The Future of E-Government: A Project of Potential Trends and Issues

Steven Cohen and William Eimicke
Columbia University
School of International and Public Affairs

INTRODUCTION

The World-Wide Web is one of the most important technological changes since the invention of the telephone. It has changed the way that organizations and people interact, and will continue to effect government's operations and relationships. In our Executive MPA seminar in Public Management last semester, a discussion of the role of the Internet on organizational life began with the realization that everyone in the class began their day by checking their e-mail and responding to key messages. Ten years earlier, none of our students had even heard of e-mail. Will the next ten years bring the same degree of change that we have experienced in the past ten years? **The purpose of this paper is to project the trends and issues that will arise over the next decade as e-government develops and matures.**

When government acts to innovate and implement new ideas and technologies, issues arise that are common to all organizations, such as the costs and benefits of adopting new technologies, and the effect of technologies on productivity and customer service. This project will include a projection of the effect of e-government on customer service and productivity. However, government differs from private and nonprofit organizations in important ways, due to politics and media scrutiny. For that reason issues other than productivity and customer service must be analyzed. This project explores and projects potential uses of the web for:

- Government-to-government interaction.
- Procurement.
- Citizen participation including public comment, instant random sample surveying, and even voting.
- Education.
- Lobbying and interest group interaction with government.

This paper explores issues of access across the digital divide: What methods are available and may be used to provide web-access to poor people? How might such access be financed? What privacy issues are raised by e-government? How can government protect citizens from abuses of privacy by government and by private businesses that accumulate data on individual purchasing and "surfing" behavior over the World Wide Web. What other issues emerge from the development of e-government?

The development of e-government is important operationally and historically. The goal of this paper is to think systematically and creatively about the short-term and longer-term impact of this new technology. To identify potential issues and obstacles in order to develop strategies to address issues and overcome problems and allow this technology to live up to its enormous potential.

1.0 GOALS AND OBJECTIVES

The first issue we focused analysis on was the goals and objectives of e-government. Is this a technology in search of a mission, similar to the Atoms for Peace push for nuclear power in the 1950's? Or is it a technology that is having a rapid and meaningful impact on people and organizations? In discussions with people involved in e-government and in discussions with colleagues and students, it is quite clear that the Internet and World Wide Web are rare and life-transforming technologies.

Professionals begin the workday by checking their e-mail and key web sites. An increasing proportion of organizational communication is conducted via e-mail. Increasing numbers of documents are distributed as attachments to e-mail. Professionals and elementary school students alike have abandoned research libraries and insist on electronic indicies, data and analysis. Finally, offices all over the United States grind to a halt and are characterized by staff wandering aimlessly any time "the server is down" or access to the web has been interrupted.

The Internet is a critical tool of professional work. For younger professionals and even for those of us who came of age in the era of punch cards and mainframes, it has been fully integrated into our daily work life. This is an evolving phenomenon. As technology improves and our skills increase, we find that the web and e-mail play a larger and larger role in work and production. Economists have estimated that many of the productivity increases in service industries in the 1990's were a result of the adoption of these tools.

The Internet has the possibility of liberating citizens from traveling to government offices and waiting in lines while processing licenses, taxes, fines, passports, and conducting other forms of official business. It makes it possible to disseminate information at extremely low cost—avoiding printing, shipping and handling.

The goals and objectives of e-government derive from the areas that government most needs to improve in the early 21st century. Government requires vast amounts of information in making decisions and delivering services. The Internet and the World Web provide a tool for collecting and disseminating information at an extremely low cost. Increasingly, hand held or laptop computers are used to collect field level performance data. Cellular communication devices are then used to transfer the data to computers that are then used to massage and analyze the data. After the data has been summarized and analyzed the Internet is used to

communicate the data to decision makers. In New York City this has resulted in cleaner parks and in more effective police deployment. These are early examples of successful e-government. According to U.S. Office of Management and Budget Branch Chief, Daniel Chenock: "E-Government is about transformation. It is citizen-centered not program-centered. It is not just a tool but part of a whole system of technology, process and organization that brings change. E-government is not in isolation of other management challenges."[1]

These government-to-government transactions hold enormous promise for increasing government's productivity. As computers have gotten simpler to use and as the Web has become ubiquitous, most professionals in government have obtained at least rudimentary skills in navigating the Web and using the Internet as a tool for communication. One should not minimize the importance of this revolutionary piece of mass learning that took place over the 1990's. Today, all professionals have a PC at their desk. Most even know how to use them. Even more important, most professionals start their day by responding to e-mail communications and keep their e-mail open all day long. This has made them much more open to new information and has increased the amount of time that professionals spend absorbing and communicating new information.

