

## Is Information Technology a Public Good?



Butler Lampson (Microsoft), Irwin Mark Jacobs (Qualcomm), Vinton Cerf (Google), and John L. Hennessy (Stanford University)

Digital technology has created unprecedented changes in the way we live, work, and interact with the world and with each other. Its effect is apparent everywhere: President Obama's digital campaign recruited 8 million volunteers online; more than 200 million blogs have been published; Facebook surpassed 175 million users worldwide; sales of iPods topped 180 million; and one in eight couples married in the United States last year met online. At a recent meeting in Mountain View, California, the Academy convened technology pioneers, industry leaders, scientists, and scholars to examine the impact – positive and negative, planned and unanticipated – of information technology on society.

The symposium featured four Fellows whose breakthrough discoveries helped launch the digital revolution. Vinton Cerf, Chief Internet Evangelist at Google; Irwin Jacobs, Founder of Qualcomm, Inc.; Butler Lampson, Technical Fellow at Microsoft; and John Hennessy, computer industry pioneer and President of Stanford University, discussed

the past and future of computing, communications, and the Internet. Cerf commented on the speed with which people embraced the Internet, especially through social media sites. "It has been this incredible avalanche of shared information," he said. "The expression 'information is power' – I think it's wrong. It's 'information sharing is power.'"

In a series of panel discussions, *The Public Good: The Impact of Information Technology on Society* considered transformations in a wide range of areas, from governance to books, libraries, and art. A session on **Information Technology and Democracy** examined how technology has changed the way citizens interact with government and receive information. "The Web has not overcome the stratification of American politics, as some people had hoped it would," said Henry Brady, Professor of Political Science and Public Policy at the University of California, Berkeley. Speaking about the demise of newspapers, Joshua Cohen, Professor of Political Science at Stanford University, observed: "We can't have a successful democratic pub-

lic sphere without the kinds of information that newspapers have supplied. I don't mean weather reports, but investigative journalism – local, national, international."

Participants in a discussion of **Alternative Futures for the Internet: Fears and Optimism** assessed what can and should be done to craft the ideal Internet. David Clark, Senior Research Scientist at the MIT Computer Science and Artificial Intelligence Laboratory, emphasized that "the Internet is not a fixed and determined thing. It mutates rapidly. As we drive toward the future, there's more than one possible path and that raises a bunch of vague questions. Can we even predict the eventual implications of actions we take now? Should we assume that the Internet of the future is simply a random phenomenon?"

Turning to **Books, Publishing, and Libraries**, Co-Chairman of the Board of Adobe Systems John Warnock noted, "I think electronic libraries have a huge opportunity in the future because you can organize content in very unique and personal ways, which you could never think about in book form." Stanford University Librarian and Director of Academic Information Resources Michael Keller suggested that the digitization of objects on the Internet has done much to "democratize learning and intellectual exploration."

Other panels focused on how information technology has changed the way people think about art, new tools and media, and the democratization of craft.

The symposium opened with a memorial minute for James N. Gray, a Fellow of the Academy who made seminal contributions to the field of information technology and encouraged the planning of this conference. Gray was lost at sea in January 2007. C. Gordon Bell, Principal Researcher at Microsoft Research, offered personal remarks about his close collaborator: "Jim is a great friend of computing and a friend of this Academy. He was a legend when we first met in 1994,



**C. Gordon Bell (Microsoft Research) describing an exhibit at the Computer History Museum**



**David Clark (MIT), Hal Varian (Google), Cynthia Dwork (Microsoft), and Jonathan Zittrain (Harvard Law School)**

and I found we shared the same religion about building scalable computers. His research was driven by the quest for fundamental understanding yet also inspired by a search for practical applications. He built systems that are in use today, including on-line transaction systems that do our banking and reserve our airline tickets, and more recent systems like Google Earth, Microsoft Virtual Earth, and the World-Wide Telescope.”

The more than twenty presenters at the meeting included Jonathan Berger (Stanford University), Dale Dougherty (Maker

Media), Cynthia Dwork (Microsoft), Edward Feigenbaum (Stanford University), Edward W. Felten (Princeton University), Charles Geschke (Adobe Systems, Inc.), Daniel Goroff (Sloan Foundation), Pat Hanrahan (Stanford University), John Hollar (Computer History Museum), Edward Lazowska (University of Washington), Donald Lindberg (National Library of Medicine), Carl Rosendahl (Pacific Data Images), Hal Varian (Google), and Jonathan Zittrain (Harvard Law School).

The Academy is grateful to the members of the Planning Committee – C. Gordon Bell,

Jesse H. Choper, David Clark, Edward Feigenbaum, Pat Hanrahan, John Hennessy, John Hollar, and Edward Lazowska – and to Microsoft, Google, and the Computer History Museum for hosting the conference.

Audio and video coverage of the program is available on the Academy’s website at [www.amacad.org/audio/mountain/mountain.aspx](http://www.amacad.org/audio/mountain/mountain.aspx). The panel discussions will appear in a forthcoming publication. ■