Breaking Down Bureaucratic Barriers

The Next Phase of Digital Government

Progressive Policy Institute
Technology & New Economy Project

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"One person with a belief is a social power equal to ninety-nine who have only interests."
—John Stuart Mill

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Introduction

It's been eight years since the U.S. government went online.[1] At first, e-government meant a passive presence on the Web—government Web sites provided information but did not allow citizens to interact with them. The second phase has seen a growing number of governments and agencies using the Internet to allow individuals to interact with government—from paying taxes to renewing driver's licenses. This paper focuses on what we believe should be the next phase of e-government—breaking down bureaucratic barriers to create functionally oriented, citizen-centered government Web presences designed to give citizens a self-service government. Overall, however, the work of rebuilding and transforming government for the digital age is only just beginning.

But while the first two phases largely presented technological challenges (e.g., writing the software and entering information), moving to the third phase presents much more fundamental organizational, political, and bureaucratic challenges that will not be easily overcome. Governments remain organized according to political and bureaucratic imperatives, not according to what makes most sense to citizens. This is reflected in the fact that most governments today use the Web to project their own self-images online, organizing their Web sites in ways that reflect how government personnel view their world, not how the average citizen views the world. As a result, creating customer-centered digital government requires the government to change its outlook in fundamental ways, with the focus being placed on the needs of citizens/customers. This requires presenting the government's Web presence in ways that are intuitive, easy to use, and without jargon, confusing program names, and acronyms. It means focusing on information and transactions people want, rather than information government wants them to have (e.g., a picture of the department secretary accompanying its latest press release). It means putting people in touch with solutions to their problems, not just giving them access to the agencies' own programs or services.

More fundamentally, customer-focused digital government requires moving from separate departmental Web sites and computer systems to a seamless Internet presence, organized around the citizen's needs. To make this work, integration must occur not only between agencies at the same level of government, but also between different tiers of government and with the private sector. Even if the solution is provided by a different tier of government, by the private sector, or by a nonprofit agency, a government Web site should help the user locate it. Citizens usually don't care if they are dealing with their local, state, or federal government; they just want an answer or help.

Currently, most government agencies are stuck in Phases 1 or 2, with some still not even online—far from the ideal of integrated digital government. Now is the time to accelerate the move into Phase 3. A majority of Americans have never accessed a government Web site, and only three in 10 Americans use online government services once a month or more.[2] Nonetheless, 73 percent of all Americans believe that e-government should be a high priority—and this includes a sizable majority of those who do not use the Internet.[3] Without doubt, government has a mandate for change.

Moving to this third phase will require resources, political leadership, and hard work.

But most fundamentally, it will require a radically different view of government. **This report lays out a number of recommendations to help local, state, and national policymakers move toward integrated digital government:**

1. Design Web sites to reflect citizen needs, not internal bureaucratic imperatives;
2. Don't think that Web directories constitute customer-focused government;
3. Create intergovernmental sites;
4. Empower e-government advocates to cut through bureaucratic barriers;
5. Allocate funds for cross-agency (and cross-governmental) innovative, customer-focused e-government projects;
6. Allow users to personalize pages;
7. Allow P3P enabled "cookies" on government Web sites;
8. Make state and local government Web sites easier to locate by allowing them to use the .gov domain;
9. Obtain continual feedback from Web users;
10. Create a best practice site for e-government innovations so all levels of government can learn from leading-edge applications; and
11. Ensure adequate investments are made up front to make the transition to customer-oriented government.

The Benefits of Customer-Focused E-Government

Before delving into this third phase, this report examines the benefits of customer-focused digital government and briefly reviews our progress on phases one and two of digital government.

A slew of e-government reports have emphasized the benefits of online government. As an organization that primarily provides services, government is in a prime position to reap the benefits of all kinds of digital technology, not just the Web.[4] Many governmental tasks can be carried out more effectively and cheaply through the Internet. According to a report commissioned by PricewaterhouseCoopers, "Electronic service delivery could change human resource deployment patterns and improve organizational performance."[5] The report found that once Web sites were 'bedded down,' e-government freed up staff from routine tasks so they could provide better service to in-person customers.

E-government that lets more citizens (and businesses) interact with government through self-service online applications (e.g., filling out electronic forms) should lead to a cheaper government. Just as is occurring in the private sector, once a large share of citizens are using the Web for self-service interactions with government, more expensive paper, voice, and face-to-face transactions are likely to shrink, allowing government to gradually downsize, while retaining or even expanding the quantity and quality of services they provide. If at the end of the day government spends billions on technology without cutting costs in other parts of government, the investments will have fallen woefully short of their promise.

Customer-focused e-government also makes interacting with government much more convenient. Tasks that previously required a visit to a government office or a telephone call during office hours can be performed by users whenever and wherever they please. E-government is likely to be of particular benefit to those who work long hours, the elderly, and those with mobility problems.