For the promise of this new technology to be used most effectively government officials must learn how to use this technology in their own work and then apply it to the work of their organization. This requires being open to a new way of working. Benchmarking against other programs can be a useful way to develop new program ideas.

The web can be an internal tool for management improvement—changing the way that government performs its daily tasks. It can also be a tool for providing direct services from government to the public. As we interviewed experts in the field of e-government, we found that both of these objectives were mentioned with great frequency. While the concept of e-government had often focused on the external or service delivery function, we noted a great deal of discussion of internal uses of the web for everything from performance measurement to procurement.

2.0 SERVICES IN THE FUTURE

2.1. Procurement

The benefit of e-procurement is reduced transaction costs, reduced cost of goods and services, and enhanced capacity to manage and track purchases and expenditures. Former New York City First Deputy Comptroller Ed Fitzpatrick observed: "The largest single business process that could be aided by Internet technology is the area of City purchasing. The City spends tremendous amounts of money on goods and services. Online purchasing promises to be the single cost fertile area for reducing cost to the City. Many vendors offer online solutions that can accommodate some of the many rules related to government purchasing although to fully leverage online buying the City will have to re-engineer the processes. Such solutions offer the benefits of lower cost, reduced paperwork, just in time inventory and fast order fulfillment." (Fitzpatrick: 2000) Automating the procurement process can enhance purchasing by allowing staff to requisition goods and services and receive permission to purchase items through requisitions sent over the Internet. The capacity to purchase over the Web is useful, but electronic and streamlined approval procedures are also critical. The speed of the technology will place greater pressure on organizations to speed up, decentralize and automate all elements of purchasing. This will serve to reduce the administrative costs associated with purchasing. If the procurement system is fully integrated into the financial control system, it will have the effect of providing more up-to-date information on agency spending. This in turn will enhance the agency's ability to control spending.

We expect that these procurement systems will become increasingly easy to use. E-procurement Web sites will describe each element of purchasing, and easily track choices, availability of stock, shipping, delivery progress and costs. To take full advantage of the web's potential we expect to see the development of government-wide consortia for volume purchasing, to hold auctions and to sell unneeded or unused supplies or equipment.

2.2. Internal Paper Processing and Information Sharing

An important internal use of e-government technology in ten years will be the electronic submission of time sheets, budget submissions, formal memoranda, travel reimbursement forms, and virtually any forms now processed by paper. This will reduce the volume of paper deliveries, the need for filing space and the cost of creating, moving and storing paper. This government-to-government use of the Internet holds enormous potential for improving the speed, efficiency and cost-effectiveness of government's sharing of data and information with other government organizations.

Government's political environment and accountability mandates require that financial and performance data be shared among a large number of organizations. Within the agency information must be shared with policy, budget and oversight shops. Career and political appointees frequently interact over the collection, timing, analysis and reporting of these data. The cost of information collection and

sharing may be reduced significantly as a result of the use of the Internet. This may have the effect of making it more difficult to control information, leading to a new set of conflicts between organizations over the use of information.

One effect of the web on the younger generation is a sense of entitlement regarding information. The students we teach believe that Information should be easily accessible, inexpensive and always available. They have grown in a society where information is as ubiquitous as oxygen, and they do not have much tolerance for those who seem to influence events, people and organizations through the control of information. As the volume of information released continues to increase over the next decade; sorting, analyzing and summarizing key information is likely to become a more important function of government organizations. Control will be obtained through methods of summary and analysis rather that of controlling the release of information itself. As information's volume becomes too large to digest, control of analysis will have an effect similar to the current control of information itself. The Web and the Internet will reduce the costs of information, but increase its volume and increase the need for analysis.

