

### Summary

The National Science Foundation's (NSF) Digital Government Program supports experimentation and research to improve government's information-based services and operations. In late 1998, 67 researchers and government practitioners convened in a workshop, organized by CTG and funded by NSF, to discuss ways government practitioners and academic researchers can collaborate to produce innovative and effective information-based government services.

The workshop focused particularly on the environment in which government information services are developed. It recognized that government programs and service delivery mechanisms are developed in a complex multi-layered federal-state-local system in which many organizations play significant and different roles. It also emphasized that development efforts must deal with interactions among the political, organizational, technological, cultural, and human factors that shape the implementation environment.

The workshop report, *Some Assembly Required: Designing a Digital Government for the 21st Century*, emphasized how targeted research efforts could not only uncover new knowledge, but could also be of pragmatic use in government. The workshop recommended eight focus areas for applied research (including security, service delivery, networked organizational forms, and decision making). It further recommended ways to introduce these pressing government needs to the research agendas of both the social and information sciences.

### Publications & Results

#### Reports and Working Papers (1)



#### Some Assembly Required: Building a Digital Government for the 21st Century

Mon, 01 Mar 1999

Information technology plays a crucial role in the public sector, and has the potential to transform the way government works. This report provides a set of recommendations for the National Science Foundation to design its Digital Government Research Program to help support that transformation.

Information technology has been a vital component of government operations for decades. It plays a crucial role in public sector administration, decision-making, and service delivery in the next millennium. The technology tools we have today, such as digital communications and advanced networking, are already transforming some areas of government. In an effort to expand this trend of moving government toward the promise of transformed public services, the National Science Foundation (NSF) established the Digital Government Program. The program fosters connections between government information service providers and research communities, seeks innovative research to improve agency, interagency, and intergovernmental operations, and advocates enhanced interactions between citizens and government.

As a grantee of the program, CTG held a multidisciplinary workshop in October 1998 to elicit a number of pertinent recommendations for the Digital Government Program. This report is based on that workshop and outlines steps NSF can take to help develop a digital government for the next millennium.

#### Other Results

The workshop recommended eight practical government needs that should be focus areas for future Digital Government research. These include:

**Interoperable systems that are trusted and secure.** Current development methodologies cannot deal well with

the scope and diversity of users, customers, and stakeholders involved in large government information systems. Research is needed to understand the potential for and the limits of system integration in technological, organizational, and political terms.

**Matching research resources to government needs.** Applied research is not often rewarded by academic value systems. As a consequence, researchers often pursue theoretical research instead of field work. The best forms of research will involve a variety of activities that lead to ideas government can use directly.

**Better methods of IT management.** This includes such areas as management of software development and upgrades, leadership and management of outsourced development and operations, and ways to deal with a shortage of IT skills.

**Citizen participation in democratic processes.** Internet technologies can facilitate a more personal involvement of citizens in the institutions and processes of government. To what extent, and with what consequences, will this capacity enable greater involvement of the citizens in their own governance?

**Electronic public service models and transactions.** With the proliferation of the Internet among government agencies and citizens, it is possible to offer new services, integrated services and self-service in ways and places never before possible. New methods of authentication, record-keeping, security, and access are all needed.

**New models for public-private partnerships and other networked organizational forms.** Given the diversity of players involved in delivering government services, developing effective IT systems may require new coalitions of partners at all levels of government and between government and the private and nonprofit sectors.

**Intuitive decision support tools for public officials.** With the advent of technologies and data standards that encourage information search, selection, analysis and sharing, how will executive decision making processes be affected?

**Archiving and electronic records management.** With most information now residing in electronic rather than physical files, issues such as record definition and content, version control, public access, and ongoing preservation affect the ability of government to function efficiently and maintain history and accountability.