Yet the really significant benefits of e-government will come from re-engineering all government to take advantage of the Web—creating a fundamentally different sort of government that provides much more value to citizens. But in the meantime, customer-focused digital government can serve as a powerful solvent to bureaucracy and the "stovepipe" barriers that keep information from flowing across agencies. Creating customer-focused e-

government will and should lead to pressures to create the same kind of government in the offline world—a world in which citizens (and businesses) who interact with government by mail, telephone, or face-to-face are not stuck in separate "stovepipes."

So far, however, policymakers have been slow to recognize that reaping the benefits of e-government requires more than replicating the existing bricks and mortar structures of government in the online environment. This appears to be particularly true of the Bush administration, which seems to view e-government as simply another way to improve management and cut waste, fraud and abuse, rather than a way to fundamentally re-engineer government for the New Economy. Their "mainframe" vision of government is woefully out of touch with the need for a "networked" vision of government.

E-Government Today

The United States is the leader in e-commerce worldwide; however, when it comes to e-government, we are no longer at the head of the pack. According to a January 2001 report by the international consulting firm Accenture, three countries are in the category of 'innovative leaders' in e-government: Canada, Singapore, and the United States.[6] But while Accenture's report last year ranked the United States first in the world, its 2001 report puts Canada and Singapore ahead, with other countries not far behind. There is much more that governments can do to embrace the IT revolution.

Phase 1: Using the Internet to share information (1993-1998)

From its inception until the late 1990s, the government's Web presence was entirely passive. Even today, one of the main functions of agency Web sites is to provide information to users. With this kind of pure information dissemination, material needs to be well-structured and up-to-date if it is to be effective.[7] Most important, sites ought to be structured from the perspective of the consumer, not according to the agency's existing framework. The integration of departments and agencies that this requires is discussed in Phase 3. In addition, not all governments or agencies are even online, and those that aren't should be. Governments should put more information online, particularly information that makes government more transparent for citizens, such as information about city council meetings, state versions of the Federal Library of Congress "Thomas" system, and other information that lets citizens know more about the workings of their government.

Phase 2: Online transactions and service provision (1998-2001)

By the late 1990s, an increasing number of government Web sites had begun moving from an information-provision model to a transactional model. Initially, this took the form of allowing users to download a form, which could then only be submitted by printing it out and mailing it to the agency. Yet governments are steadily, if too often slowly, moving toward allowing people to complete transactions online. However, because many governments still do not enable online transactions, completing, and in some cases even getting started on, this phase is essential.

One survey found that the services people most want to be able to access online are:[8]

- Renewing a driver's license;
- Registering to vote;
- Getting park information and reservations;
- Voting;
- Getting access to one-stop shopping (one portal for all government services);
- Ordering birth, death, and marriage certificates;
- Filing taxes;
- Getting hunting and fishing licenses; and
- Accessing medical information from the National Institutes of Health.

Each year, students file more than two million applications for college financial aid online.[9] Nearly five million people use the Department of Health and Human Services' Healthfinder service to choose a health plan, a doctor, a course of treatment, or a long-term care facility.[10] In many states, driver's licenses can be renewed online. One of the most advanced government Web sites is that of Washington state, which allows Web users to pay personal and business taxes (using digital certificate technology); apply for jobs, unemployment insurance, or college; order birth, death, marriage, or divorce certificates; obtain criminal history information; and even report suspected fraud.[11]

For local governments, progress is much slower. The National League of Cities reports that while 89 percent of municipalities had Web sites, only 58 percent allowed users to download forms and information, only 31 percent provided for the completion of forms and applications online, and just 8 percent permitted financial transactions to be conducted online.[12]

Because email inquiries are perhaps the most frequent Internet transaction, government agencies need to handle incoming emails efficiently, responding within two or three days. This will require putting in place systems to handle a large number of emails, including hiring more staff. But ultimately, resource limitations will prevent governments from adequately satisfying customer email inquiries, especially if they continually increase. As a result, government will need to move beyond the email paradigm toward a self-service model of customer service where citizens are able to get the answers and transactions they need from the Web. This, as the rest of this report stresses, will require much smarter, more intuitive, multi-formatted interfaces to government Web sites.

In many cases, government agencies should rely more on email than paper correspondence. In the long run, moving from paper to electronic correspondence can save mailing, printing, and handling costs, and provide more efficient service. For example, a citizen is probably more likely to renew her business license if she receives a friendly email reminder, complete with a personal hyperlink. All she needs to do to renew her license is click on the hyperlink and enter her credit card details.

Government should also shift internal transactions with its employees online. Travel reimbursements, changes of address, pension fund modifications, and a host of other functions can all be done quickly and efficiently through an intranet system. Yet many government departments still operate inefficiently, requiring their employees to fill out paper forms, which must then be processed by hand. Oracle recently implemented a system to process employee expense reports online, cutting the cost from $25 per report to $10 and saving the company over $6 million annually.[13] There is no reason governments could not achieve similar savings.