2.3 Government-Public Interaction

E-government is an excellent technology for responding to requests for services, which include obtaining and filing of permits, registration or license forms. People can sign up for appointments and can pay fees through the use of credit cards. A number of cities provide online complaint and request forms for services, such as repairing broken traffic lights, picking up large garbage items such as couches and refrigerators, and repairing sidewalks and potholes. While some web sites require residents to request a form, download and print it for manual submission, within a decade all of these forms will be submitted on-line.

According to a 2000 United Nations/American Society of Public Administration (UN/ASPA) survey, e-government exists primarily to "improve citizen access to government information, services and expertise to ensure citizen participation in, and satisfaction with the governing process." (United Nations/ASPA: 2000) E-government can help improve government relations with constituents by eliminating unnecessary bureaucracy, streamlining service delivery, saving taxpayers' money, and reducing the "friction" of cumbersome interactions. Furthermore, the Web can provide a progressive "electronic face" for governmental agencies such as the U.S. Internal Revenue Service, whose popular image does not always encourage approachability.

The Web enables government to provide the public with low cost and convenient access to information. Government Web sites are ubiquitous. A joint study conducted by the International City/County Management Association (ICMA) and Public Technology, Inc. found that 94% of 1,900 responding local governments had an Internet site, or were planning on to launch one within a year.[2] Each of the fifty states and their agencies as well as virtually every federal agency has its own Website. Many of these sites are one-dimensional and do not take advantage of the interactive capacities of the Internet. We can, however, see the future of e-government by examining some of the more sophisticated government sites such as those provided by New York City and Phoenix.
New York City's site.

New York City's site includes a wide variety of features including: a range of on-lkine services such as paying or disputing parking fines and getting a birth certificate.lot includes the day's weather, job applications and a wide variety of links and electronic forms. While NYC's site is fairly advanced, most sites are not. In the next decade, public sector web sites will move beyond one-directional sharing of information and provide two-way transactional services. Internet technologies can help government improve the services that it provides for its citizens. E-government never closes. This means that the public can access information whenever they feel like it. It also means they can request services when offices are closed. This also allows government workers to respond to e-mail requests during those times of the day when live and telephone requests are not as frequent.

2.4. Voting and Representation

One of the more intriguing uses of e-government is to enhance the democratic process. The interactive nature of the web could lead to increased public involvement in government decision making. Web sites offer a convenient means for citizens to provide feedback or input to their government. As home PCs develop interactive TV and video capacity it will be possible to hold virtual town meetings. The public can register their comments in real time or tape them for webcasting when time is available.

Voting will also be possible on the web. The authentication of votes will be possible through a variety of technological innovations. The use of on-line voting coupled with increased access for poor people across the "digital divide" holds within it the potential for vast increases in voter turn out. The act of voting often uses utilizes technology that is outmoded and unreliable. The controversy over the Florida vote in the 2000 presidential election provides graphic evidence of the need to update voting technology.

When Internet access becomes as universal as telephone service over the next decade, the

possibility for Internet-based survey research can improve the speed and reliability of polling data, while reducing its cost. The cost of live interviewers and the difficulty of reaching a respondent at the exact time of the call are overcome by Internet surveys. While response rates and represenativeness of the sample are issues that must be resolved, many of the experts we spoke with in this study believed that those problems would be addressed in the next decade.

While polling is not always thought of as an institution of representation, it is the only method we have to ensure that all elements of the public are consulted in the policy process. Such passive participation is not without danger of manipulation and misinterpretation, but the Web will make it possible to dramatically reduce the cost of polling. This could make it possible to use the Web to elicit and record public comments on administrative decisions, to hold "instant-messenger" chatroom style public hearings, and then use surveys to elicit the views of those who are effected by government's decisions, but typically choose not to participate in government decision making. The costs of getting to and from meetings, of travel and of printed information could also be reduced or even eliminated from government's public participation programs.

