

Government is all about information and service delivery. The World Wide Web, offering virtually unlimited access and almost instant feedback, seems perfectly suited for government work. The Web can remove barriers that often hamper effective service. Rural communities are as easily reached over the Internet as any large city. Federal rules and regulations are as accessible in rural Montana as they are in Manhattan. State capitals, separated from citizens by long distances, no longer seem so far away. Local governments, with fairly modest effort, can reach much larger audiences both within and beyond their borders.

A public organization's internal information functions can also improve when the Web becomes the delivery mechanism. It can be used by agency staff to link remote offices to central agency databases, to link agencies with their suppliers and contractors, and to exchange information with other agencies and levels of government.

For all these reasons, most government organizations are eager to use the Web to deliver services to citizens and to conduct internal business. Flexibility in serving citizens and the ability to transcend physical and temporal boundaries are strong incentives for government to adopt this new technology. However, new tools bring with them new issues. Government's success in using the Web will depend as much or more on its ability to grapple with policy, management, and organizational challenges as it will on its ability to adapt to new technologies.

## The current environment

The Internet has been described by William Gibson, creator of the term "cyberspace," as "...nothing less than this nation's last and best hope of providing something like a level socio-economic playing field for a true majority of its citizens." Others have asked if Web sites are nothing more than "...monuments to bureaucratic egos." As with most things, the truth probably lies somewhere in between. (Harris, 1995)

Electronic networks have become an increasingly important means of communicating in our society. The World Wide Web has progressed almost overnight from a scientific endeavor to the next supposed "revolution" in world history. A few years ago, government agencies used networks to simply transfer data and text. Today the Web is quickly becoming the second home of federal, state and local government information. The "electronic town hall" is popping up everywhere. Internet-based government services can be accessed by customers 24 hours per day through commercial network services such as America Online or CompuServe, or through community networks. However, there is very little experience to date in using the Web as a service delivery channel and the traditional methods that agencies use to define, design, and develop information systems may not work in this highly public, networked environment.

Many public sector organizations are experiencing pressure to develop a Web "presence" on the Internet. In some cases, the pressure comes from the program staff who see an opportunity to enhance existing services or to deliver new services to customers. In others, it comes from the technical staff who see the possibilities afforded by these new technologies. In still other cases the pressure comes from agency leaders who see the importance of opening this new door to the public. In the ideal case, it is driven by all three: agency leaders, program staff, and technical staff working together with a shared vision of the opportunity and a shared understanding of the costs and risks.

## Government services on the World Wide Web

What can government expect to do on the Web? Which services currently provided in person, through the mail, and over the telephone may become electronic services? How much business will move to the net? Will duplication remain a problem? Steven Clift, Director of Minnesota's Northstar public access project, suggests a long list of services that state, federal, and local governments can provide over the Web. (Clift, 1996)

### State

- Personal income tax filing
- Voter registration
- Motor vehicle and drivers license registration
- State park reservations
- Higher education class registration
- Job services, including job searches and training
- Birth and death records
- Occupational licensing

### Federal

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- Income tax filing
- Post office transactions, change of address etc.
- Social security and passport applications
- Medicare and Medicaid benefits
- Housing and loan programs

### Local

- Library cards
- Pet licenses
- Payment of city fees or fines
- Property taxes
- Building permits
- K-12 school needs
- City ordinance permits

While these lists are not exhaustive, they do illustrate the wide variety of service options that the Web offers government. Citizens using these services would no longer be constrained by regular business hours and would be able to save the time of visiting various offices. Government saves by receiving information in structured digital form, thus reducing duplication and labor intensive processing. In the face of shrinking budgets, a technology that offers so much potential value has enormous appeal to government, citizens, and businesses alike.