Finally, if government is to complete Phase 2 and enable a much larger and more comprehensive set of transactions to take place online, it will need to ensure that citizens have the ability to authenticate themselves online so that the government can verify that the person renewing Mary F. Smith's professional license online is indeed Mary F. Smith. For example, the U.S. Patent and Trademark Office (PTO) has implemented the use of digital signatures to allow more than 7,000 registered patent attorneys and 4,000 inventors to file patents. Digital signatures allow the PTO to know that the persons filing a patent are who they claim to be, and they constitute legally binding electronic signatures. At the state level, Illinois has partnered with the software company Entrust to purchase digital certificates that enable Illinois businesses to do such things as submit reimbursement vouchers to the Department of Aging online and send hazardous waste reports over the Internet. The system relies on encryption and digital signatures to verify an online users' identity and ensure that a particular document has not been altered. [14]

E-Government Tomorrow

Phase 3: Integration (2001-?)

E-government offers the potential to deliver public services in a more efficient, more holistic manner. As British Prime Minister Tony Blair has argued, "Joined-up problems need joined-up solutions."[15] Old divisions between agencies, between tiers of government, and even between the public and private sector become increasingly irrelevant in the digital age.

Smart e-government should be focused on one goal: helping citizens solve problems. Most people are not interested in which government agency, or even which tier of government, is responsible. Nor should they be. Nor are they interested in bureaucratic acronyms and governmental self-promotion. Digital government should deliver services to citizens seamlessly and in a commonsense way—without requiring them to surf around to find the right Web site.

Progress Toward Integration

Unfortunately, e-government today is fraught with problems. Visitors to many government sites are liable to find:

- ***"Stovepipe" structures.*** Too many government Web sites still require users to know which agency delivers the service that they are seeking. For example, before California revamped its Web site, users wanting to get a death certificate had to know to contact the Department of Health Services.[16] **Agency-specific Web sites are not only confusing to consumers but can exacerbate the stovepipe problem, as departments develop their Internet strategy in isolation.**

- ***Sites that only list information provided by their own agency.*** Not only are Web sites too often organized by agency, they frequently only provide links to "their" information. For example, several state government Web sites have "Education" sections with links to local colleges, but no links to federal financial aid sites. It's not uncommon for state departments to list online the programs they offer to people or businesses, but not other programs offered by local or federal governments, nonprofits, colleges, etc. **Government agencies need to approach the Web with a philosophy of helping users solve problems, not merely delivering their same old services through a new medium.** And this means that government agencies need to help direct citizens to a wide range of services—including ones they don't provide.

- ***Web sites promoting government.*** Although the role of government is to help citizens, too often e-government seems to be a publicity portal for programs and politicians. The worst Web sites give top billing to a photograph of the governor or secretary, with the latest press releases from the agency highlighted. They then proceed to list their own government programs, often with indecipherable acronyms.

- ***Unfriendly portals.*** Web sites need to be designed with an intuitive interface, making them easy to navigate. Instead, too many are confusing and unfriendly—particularly once the user goes a level or

two below the opening page. For example:

-- One state government Web site purports to offer online help for dislocated workers. Yet one level deeper, users are shown a list of services for dislocated workers and asked to click on the boxes which apply to them—then print the page out and take it in to their local employment office for assistance, instead of providing the information online.

-- Another state government site at first appears to allow customers to renew their driver's licenses online. But once the user has navigated a maze of menus (one needs to click on "Online Renewals," *not* "Driver's Licenses"), they are presented with a screen saying that online renewals are currently out of service. The Web site was out of service for the entire month preceding the release of this report.

-- Another state government portal simply takes users to a list of hyperlinks for 121 different state government agencies. Presumably, citizens who are unfamiliar with governmental structures are expected to read through the entire list and attempt to determine from the names of the agencies the one that might be able to help them. Smart, service-oriented government can do better.

- **Search engines that don't work.** Try searching for "job training" on the average state government Web page and you are more likely to be presented with reports, financial statements, and press releases about job training than about how to get information about where you can get job training. A short-term fix is to use a smarter search engine,[17] but the root problem is generally with the agency's "back-end" computer systems. In simple terms, most data on government Web sites are not properly indexed into a core database system. There is a need for a better, more complete, and standardized indexing/classification system that is used and applied across government. Setting up such a robust database structure will be resource-intensive, but it is essential. Sites should also code particular key links to come up at or near the top of searches, so that, for example, when someone searches for job training, they go to the workforce and employment portal.

E-government should function better than this. To properly integrate government online, PPI recommends that federal, state and local agencies take the following steps:

1. Design Web sites based on consumer needs.

To create fully integrated government Web pages, administrators ought to begin by assuming that the current bricks and mortar structures of government do not exist—or they risk simply recreating them in the digital world. One report has described the distinction as designing online government from the "outside in," not from the "inside out."[18] Or in Web jargon, the goal should be to create an online environment that is "pure play" (like Amazon.com), not merely a replication of the "bricks and mortar" structure. While not all pure play dot.coms survived, they were unique in the sense that they designed commercial applications unencumbered by the practices of the offline world. As a result, the most successful "bricks and clicks" companies that have added an online presence to their physical presence have done so by designing applications specifically to take advantage of the Web. Only in this way will government make the most of new technology to re-engineer itself.

Two good ways of organizing government online are around topics and customer groups.

