Yet alternative choices are possible that would alter such social outcomes. Lobbying by people with physical disabilities, after all, has proved that public transit can -- despite claims to the contrary -- be designed to accommodate a wheelchair, shopping cart, or baby carriage.

Broadened participation can be an irreplaceable source of insight and creativity. The business-management literature is replete with studies extolling the economic benefits of involving workers in designing and managing workplace technologies. Conversely, the absence of citizens' participation ultimately has proved divisive and costly in areas such as nuclear power, toxic-waste disposal, and genetic engineering. For example, citizen participation could have alerted the Monsanto Company to the opposition among consumers and owners of family farms to the use of synthetic hormones to increase cows' milk production -- before it invested \$300-million in research and development and endured years of controversy.

Universities can help citizens and communities to become productively involved in technological decisions in several ways:

\* Just as federal actions affecting the environment are preceded by an environmental-impact statement, Congress could require social- and political-impact statements before the introduction or import of a significant technological innovation (such as a biotechnology

breakthrough) or before construction of major technological installations (such as large power plants). University faculty members could play an important role in organizing these studies, which might include assembling citizen advisory boards and using participatory research methods. In one recent set of projects, for example, faculty members at Boston and Harvard Universities helped concerned citizens conduct their own epidemiological studies of toxic-waste hazards.

\* In cases where social consequences are especially hard to anticipate, voluntary social trials can help identify them. Scholars might, for example, compare the social impacts of a set of local pilot projects, each delivering an alternative bundle of electronic services. Their analysis of the results could be invaluable in helping officials guide development of the nation's information infrastructure.

\* Universities could also, with federal encouragement, help create a national network of community research-and-policy centers. The centers could draw on academic and government researchers, industrial-research consortia, and participants in the new National Service program. Located on or near college campuses, such centers might prepare the social-impact statements on technological developments, recruit local citizens to participate in research, and organize public forums and workshops on questions involving science, technology, and economic development.

Excellent precedents exist for such centers. For example, Dutch universities have evolved a vigorous network of public "science shops" to respond to concerns of citizens, trade unions, and community groups about technological issues. Each shop's paid staff, student interns, and faculty volunteers answer questions and refer challenging problems to other university faculty members. Science shops, for example, have helped workers evaluate the employment consequences of new production processes and helped environmental groups document sources of industrial pollution.

In the United States, some analogous precedents exist. The Pratt Institute's Center for Community and Environmental Development has 30 years of experience in helping people in low-income neighborhoods understand and influence economic development. Worcester Polytechnic Institute requires all students to undertake a faculty-supervised project that brings their technical training to bear in addressing a social problem.

Another task for community-research centers could be to help communities and regions diversify local production to match local demand. That would complement government programs that now tilt strongly toward high-tech production for global markets. Faculty members at Ball State University, for example, have begun regional market studies and satellite-aided ecological analyses to help Indiana farmers diversify their crops, reduce the use of chemicals, and sell new products locally.

Community-research centers also would counterbalance the deepening ties of universities and national laboratories to business. By consistently engaging local social issues and citizens' concerns, universities would help preserve their own capacity for independent social criticism

and educate students, via internships or role modeling and volunteer work, for responsible citizenship. With time, a community-research network could evolve into the decentralized, democratic core of a post-cold war national-laboratory system.

Additional opportunities exist to improve decision making. Congress either has adopted or is contemplating new tax credits for commercial research and development, business-investment credits, and government technology loans. Such programs should be conditioned, at least in part, by socially determined criteria. For example, companies might earn higher tax credits for conducting research or investing in equipment that helps advance social objectives, such as producing high-quality jobs or technologies that preserve the environment.

Many government advisory panels, ranging from the National Science Board to lower-level peer-review panels, include only scientists and engineers. The general public also needs a strong voice, whether as lay members of such panels or in separate advisory groups. Similarly, all government-financed programs to develop or disseminate new technology -- such as extension centers devoted to manufacturing technologies -- need robust representation by workers and other members of the general public.

In the short run, foundations could play a vital role in helping support the democratization of policy making. Eventually, though, the costs of a community-research network and of compensating citizens and experts for participation in various projects might be recouped through a modest tax on federal spending on research and technological development. A precedent exists in the budget of the Human Genome Project, of which 3 per cent is designated for studies of its social implications.

With the cold war behind us, deep political and economic transformations are under way. We have an opportunity to remake technology into the servant of democracy and society. A better opportunity may not come again in our lifetime.

*Richard E. Sclove is executive director of the Loka Institute, an association of scholars and activists concerned with science, technology, and democracy. He contributed to Technology for the Common Good (Institute for Policy Studies, Washington, 1993) and is the author of Technology and Freedom, forthcoming from Guilford Publishers.*