In addition, the workshop participants made several recommendations about actions the National Science Foundation could take to further the goals of the Digital Government program. These recommendations included:

- support research at all levels of government and between the public and private sectors,
- investigate issues of governance and democratic processes in the digital age,
- develop methods that address service integration and environmental complexity,
- seek innovative funding models for Digital Government initiatives,
- link research and practice to unite academic and government innovations projects, and
- include government program managers in the research selection process through a practitioner advisory group and roles on review panels.

## Press Releases & News Stories

### Press Releases

Information Technologies Promise to Make Government More Efficient and Responsive --  
Enormous and Wide-Ranging Research Challenges Remain  
Wed, 28 Apr 1999

## Partners

### Lead Partners

- National Science Foundation

## Center for Technology in Government

- Peter Bloniarz, Research Director
- Sharon Dawes, Director
- Kristine Kelly, Research Associate

## Organizing Committee

Dr. Sharon Dawes, Chair

Director, Center for Technology in Government

University at Albany, SUNY

Dr. Tora Bikson, Senior Scientist

Rand Corporation

Behavioral Sciences Dept.

Dr. Peter Bloniarz, Research Director

Center for Technology in Government

University at Albany, SUNY

Mr. Larry Brandt

Program Manager for Digital Government

National Science Foundation

Ms. Angela Coppola

Central Intelligence Agency

Advanced Analytic Tools

Dr. Patricia D. Fletcher, Associate Professor

Dept. of Information Systems

University of Maryland, Baltimore County

Mr. Robert E. Greeves, Principal

The Council for Excellence in Government

Dr. John L. King, Professor

Information & Computer Science

University of California at Irvine

Mr. Timothy Loewenstein, Chair, Board of Supervisors

Buffalo County, Nebraska

Dr. Jerry Mechling, Program Director

Strategic Computing & Telecommunications

JFK School of Government

Harvard University

Mr. Alvin Pesachowitz, Chief Information Officer

US Environmental Protection Agency

Ms. Carolyn Purcell, Executive Director

Texas Dept. of Information Resources

Mr. James Ruda

Local Government Consultant

Mr. Jerry Sheehan, Education & Outreach Coordinator

National Center for Supercomputing Applications

University of Illinois at Urbana-Champaign

Mr. Greg Woods, Deputy Director

National Partnership for Reinventing Government

## Participants

- Kim Viborg Andersen, Copenhagen Business School, Denmark
- Yigal Arens, University of Southern California, Information Sciences Institute
- Bennett Bertenthal, National Science Foundation
- Tora Bikson, Rand Corporation
- Peter Bloniarz, Center for Technology in Government, University at Albany, SUNY
- Larry Brandt, National Science Foundation
- James C. Collard, City of O'Fallon, Missouri
- Eileen L. Collins, National Science Foundation
- Noshir Contractor, Univ. of Illinois at Urbana-Champaign
- Angela Coppola, Central Intelligence Agency
- Sharon Dawes, Center for Technology in Government, University at Albany, SUNY
- Marshall DeBerry, U.S. Department of Justice
- Ernie Dornfeld, City of Seattle
- William Dutton, University of Southern California
- Jon Eisenberg, National Research Council
- Douglas Engelbart, Bootstrap Institute
- Amy Finley, SDSC NPACI
- Patricia D. Fletcher, University of Maryland, Baltimore County
- Michael Fraser, National Oceanographic & Atmospheric Administration
- Robert E. Greeves, The Council for Excellence in Government
- Gerard Glaser, National Science Foundation
- Jane Griffith, National Academy of Science
- Amarnath Gupta, San Diego Supercomputer Center
- Stephen H. Holden, Internal Revenue Service
- Ajit Kambil, New York University
- John L. King, University of California at Irvine
- Andrew Kline, State of Alaska, Telecommunications
- Kenneth Kraemer, University of California at Irvine
- Ramayya Krishnan, Carnegie Mellon University
- David Landsbergen, Ohio State University
- Klaus Lenk, University of Oldenburg, Germany
- Timothy Loewenstein, Buffalo County, Nebraska
- Winifred Lyday, National Association of Counties
- Worthy N. Martin, University of Virginia
- Terrence Maxwell, NYS Forum for Information Resource Management
- Philip G. McGuire, NYC Police Department
- Jerry Mechling, Strategic Computing & Telecommunications, Harvard University