(a) ***Topics:*** This may include anything from buying a house to traveling overseas. For example, a pilot program in Australia has established an online one-stop shop for recreational fishing, allowing quick access to information on fishing policy, regulations, safety, and the environment, plus transactions such as license applications—integrating services across all levels of government.[19] Another, for parents whose children are starting school, contains information on term dates, immunization requirements, after-school care, and statistics to help choose the right school, as well as to enroll and pay school levies online.[20] Similarly, the UK government has a Web site with information on various "Life Episodes"—including "Going Away," "Having a Baby," "Learning to Drive," and "Looking for a Job."[21] Such topic-based integration should not be confined only to the Web. For example, the government telephone "blue-pages" could be cross-referenced so that government is listed in the telephone directory by function across agencies, rather than by agency/organization structure alone.

(b) ***Citizen groups:*** Government portals for particular groups of people recognize not only that individuals tend to be interested in varying types of information, but also that the same information sometimes needs to be presented in different ways for each group. At the federal level, citizen group portals now include *www.seniors.gov*, *www.students.gov*, *www.business.gov*, *www.workers.gov*, *www.kids.gov*, *www.disabilities.gov* and *lifelines2000.org* (for naval personnel).[22] These sites are still far from perfect, but they represent the right way of thinking about government online. One way to think about citizen groups is to organize all information by topic, and then let individuals personalize their preferences, with the Web site delivering content in response to those preferences.

These two ways of organizing information along more functional lines are not mutually exclusive, but are actually complementary and best used together.

Integrating government online will involve changes not only to the 'front end'—the Web sites that users view—but also to the 'back end'—the

Figure 1

Figure 2

way in which different agencies provide services. As in the corporate sector, governments are likely to find that their Web sites need to be redesigned on a frequent basis. With a good database system in place, the process of structuring Web sites around topics, around customer groups, or in any other manner will become far simpler.

The amount of resources required to reconfigure database systems so that they can be integrated with one another should not be underestimated. E-government innovators have discovered what many in the private sector have also found out in recent years—that those computer systems that are the simplest to use are often expensive to design. In particular, the shift to computer systems that integrate data and automate tasks can only be done with support from top-level leaders. If it is to provide a payoff in the long run, e-government will require an immediate injection of human and financial resources in the short run.

In addition, there is much that can and should be done to use existing resources more efficiently. For example, the National Association of State Information Resource Executives (NASCIO, formerly NASIRE) is taking the lead in promoting 'citizen-centric' governance by encouraging states to share templates and components that are built around people's needs, not existing governmental structures.[23]

Overlaying these Web sites should be a user-friendly portal, designed to be used by citizens who have no idea which agency provides the service they are seeking. The introductory portal ought not be simply a Web directory (see below). Navigating government online will also be simpler for users if government Web sites have common standards on database architecture and information display. In Australia and Israel, the government has established uniform standards for its Web sites, but the U.S. government has yet to do so.

Given scarce resources, policymakers should find out the top 10 or 20 transactions that citizens conduct with government and focus on getting them online first. This will create a sense of momentum toward full, integrated e-government, from customers and government agencies alike.

As functionally organized Web sites come online, existing departmental Web sites should be scaled down. Eventually, many of today's

departmental Web sites will either be removed or only contain information for those interested in policy development, such as press releases, policy documents, and statistics. For example, much of what now appears on the Department of Agriculture's Web page would more logically appear on pages like the existing *www.nutrition.gov* (dealing with food safety and nutrition) and new functional Web sites like *www.farmers.gov* (which could contain information about farm loan programs, crops, foreign agricultural markets, etc.).

2. Don't think that Web directories constitute customer-focused e-Government.

True customer-focused e-government means that the top-level portal must contain all the essential information, rather than simply an "A to Z" government Web directory. For example, the United Kingdom's former portal, *www.open.gov.uk*, was extremely daunting and unfriendly. The U.S. government's *www.firstgov.gov* site is somewhat better organized—allowing access by topics and by user groups. But it is still a directory rather than an integrated portal for the federal government. And it doesn't go much beyond putting categories on the front page that lead directly to agency or program Web sites. For example, when firstgov.gov users click on "rural development," they are taken to the homepage of the Rural Development Office at the Department of Agriculture, which at the time this report was written showed a picture of an employee award ceremony. An integrated site would have collected all the government (state and federal) programs on rural development, along with university research centers, reports, and other information that people interested in rural development might need. As a recent federal report acknowledged, *www.firstgov.gov* is simply 'a step' towards improving access to the government.[24] This may explain why relatively few people are using the firstgov portal (see Appendix II).

3. Create intergovernmental sites.

Local, state, and federal governments need to put far more effort into creating integrated sites, bringing together resources from different agencies, different tiers of government, and the private sector. This kind of thinking should permeate e-government from the outset. For example, federal government Web sites should be built with architecture that can easily incorporate other information and links—so state and local governments can be brought into the system. And likewise, state government Web sites should be ready-made to integrate with local governments. Of course, different levels of government ought to have the flexibility to instigate trial programs on a small scale—but this should be matched by information architecture that facilitates customer-focused government.