Certainly the Web has the power to alter the way government interacts with the public. Everyone can tell a story about visiting five offices only to be told they must return to the first office they visited to fill out a form that the last office visited needs. The vision of government services on the Web would eliminate this seemingly age old problem. Everyone from job seekers, to drivers renewing licenses, to entrepreneurs looking for a business permit would simply go to one central point in cyberspace and fill out the proper electronic form. The relevant information would be dispersed to the various agencies involved in the transaction and all services would be provided electronically. In New York State, the Governor's Task Force on Information Resource Management is investigating an interface to government services through a "life-events" scenario, first introduced by the US Postal Service. Using this kind of interface, you could activate a button called "Recently Moved into the Area" and be prompted through a set of interactive screens that would allow you to register a car, contact the local schools, and learn more about your new community. While full implementation of this idea may be years away, the technology to build it is here today.

### Web-based services demand more than new technology

Proposing and establishing a Web service is much more than arranging the proper technologies. Management and policy decisions are just as important to success or failure. According to Rick Schremp of the University of Colorado, "The thing we have to start recognizing is that cyberspace must be content-driven rather than technology-driven." (Harris, 1995) The issue here is not whether the technology is available to accomplish such a vision—it is here, or at least coming very quickly. The more difficult and fundamental question lies elsewhere—do we have or can we develop policies, management tools, information products, organizational structures, and business processes to take advantage of this technology and direct its use to achieve important public goals? Will departments be willing to share pertinent and timely information? Will agencies be willing to relinquish solitary control over programs? Can traditional hiring and training practices allow the public work force to acquire and maintain new skills? Can information itself substitute for the person across the counter?

Government must also face the realities of regulating the use of this new medium. As access to the Internet increases so do the security risks. Every day, government deals with sensitive data regarding millions of citizens. As more and more agencies connect to the Web this information is potentially available to those never intended to access it.

Other issues go well beyond security. The printed word now exists in a new medium which many of our laws and accepted practices do not contemplate. "Sunshine" laws may need revision. Copyright takes on a new meaning in cyberspace. You need only envision a public library that functions online to imagine all the difficulties that emerge with traditional notions of intellectual property.

Cost is another significant issue. A recent discussion on a government publications listserv focused on the cost of developing and managing a Web site. The reported cost of development ranged from \$2,500 to \$500,000. (Evans, 1995) Annual operating costs fell into an even broader range. Clearly, too little is known about how to estimate and manage the costs of Web-based services.

Rick Schremp argues that “Cyberspace isn’t a technology problem. It’s the solution that will enable government to continue to economically deliver vital services like education, social services, and adequate health care while making the interface between government and citizens easier and more rapid no matter where those citizens happen to live.” This brave new world of government service delivery may well come to pass, but it will demand significant changes in policies, practices, and expectations.

## Center for Technology in Government project

Each year, the New York State Forum for Information Resource Management (the Forum) surveys its members to identify the topics and issues that most concern them as information professionals and public managers. The 1995 survey results showed that four of the top five issues were related to the Internet. In response, CTG selected the Internet as the context for a major project and worked with the Forum to define its goals.

To formulate objectives and priorities for this project, CTG and the Forum brought 170 people together in a workshop called “New York State on the Internet.” The attendees, representing state and local government and the private sector, helped craft an agenda for CTG’s Internet Testbed Projects. Participants focused on management, policy, and technology issues associated with using the Internet. They identified potential benefits and barriers to government’s use of the Internet, and defined some of the deliverables of the Testbed Projects.

The major expected benefits of using the Internet to deliver government services included the ability to provide ubiquitous access to vast amounts of information, eliminating duplication of data and effort, providing one-stop services to citizens, and making government services available 24 hours a day, seven days a week.

Security, both internal to an agency site and on the network itself, was identified as a major obstacle to making effective use of the Internet. Other identified barriers included lack of experience in managing networked information resources, resistance to change, and lack of knowledge about how to measure costs and benefits.

Finally, the participants identified learning objectives and products that would help the agencies progress in their use of the Web as a service delivery mechanism. A methodology was called for to identify customer needs and the potential of the Web to meet those needs. Staffing, standards, management approaches, sound information management practices, security measures, and cost and performance measurement were identified as important issues for exploration. The workshop participants wanted guidelines for design and implementation of Web-based services, recommendations for security measures, an analysis of possibilities for cross-agency data sharing and service integration, and an identification of products or services that should go on state contracts.