The use of the Internet for voting and representation may be the most far-reaching reform based on this new technology. If it happens it can increase participation rates and make government more responsive to the broad public. We should note that those are not necessarily goals shared by all of those holding power in the current political structure. The same forces that have allied themselves to oppose campaign finance laws would very likely line up to oppose the use of the Internet for voting and public participation. For groups with economic power or with well-organized lobbies permitting expanded participation will expand the scope of conflict and cause them to lose control or reduce their influence over the issue.

2.5. Lobbying

Experts in e-government expect the use of the Web and Internet for lobbying to increase over the next decade. Interest groups will use e-mail coupled with "web-mailings" to inform supporters of important events and of decision makers to lobby. This will reduce the printing and postage costs of lobbying operations, and shift design and production professionals from the print-based businesses to the Web-oriented ones. While paper will always be used as a medium of communication, now it will be coupled with and be reinforced by electronic media.

One effect of the use of the Internet for lobbying will be to reduce the costs of these activities. This will allow ad-hoc, single issue and less institutionalized groups to form and have an immediate impact on government policies and programs. By reducing the costs of organization and communication, the Web holds out the prospect yet again, of democratizing policy formulation and implementation.

3.0 OBSTACLES TO E-GOVERNMENT

There are a variety of obstacles to the vision of e-government articulated by some experts in the field. These include:

- The digital divide.
- Government procurement and information policies and processes.
- Security.
- The politics of information.
- Professional skills available to government to design and use the Web.
- The difficulty of absorbing the increased volume of information coming into government being disseminated by government.

3.1 The Digital Divide

The issue of differential access to the Web is a major obstacle to the development of e-government. The cost of computers and high-speed access to the Web is far from trivial. One answer is to provide free Web access in public places. Libraries have moved quickly to step into this breach. Some community centers and, of course, public schools have worked hard to provide access to people who do not have access at home. The absence of Web access is more than the lack of a status symbol. Elementary school and high school students without web access will have a more difficult time completing their homework assignments. Workers in information and service businesses lose the ability to telecommute and may also lose their ability to keep up with information disseminated by their boss between working days.

Moreover, as government moves to place more resources on the web and deliver more services through the web, we could end up with a two-tier system of service delivery: One high-quality rapid service mode available to those with web access; and one lower- quality and slower mode of service requiring the public to give up valuable work or family time to interact with a government that is putting fewer and fewer resources to in-person service delivery.

3.2 Government Procurement and Information Policies and Processes

Government's ability to develop and maintain web presence and to keep up with rapidly changing technology is hampered by the rules that

government must follow to purchase services and equipment. Its internal clearance procedures can also make it difficult to release timely information rapidly. While federal agencies are required to have a Chief Information Officer (CIO), these are new positions without a great deal of internal clout in most of these organizations.

Government rules for public comment, voting and information exchange often specify the media that must be used to provide information or receive input. While these rules are changing in response to changes in technology, some still remain. Moreover, many government officials remain wedded to existing policies and methods. They have been trained in one world and have learned to work one way and are reluctant to embrace change and learn how to use the Web to improve the quality or efficiency of their work. Here the problem is the age-old problem of the persistence of standard operating procedures (SOPS). It is also the problem of staff and management without the skills and training needed to manage information collection, analysis and dissemination over the Internet. Some officials do not understand the technology's features and the type of work it can do. Others have an idea, but feel threatened and do not allow their subordinates to explore the potential of e-government.

3.3 Security

A major obstacle to e-government, perhaps of more importance than to e-commerce is the issue of security. In the view of experts we interviewed the issue of security is important in e-commerce transactions due to the potential for fraud. That, of course, extends to government operations as well. In the case of e-government, inadequate Internet security can have a more wide-ranging impact. It can impair law enforcement, public safety, civil rights, privacy rights and national security. Seen this way, the stakes of Internet security for e-government are considerably higher than the values at stake in e-commerce.

There are several different elements to security that Internet experts have identified. The first is to ensure that the source of Internet transmissions are in fact who they say they are. If you are trying to pay a traffic ticket on the Web to New York City's Government, you need to be confident that your credit card account is not being charged by a criminal computer hacker and deposited into his private bank account.