So far, most efforts to get government on the Web have been too timid. Bureaucratic culture rarely encourages inter-agency projects, let alone cooperation between different tiers of government. All too frequently, good cooperative ideas are thwarted by petty turf wars and disputes over budgets. Without a streak of boldness from our leading policymakers, integrated e-government will never achieve its potential.

In order to provide integrated e-government with a much-needed boost, **the government should expand its cross-agency digital government fund to provide matching finance for innovative programs that individual agencies are unwilling to fund alone. In order to receive funding, programs would need to:**

- **help integrate different parts of government;**
- **combine public and private sector expertise;**
- **be innovative and cost-effective; and**
- **be an example of best practice e-government, which can be publicized through a Web site set up to show off "model e-government initiatives."**[25]

In April 2001, PPI recommended the creation of a $500 million cross-agency digital government fund. During the 2000 election campaign, President Bush proposed a $100 million digital government fund. Once in office, he reduced the amount to $20 million. House appropriators then

proceeded to cut this to just $5 million. If the federal government is serious about integrated government, it will need to put much more money toward cross-agency initiatives. The bills that best meet this goal are the E-Government Act of 2001, introduced as S. 803 by Sen. Joe Lieberman (D-Conn.) and as H.R. 2458 by Rep. Jim Turner (D-Texas), both of which propose a $200 million digital government fund. In a period of budget constraints, if Congress and the Bush administration do not want to add new monies for customer-focused e-government initiatives, they could fund such initiatives by imposing a small set-aside on all federal IT budgets (e.g. half of one percent) and allocating these funds to cross-agency, innovative initiatives. In some cases, more money is not the answer. For example, the U.S. Customs Service has successfully lobbied for a $1.8 billion allocation to revamp its outdated computer system, even though an alternative and better cross-agency International Trade Data System would be much cheaper to develop.

4. Empower e-government advocates to cut through bureaucratic barriers.

It is important not to underestimate the resistance and in some cases fear from individual agencies, including individual agency chief information officers (CIOs), to more functional, less agency-centric digital government. Issues of turf, power, funding, and lack of vision can all come into play in maintaining the digital status quo. As a result, organizing Web sites and computer system around the needs of citizens, not bureaucrats, requires high-level leadership and advocates who have the authority and vision to overcome bureaucratic inertia and resistance in the move to customer-focused government. Without it, the traditional model of agency-specific Web sites is likely to predominate. In this area, the states are well ahead of the federal government. According to an October 1998 survey by NASIRE, 14 states had a chief information officer who reported directly to the governor.[26] By February 2000, 27 states had such a person.[27] At the local level, it is not only major cities like Phoenix and Los Angeles that have CIOs; smaller jurisdictions such as Milpitas, Calif., and Bellevue, Wash., are now also realizing the value of having a single person to coordinate and provide leadership for their technology efforts.[28]

Although a majority of states and many local governments have CIOs who report to the governor or mayor, there is still no federal CIO—merely CIOs for various federal agencies.[29] In contrast, the Canadian government has had a CIO since 1997.[30] In March 2000, PPI was the first to call for the U.S. government to establish a federal CIO, and the proposal was contained in the Lieberman and Turner legislation mentioned earlier.

Establishing a high-level assistant to the president on electronic governance is supported by 65 percent of Americans, including 71 percent of Internet users, 73 percent of Democrats, 62 percent of Republicans, and 59 percent of Independents.[31] Unfortunately, the Bush administration has reneged on its campaign proposal to create a federal CIO. Likewise, calls to establish a White House assistant to the president for electronic governance (and commerce) have also fallen on deaf ears.

Another successful model for promoting government online is the UK's Office of the E-Envoy, responsible both for getting government online and creating the best possible environment for e-commerce.[32] By creating an office with these dual functions, the Blair Government has endeavored to make Britain a leader in the Information Age. Since 1999, Britain has had both an e-envoy and an e-Minister, demonstrating clearly that the government is serious about creating a leading-edge information technology environment for business and citizens alike.

The federal government should follow the UK model and create an office which:

- **is responsible for its own budget and reports directly to the president;**
- **has sign-off (along with the Office of Management and Budget) on all e-government expenditures; and**
- **produces quarterly reports for the president, which are posted online—helping to ensure that e-government works at Web speed.**[33]

Contrary to the claims of some conservatives, **customer-focused government need not be big**

government. Standard formats and a clear navigational structure are simply logical steps to help citizens get what they want from e-government, quickly and easily. The best way to achieve these goals is through high-level leadership.

5. Allow users to personalize pages.

One of the ways that corporate Web sites encourage repeat business is by allowing users to personalize their view by identifying their particular interests. Government Web sites can use the same technology to make life easier for their users too. For example, North Carolina's Web site[34] (developed in partnership with Accenture and Yahoo) allows users to create a login and password and customize how the page appears by identifying categories of information that they are interested in. Government Web sites in Virginia[35] and California[36] not only permit user personalization, they also enable individuals to enter their email addresses and opt to be sent information on public meetings, legislation, and other new initiatives.