- John J. Moeller, Federal Geographic Data Committee
- J.D. Nyhart, Massachusetts Institute of Technology
- Barbara O'Keefe, University of Michigan
- John O'Looney, Carl Vincent Institute of Government
- James P. Peak, Intelink Management Office
- Cindy Peck, Texas Health and Human Services Commission
- Thomas Prudhomme, National Center for Supercomputing Applications, University of Illinois
- Carolyn Purcell, Texas Department of Information Resources
- Raghu Ramakrishnan, University of Wisconsin
- Ann Redelfs, SDSC, NPACI
- Priscilla Regan, George Mason University
- Nicolau Reinhard, Universidade de Sao Paulo-Brasil
- Mary Reynolds, Illinois Lieutenant Governor's Office
- Daniel Robey, Georgia State University
- James Ruda, Dudley, Massachusetts Local Government
- Ronald Seymour, Washington State, Department of Health
- Denise Shaw, US Environmental Protection Agency
- Jerry Sheehan, National Center for Supercomputing Applications, University of Illinois at Urbana/Champaign
- J. Timothy Sprehe, Sprehe Information Management Associates
- Eswaran Subrahmanian, Carnegie Mellon University
- Gilles Trempe, CEFRIQ, Quebec
- Lisa Westerback, U.S. Department of Commerce
- Jory Wolf, City of Santa Monica
- Maria Zemankova, National Science Foundation

## Funding Sources

This project was supported in part by a \$83,193 grant from the National Science Foundation under Grant No. 99-181.

## Original Scope of Work

The National Science Foundation (NSF) program on Digital Government supports experimentation and research to improve the information-based services that government provides to citizens or uses internally to carry out its mission. These services are often developed in the multi-layered federal-state-local system of program administration and service delivery. They involve complex interactions among the political, organizational, technological, cultural, and human factors that shape the implementation environment.

The objective of this workshop was to identify and develop research themes and projects that focus on these important factors affecting the use of advanced information technology in government. Workshop participants adopted a "program-centric" view of the information content and processing needs of major government functions, with special attention to the needs of program managers. The workshop was funded by NSF and organized by the Center for Technology in Government at the University at Albany, SUNY.

The invitation-only workshop was held October 5 - 6, 1998. During the two-day event, distinguished representatives from federal, state and local government agencies interacted with leading social, information, and computer scientists and representatives from private industry and nonprofit foundations. Activities and discussions focused on finding common interests and concerns as the basis for multidisciplinary research projects that could be proposed for funding under the Digital Government initiative.

Following the workshop, a report was presented to the National Science Foundation that:

- proposed criteria for investing in research activities that will have the greatest positive impact on government programs, services, and customers;
- identified issues, opportunities, and themes for cross-disciplinary research to foster the creation, adoption, and diffusion of innovative and effective government IT applications;
- recommended criteria for evaluating the effectiveness of the research program; and
- recommended ways to build mutually beneficial links between researchers and the information services and government management communities.

## Related Web Sites

National Science Foundation, Digital Government Program

<http://www.nsf.gov/pubs/2002/nsf02156/nsf02156.htm>

The digital government program at NSF funded this project and many others concerned with the effective use of information technology in the public sector.

Dg.o

<http://www.digitalgovernment.org/>

This is the virtual home of the NSF Digital Government Research program, operated on behalf of NSF and digital government grantees by the Digital Government Research Center at the University of Southern California Information Sciences Institute.

## Contact Information

Center for Technology in Government

University at Albany, SUNY

187 Wolf Road, Suite 301

Albany, NY 12205

(518) 442-3892 (phone)

(518) 442-3886 (fax)