A second and related element of security is to ensure that the data you send are received and are not altered during transmission. The messages sent must be the same ones that the sender intends to send, in the form and content intended. Data integrity can be a victim of criminal "hacking" by people intending to disrupt operations. It can also be affected by software glitches or simple incompatibility between the hardware and or soft ware decoding the Internet transmission.

A third element of security is some form of verification that the message sent has been received. In a culture reared on the notion of a paper trail and a paper receipt, the concept of electronic verification can seems flimsy and less than adequate. Not only must the fact of transmission be acknowledged, but so too must the content of the transmission.

Last, but not least, is the issue of privacy. The confidentiality of government records is not an issue limited to the Internet. Significant elements of the U.S. constitution are devoted to protecting the public from unwarranted government intrusion into their private lives. The Internet and World Wide Web simply complicate the issue by adding an additional method for storing and transmitting information about the public. Internet security is a fast evolving field and one that will always have trouble keeping up with determined Internet criminals. The media's effort to present "hackers" as a type of noble nerd does not help matters much. Still, the lower cost and great convenience of Internet-Web information transmission and storage make its increased use over the next decade (if you'll excuse the pun) *virtually* inevitable. Security will be a continuing obstacle to e-government but will not dramatically affect its progress as the public learns to work with and accept its occasional lapses. For those of us who now routinely provide our charge card data on the Web to purchase a good or service, it is not difficult to think back to the first few times you provided this data and remember the small or large twinge of apprehension that accompanied the keystroke of data entry.

3.4 The Politics of Information

In its traditional political formulation, information is power. One does not simply give it away for free to everyone. These instincts remain ingrained in our political culture and influence the degree to which government officials are willing to place meaningful information on the Web. Issues that are controversial or research in its early stage of development are prime candidates for omission or homogenization by turf-conscious bureaucrats. Often, younger professionals more accustomed to the information-sharing culture of the Web focus on the cost of holding back information and engage in conflict with more experienced professionals more focused on the danger of premature release of information. While we can see this particular obstacle becoming less prevalent in the next decade, it will never be eliminated.

The reason for this can be seen in E.E. Schattschneider's work on the contagion of conflict.

In his view, elites seek to maintain control of power by limiting the scope of conflict to the narrowest audience possible. Those losing in the competition have an interest in expanding the scope of conflict to hopefully reshape the odds in a battle they are losing. The primary mechanism for expanding the scope of conflict is the release of information previously held from general view. Whether it is the Pentagon papers or the information leading to Bill Clinton's impeachment vote, control of information is power. As long as this fundamental fact of politics remains, the politics of information will be an obstacle to e-government.

3.5 Professional Skills Available to Government to Design and Use the Web

As Dot-coms proliferated in 1990's and a generation came of age along with the World Wide Web, government was far from the forefront of the development and use of this new medium. The irony was not lost on those of us who observed that the Internet was in fact a government project begun initially to link Defense Department research computers. The origin of the Web was an effort to facilitate data sharing among scientific collaborators working for the government.

Unfortunately, the skills in Web design and the creativity needed to effectively utilize this new technology was not readily available in government. As this service sector grew, and many commercial applications failed, the availability of Web talent to serve as government consultants and contractors began to grow. Government became an important market to professionals in the field, although according to those government CIOs we asked, government's in-house expertise continues to lag behind that available in the private sector. This lack of expertise to design and to manage Web designers remains an obstacle to the development of e-government over the next decade.

3. 6 The Difficulty of Absorbing the Increased Volume of Information Coming into Government and Being Disseminated by Government

The final obstacle to e-government is the exponential increase in information produced and consumed by modern societies and their governments. As the amount of information increases, the public must worker harder to distinguish important information from that which is less essential. Government must also learn to do a better job of prioritizing the information it disseminates and deciding the information that it must collect from the public to perform its essential functions. The Paperwork Reduction Act has been a positive step in this direction, but government is only beginning to develop the skills to prioritize its information demands, and until it develops more skill

at this task, information overload will be an obstacle to e-government.