Using the workshop results as a framework, CTG issued a call for participation in an Internet Services Testbed in the late fall of 1995. Ten agencies applied for participation in the program. Seven agencies were selected and the project began in January 1996. These agencies were interested in reaching a variety of constituent groups through the World Wide Web.

- Empire State Development, Office of Motion Picture and TV Development
- Governor’s Traffic Safety Committee
- Hamilton County & the NYS Performance Measurement and Improvement System Project
- NYS Division of Housing and Community Renewal
- NYS Division of Military and Naval Affairs
- NYS Office of Alcoholism & Substance Abuse Services
- NYS Office of Real Property Services

The project team included other government and academic partners:

- NYS Archives and Records Administration
- NYS Forum for Information Resource Management
- NYS Department of Health
- NYS Department of Transportation
- Local Government Telecommunications Initiative at Hudson Valley Community College
- University at Albany faculty and staff
- CTG staff and graduate assistants

The project team was supported by nine corporate partners:

- AT&T

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- Digital Equipment Corporation
- EMI Communications Corporation
- Eric Elgar
- Microsoft Corporation
- Silicon Graphics
- SUN Microsystems
- Unified Technologies

Digital Equipment Corporation provided software and training for Digital's Workgroup WebForum product used for communications among project participants. EMI Communications Corporation, Digital, Eric Elgar, Microsoft, Silicon Graphics, SUN Microsystems, and Unified Technologies all provided technology awareness presentations, including those presented at the Security Day Seminar in April 1996. Additionally, SUN Microsystems provided a firewall system in CTG's Government Technology Solutions Laboratory. AT&T's donation of multi-media workstations to CTG in 1995 provided platforms for both hands-on tutorials and demonstrations of the agency Web sites at the public demonstration.

## Project objectives

The Web, because of its accessibility and visual appeal, has a special allure for all kinds of people and organizations. As a result, many people seem to make premature investments in a "Web presence" without fully understanding why, how, and for what benefit they might do this. The decision to provide services over the World Wide Web is, like other information technology (IT) decisions, a complex and expensive one. The project therefore followed a methodology designed to mitigate the risks associated with major IT investment by the public sector.

Often, technology enables the creation of new products and new processes that are substantial improvements in terms of quality and cost over other ways of doing the job. A well-accepted principle in IT management states that successful technology applications flow from aligning the technology with the programmatic or business objectives of the organization. In order to reap the benefits of strategic technology applications, it is necessary to take a comprehensive look at the technology and the environment where it will be applied. The Center worked with the seven agencies to conduct this kind of assessment.

The project activities were focused in two areas:

- the development, testing, and evaluation of prototype Web sites for each of the participating agencies. Throughout this process, CTG worked with the agencies to identify the technology, management, and policy barriers encountered as well as to identify lessons they were learning,
- the development of practical tools, based on the project experiences, that would also assist other organizations in their efforts to provide Web-based services.

## Project workplan and participant roles

Figure 1 shows the five phases of the project which included workshops, technology awareness seminars, and home-base assignments.

Ten events, including seven workshops, were conducted throughout the Internet Services Testbed Project. Each workshop focused on a major component of the development process. The workshops reflected the collaborative and cross-organizational nature of Web-based work. Electronic communication among project participants and access to the Web itself was provided by CTG through Internet access accounts with the Capital Region Information Service of New York (CRISNY). Digital Equipment Corporation provided group collaboration software that all participants could use to share ideas, questions, and discoveries.

Table 1 presents the variety of resources provided by public and private sector partners in support of the Internet Services Testbed Project. CTG coordinated the workshops, provided presentations and exercises in the workshops, and developed the practical tools with the assistance of the project agencies.

### Figure 1: Internet Services Testbed Timeline for Major Activities