Governments can go further. For example:

- Users could be offered the option of having **an individual login, which would remember their details after the first time they filled out an online form**. The next time they needed to fill in a form, these details would pop up automatically. The software to make such a system secure and private is already in use on thousands of corporate Web sites across the country. California is implementing such a system for business registration, which would save users from having to provide information separately to more than 20 agencies.[37] Britain is moving toward the same model.[38]

- Email could be used to send citizens **personal reminders** about governmental business (for example, when a driver's license is due for renewal).

- Web sites could build up information to **personalize the user's Web experience**—known in the private sector as 'customer relationship management.' Sites could even use the 'fuzzy logic' software that Amazon currently employs for book recommendations. For example, if a person clicks on the 'schools' and 'local jobs' pages, the site might offer a link to 'childcare'.

One of the ways to personalize sites (and to simply make sites easier to use) is through the use of Web "cookies." Cookies allow personalized user information to be stored on the user's computer, to be retrieved by the Web site when the user next visits.[39] In 2000, however, the Office of Management and Budget banned "cookies" on all federal government sites following inaccurate reports that the White House's Office of National Drug Control Policy was using them to track potential drug enthusiasts. Some states have also banned cookies on their Web sites.[40] **PPI believes OMB wrongly banned cookies. Cookies are an efficient way of personalizing sites and can easily be used so that they do not infringe on the privacy of Web users. Governments can and should meet the twin goals of individualization and privacy through the use of P3P compliant cookies.** P3P is a language that helps sites allow a privacy policy to be "read" by a Web browser. Individuals then tell their browser what they expect out of a privacy policy, and the browser warns users when the Web site's practices do not match their preferences.[41]

6 . Extend the .gov domain name to state and local government.

Surprisingly to most people, state and local governments cannot use the .gov domain name extension. The federal General Services Administration, which administers this domain, has claimed that it would be too confusing to extend the .gov domain beyond the federal government (yet some state governments already have addresses in the .gov domain, e.g. *www.texas.gov*).[42] Currently, when a user types in *www.northdakota.gov* or *www.nd.gov*, *www.losangeles.gov* or *www.la.ca.gov*, he or she gets an error message. Instead they should automatically be taken to the Web site they want. Allowing state and local government Web sites to use the .gov domain would make it easier for citizens to locate government services.

Figure 3

7. Obtain continuous feedback from users.

Ongoing consultation is a necessary condition of revamping e-government to be more citizen-centric. Layouts that seem intuitive to experienced bureaucrats may not be so user-friendly to ordinary customers. The only way to ensure that government Web sites are structured the right way is for users to be involved throughout the design process. Once pages are launched, all users should be invited to rate them online, and this information should be used to make improvements. Private sector marketing and customer research methodologies, including quantitative and qualitative market research techniques such as interviews, polling, sampling, and focus group discussions, should all be used. These can also be used over time to form tracking studies that highlight government progress in improving quality and performance of government service delivery.

In particular, user groups can provide valuable input. The problem in the past was that they were often created unnecessarily and maintained for too long. As a consequence, legislation was passed to abolish obsolete advisory groups and require new ones to be approved by the Office of Management and

Figure 4

Budget.[43] PPI supports the simple approach expressed in a 1994 OMB circular: "Advisory committees should get down to the public's business, complete it and then go out of business."[44] But this should not diminish the fact that user groups and advisory boards (perhaps made up of private sector technology experts) can play a valuable role in improving e-government.

User groups should not linger on after their purpose has been served. But neither should governments be impeded from consulting citizens in developing their e-government policy. For example, a large federal agency recently compiled a 70-page report on their Web strategy—without ever speaking to users about what they wanted to see on the Web site. Fortunately, their CIO insisted that they go back out and consult their customers. But this illustrates the need to ensure that agencies are not subject to excessive red tape in order to get public feedback. It also shows the need for a federal CIO—who could authorize the creation of consumer groups to efficiently "road-test" all government Web sites.

Selected Initiatives to Integrate E-Government

- ❐ Build a single site for government procurement, at the federal, state, and local level—allowing companies to bid for government contracts online.
- ❐ Offer a one-form application for welfare—so citizens can apply for unemployment insurance, Medicaid, housing assistance, social security, and all other benefits available at the federal, state, and local level. Among the states, Washington has taken the lead in integrating welfare services online,[45] but to be fully effective, there also needs to be integration between different tiers of government. They have plans to do this, starting by integrating state and local social services online.
- ❐ Implement an online web directory for all federal employees.
- ❐ Install an "Enter Your Zip Code" feature on more government websites, to allow users to find the services that are closest to them.
- ❐ Make websites easier to search, navigate, and restructure — by indexing all the information on the site into a comprehensive database system. This will require developing common taxonomies and indexing/classification tools for application across all levels of government.
- ❐ Give users the opportunity to enter their email addresses, and receive regular updates by email.
- ❐ Create a best practice site for e-government innovations at the local level, so city and county leaders can exchange information about how they are working to put government online.