4.0 OVERCOMING OBSTACLES TO E-GOVERNMENT

4.1 The Digital Divide

There are a variety of methods for closing the digital divide, all of which require money to provide people possessing fewer resources with Internet-connected computers. Schools, libraries, religious institutions and community centers have an important role to play in providing access to the Internet and the World Wide Web. Computer, software and Internet service providers also have a role to play. These public and private institutions can provide free Web access to communities without great wealth. Service providers such as Hot Mail and Yahoo provide free e-mail addresses and accounts as part of their business strategy. This has had the effect of vastly increasing the number of people having e-mail addresses, and if it proves to be unsustainable by the marketplace it should be encouraged by government with inducements up to and including tax subsidies expenditures and other forms of subsidy.

Just as older people are given "lifeline" telephones with some limits on service, but with costs picked up by the vendor, or in reality more profitable customers, so too should Internet access be provided at home to poor children. While access in public places is an essential resource that must be provided, children will also need Web access at home to do a thorough job on their home work and Internet access to communicate with friends and teachers about school work. In sum, the bridge across the digital divide must be built with money. The money should come from Internet users, access providers, and private computer and software companies. When that is not sufficient the resource should come from the taxpayers via government. We can think of no single investment that will have a greater payoff in education, economic development and enhanced quality of life than providing each American family with children a Web-ready computer with a high-powered connection to the Internet.

4.2 Government Procurement and Information Policies and Processes

In many respects this issue is more prevalent at the federal level in the United States than at the state and local level. This is in part a function of the cutback of federal government employees through the 1990's, while state and local government continued to grow along with the nation's population. The result at the federal level has been an aging workforce that is simply not as convinced as they might be of the value and importance of e-

government. Several years ago we were being hired as temporary employees by a federal agency that wanted to use us as consultants. We had been told that federal employment applications could now be completed on-line. The personnel director in this agency told us that if we wanted to be hired in his agency, we'd hand in a paper application to him— and in person. He saw e-government as a threat to a tried and true method of operation. This attitude toward older standard procedures, while not universal, is certainly prevalent.

Over the next decade, the aging out of the federal workforce, coupled with the external pressure on government from a generation reared on easy access to information, will advance the information-sharing dimension of e-government. Local governments, along with those parts of the federal government that provide direct customer service, will lead the way to reformed government information and procurement policy. The cost savings of e-procurement will prove irresistible, especially when data on savings is presented to those paying the bills.

It is not that procurement and information collection/dissemination rules and policies will disappear. It is that they will be adapted to the needs of new technologies and the speed and information demands of e-government. These steps will require a new generation of Web-literate and Web-dependent professionals. They will have some of the skills needed to manage e-government, but more importantly, they will know what they do not know and will bring in people with the expertise to use the Web and the Internet to perform government functions.

4.3 Security

The technology of Internet security is developing with speed and creativity. In general, all of the obstacles discussed in section 3.3 are amenable to technological solutions. However, as any good locksmith will tell you, security is a moving target. Hackers and e-criminals are constantly analyzing and overcoming security systems. There are three keys to successful security. The first is constant improvement and upgrades to stay a step ahead of criminals. The second is that security be visible and foreboding, to drive criminals to easier marks. Finally, we must accept the fact that no security system is perfect and all can eventually be overcome. It is merely a matter of costs and benefits. The goal is to keep the costs of breaking security high enough that criminals are deterred. Through constant monitoring, those managing security systems can detect break-ins early, possibly before much damage has occurred.

Since all security is porous. It is important that whatever information is stolen can be replaced. It is also important to design security systems that provide methods for detecting or at least tracking intruders. A key method for overcoming the obstacles posed by security breeches is an attitude of security consciousness on the part of providers and users. In addition, we will need to ensure that the criminal code keeps pace with technology. Electronic crime is not victimless and it is not cute. Stolen information, shattered privacy and illegal fund transfers impair public service delivery and commerce and can hurt people in their daily lives. E-criminals should be prosecuted and punished. Over the next decade we expect to see rapid development of law and enforcement to prevent and punish electronic crime. This, along with continued technological innovation should ensure that security concerns do not significantly disrupt the development of e-government.

4.4 The Politics of Information

As long as bureaucrats hold and protect turf, they will try to maintain control over information. The best we can hope for is a broader definition of information that belongs, by right, in the public domain. Professionals raised and trained in the Internet age expect information to be instantly available. This should have some impact on their willingness to provide information or work toward its easy access. This particular obstacle is less related to service provision via the Web and more related to using the Internet to perform government's representative functions. It is difficult for the public to provide input to decisions if key information is being withheld.

We are less optimistic that this obstacle will be overcome than the others we have analyzed. In part, it is an issue of law and regulation. Laws like the Freedom of Information Act have had an impact on opening government to outside scrutiny. Agency ombuds staff can also play a role here and potentially Chief Information Officers could as well. The key method for overcoming the obstacle of information containment is to make it someone's job to assess information dissemination and require additional releases when needed.

4.5 Professional Skills Available to Government to Design and Use the Web

As indicated in section 3.5, the problem is not purchasing Web design or maintenance skills, the issue is having enough in-house management capacity to manage e-government functions. Developing this management capacity will require aggressive recruitment of skilled technical managers and a substantial degree of contracted training and consulting over the next decade. Government needs to develop the means to manage service delivery and representative functions through the Web. Of

the two jobs, e-government service delivery should be easier. Some of the skills needed to manage the service delivery side are available in the private sector. The use of the Web to help perform representative functions is new and much less well understood. In addition to technical issues there are issues of justice, equity and due process that must be understood and reflected in the performance of this function.

To overcome this obstacle government will need to devote substantial resources to developing a core of e-government managers who understand the technology of the Web, but also understand the constitution and the history and theory of American democracy. Just as campaign finance laws can inadvertently tip the balance of power in an electoral campaign, the way that e-government elicits public input can influence policy outputs and outcomes. As we build political institutions that use these new technologies we must be careful to understand the impact these new arrangements are having on our political processes and traditions. This is not an argument against the use of these technologies. The 2000 Florida Presidential balloting certainly taught us the dangers of antiquated electoral technology. The very legitimacy of our electoral process was threatened by the inadequacy of the techniques used to gather and tabulate votes. Still, as we expand e-government beyond service delivery, we must ensure that our management skills and leadership is up to the task. In many respect this is the most profound and significant obstacle that must be overcome if we are to realize the full promise of e-government. We must have the wisdom to control this technology and allow it to serve rather than distort our representative democracy.

4.6 The Difficulty of Absorbing the Increased Volume of Information Coming into Government and Being Disseminated by Government

The final obstacle to e-government is the same obstacle we all face in our every day challenge to live with the Internet and the World Wide Web. We all spend more of our time dealing with the vast outpouring of information in our daily lives. We are also expected to provide more information to more and more sources. To cite a mundane example— how many passwords to you need to remember each day? Phone mail, e-mail, cell phone, debit card, and e-commerce sites, are just a few of the places demanding that we remember our code name rather than our real one.

A skill for both government and citizen alike is to prioritize and organize information. What is most important and must be remembered? What can be filed? What can be discarded? A characteristic skill of the information age is the ability to summarize information and understand its relative importance.

Technology can help through sorting routines, search engines and other methods of organizing information. In addition, we will need to get used to the idea of spending more time absorbing and analyzing new information. The Web can be the source of knowledge that can be used to improve our lives. However, it can provide so much information that it could paralyze us. Over the next decade students, professionals and our political, social and economic elite will develop the skills to deal with the exponential expanse of information. The amount of time we have to learn and act on new information is finite. Therefore, to take full advantage of the Web's potential we must learn how to get more out of time we spend disseminating and learning from new information. In our view, these skills are so important for the information age, that their relative presence or absence will have a significant effect on an individual's career trajectory. In this respect we see the development of these skills as so important, that we do not see much of a chance that senior managers will thrive and be promoted without them.