Conclusion

As we come to the end of the first decade of digital government, policy makers have the chance to reshape government online so that it is centered on citizens, not bureaucracy. This will not be easy. The past few years have seen hundreds of e-government projects flounder because policymakers did not appreciate the "back end" changes required to create good government Web sites. But high-level leadership bridges the gap between bureaucrats, technology experts, and politicians. Without it, more failures and unfriendly Web sites are certain to occur.

At its best, integrated e-government will make life simpler for individuals and reduce the costs to government, citizens, and businesses. Moreover, by showing leadership in the delivery of electronic services, government can help spur the growth of e-commerce.[46] Customer-focused digital government will even help government itself operate more effectively. Now is the time for federal, state, and local leaders to move into the third phase of e-government.

BOX A: Six Sites That Should Be Integrated But Aren't

1. The Minority Business Development Agency (MBDA). MBDA's Web site, *www.mbda.gov*, contains only resources specific to minority-owned businesses. Yet minority businesses will also need to access a range of other resources—such as those available at the federal government's integrated business Web site (*www.business.gov*), the Economic Development Administration (*www.doc.gov/eda*), the Department of Housing and Urban Development (*www.hud.gov*), and various state government programs. Unfortunately, users have to delve deep into the MBDA Web site to find even links to these various resources. Ideally, the sites should be integrated into a single Web page (www.entrepreneurs.gov?). Why haven't they been? Probably because the EDA is operated by the Department of Commerce, *www.business.gov* is run by the Small Business Administration, HUD is a separate federal department, and the state resources are at a different tier of government entirely.

2. Federal and state parks. It's unlikely that families wanting to take their holiday in a park care much whether that park happens to be run by the federal or state government. But the two are not integrated. Federal park facilities are catalogued in *www.recreation.gov*, which does not even link to information about state parks. Likewise, most state park Web sites don't contain information about federal parks. Both should be linked together with a location-based search engine.[47]

3. Welfare. While the job-finding Web sites (the CareerInfoNet,[48] the JobBank,[49] and employment Service Locator[50]) are reasonably well integrated, welfare services are far more disparate. For example:

- To find out about the Earned Income Tax Credit, individuals need to access the tax office Web site (*http://www.irs.gov/ind_info/eitc4.html*).
- For unemployment insurance, the Department of Labor (*http://workforcesecurity.doleta.gov/unemploy/aboutui.asp*).
- For food stamps, the Department of Agriculture (http://www.fns.usda.gov/fns/).
- For Medicaid, the Health Care Financing Administration (http://www.hcfa.gov/medicaid/mcaicnsm.htm).
- For housing assistance, the Department of Housing and Urban Development (http://www.hud.gov/renting/index.cfm).
- For Social Security, the Social Security Administration (http://www.ssa.gov/SSA_Home.html).

Since the same individuals often need to access most of these services, those offerings should be integrated into a single Web site. Eventually, users should be able to apply for all programs with a single online application. Filling out unnecessary paperwork isn't going to help anyone get back into the workforce.

4. Community Development. Community development programs are spread across various tiers of government. Yet the Web page for the federal Department of Housing and Urban Development[51] does not list local programs. Likewise, most of the local

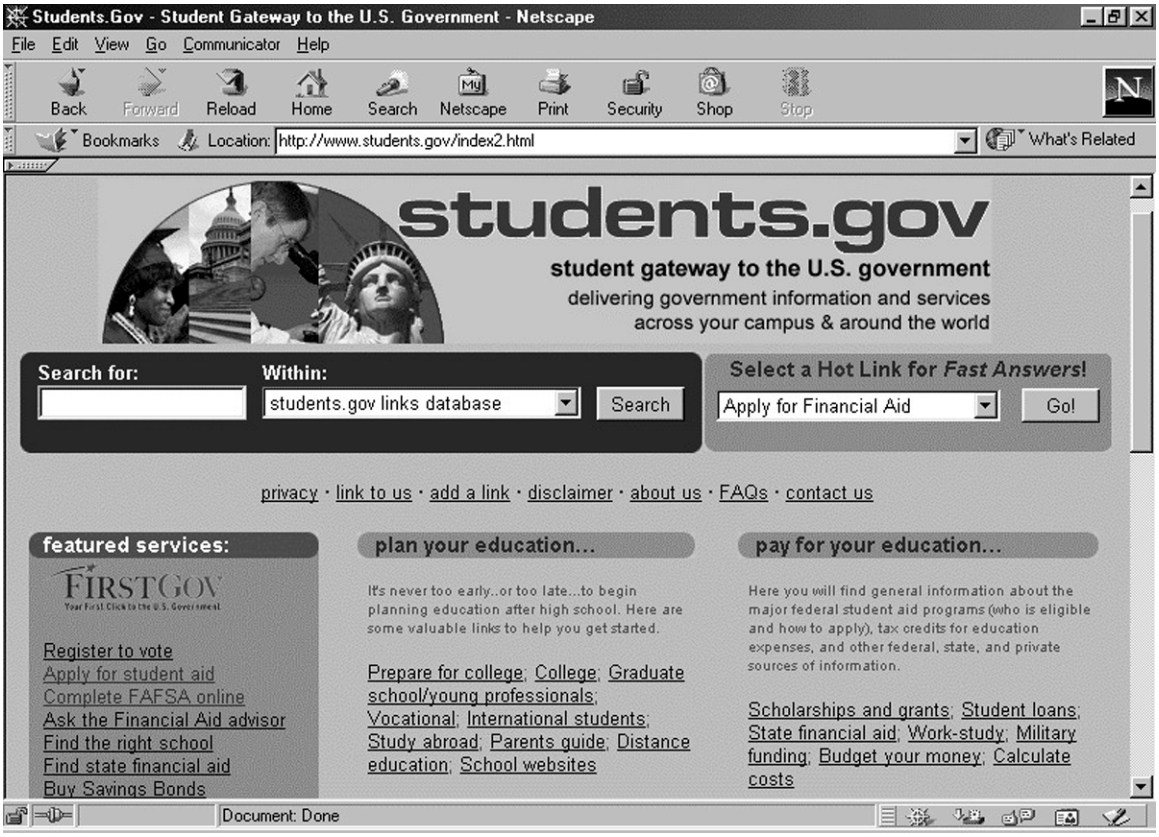
housing and community development agencies[52] make no reference to the federal programs. All community development programs, as well as information about what private firms and nonprofits are doing, should be available through a single Web site (perhaps called *www.community.gov*), so the user simply has to enter his or her zip code to find all the programs that are available locally.