EXPERT SOURCES INTERVIEWED FOR THIS PROJECT

- Gary A. Winters, Senior Policy Analyst
  General Services Administration
  Office of Governmentwide Policy

- Stephen A. Ronaghan
  Project Manager for the U.N. E-Government Global
  Survey 2001
  E-Government Project Consultant at Rutgers University

- Daniel J. Chenok
  Branch Chief
  OMB: Branch of Information, Policy and Technology

- James Melitski, PhD candidate in Public Administration,
  Thesis on e-government
  Rutgers University

- Members of Council for Excellence in Government
    1. Tom Bryer
       Project Leader, Improving Government
       Performance
    2. Katherine Hansen
       Project Leader, Technology Leadership Consortium
    3. Joiwind Ronen
       Director, Technology Leadership Consortium
    4. Chris Wingo
       Project Leader, Digital Government Consortium

- Bahman Ghafarsamar
  Director, Contract Administration
  NYC Department of Transportation

- James Jones
  U.S. Department of Education
  Office of the Chief Information Officer
  Information Management Group

- Frank McDonough
  Deputy Associate Administrator
  The Office of Intergovernmental Solutions
  US General Services Administration
  Office of Government wide Policy

- Michael Messinger
  Director of Marketing and Communication
  FirstGov.COM

SOURCES

Atkinson, R.D. and Ulevich, Jacob, *Digital Government: The Next Step To Reengineering The Federal Government*, Washington D.C., Progressive Policy Institute, Technology and new Economy Project, March, 2000.

Barbu, Alain, *Information Infrastructure: The World Bank Group's Experience: A Joint Operations Evaluations Department, Operations Evaluation Group Review*. Washington D.C. International Finance Corporation, World Bank 2001.

Cohen, Steven and Eimicke, William, *The Use of the Internet in Government Service Delivery*. Arlington, Virginia, Price WaterhouseCoopers Endowment for the Business of Government, February 2001.

Copen, B., Dorosin, N., Fye, R., Johnson, C., Levine, D. "Dropping the "E" from E-Government." *Unpublished Manuscript*. Columbia University, School of International and Public Affairs, Graduate Program in Public Policy and Administration, December, 2001.

Fitzpatrick, Edward, *New Frontiers in Electronic Government: New York City's Use of Information Technology and the Internet*. New York, New York, NYC Office of the Comptroller, 2000.

Fountain, Jane E. Building *The Virtual State: Information Technology And Institutional Change*. Washington D.C., Brookings Institution Press, 2001.

Government Accounting Office, "Electronic Government: Federal Initiatives Are Evolving Rapidly But They Face Significant Challenges". Statement of David L. McClure – Associate Director, GAO Governmentwide and Defense Information Systems, Accounting and Information Management Division, Washington, D.C., May 22, 2000.

General Services Administration, Office of Government-wide Policy, Office of Intergovernmental Solutions, Washington, D.C. *Government Without Boundaries Project Plan,* August 21, 2001.

Seifert, Jeffrey W. "A Primer on E-Government: Sectors, Stages, Opportunities, and Challenges of Online Governance." *Congressional Research Service Report to Congress.* Washington, D.C., July 20, 2001.

Symonds, M. "Government And The Internet: No Gain Without Pain." *The Economist,* June 24th 2000.

Symonds, M "Government And The Internet: Haves And Have-Nots." *The Economist,* June 24th 2000.

Symonds, M "Government And The Internet". The Next Revolution." *The Economist,* June 24th. 2000.

United Nations Division for Public Economics & Public Administration and the American Society for Public Administration: *Global Survey of E-Government*. www.unpan.org/egovernment.asp.

US Dept. of Commerce, US. Census Bureau, U.S. Economics and Statistics Administration. *Home Computer Use and Internet Access in the US: Special Study*. Washington D.C., August 2000.

West, Darrell. *Assessing E-Government: The Internet, Democracy, and Service Delivery by State and Federal Governments, 2000.* Providence Rhode Island, www.brown.edu.

Wyld, David C, *The Auction Model: How the Public Sector Can Leverage the Power of E-Commerce Through Dynamic Pricing*. PricewaterhouseCoopers Endowment, Arlington, VA. October 2000.

---

[1] E-mail interview with Daniel Chenok, Chief U.S. Office of Management, Information,Policy and Technology Branch, December 2001.
[2] Public Technology, Inc.
http://pti.nw.dc.us/links/e_government.html