5. Government Procurement. For a business that wants to begin selling goods or services to the government, there is no single portal. Through *www.business.gov*, users are confronted with a barrage of programs—SUBNet, HUBZONE, the ECRC Network, PRO-Net and the Section 8(a) Development Program. Instead, the Web site should be structured around the user. Companies should be able to enter information about their size, their location, and the product or service they want to sell—and have the computer tell them what the demand is. The database should cover all levels of government—federal, state, and local. More information will help the market for government procurement to work more efficiently, ensuring that the best companies become suppliers and the government saves money.

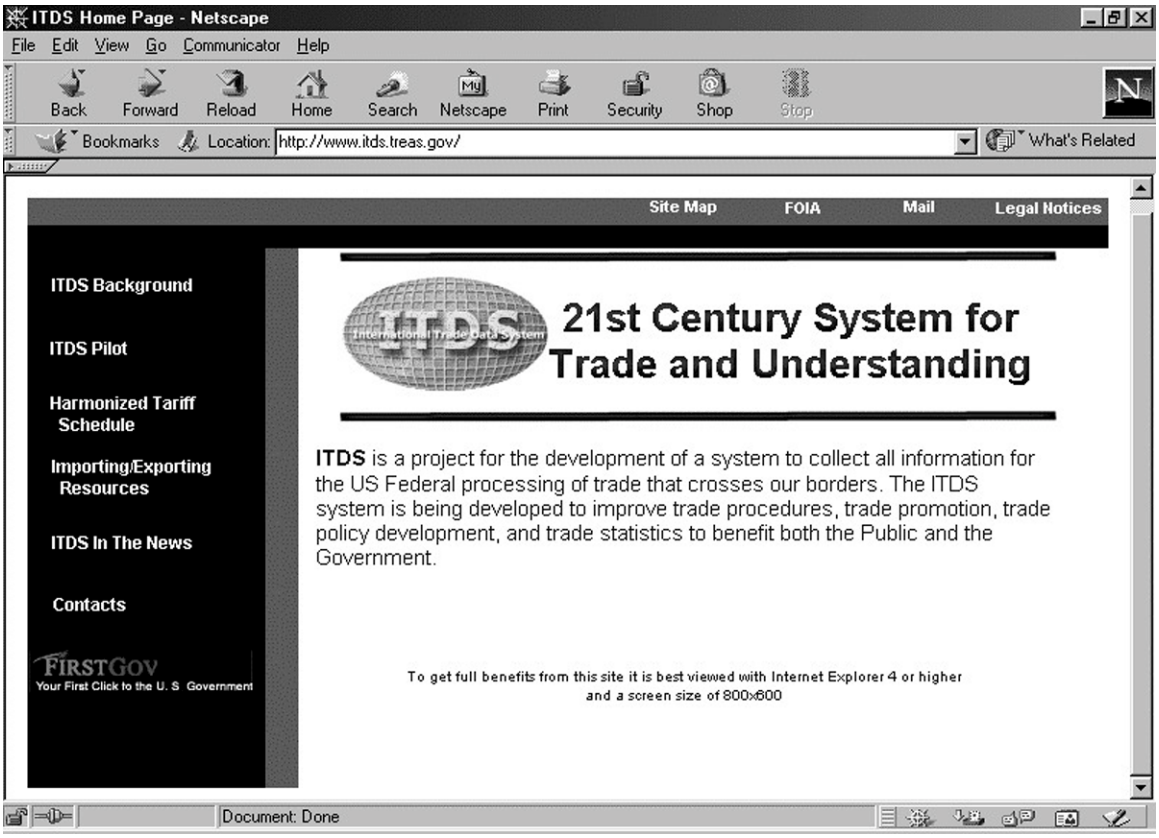
6. Government Grants. The federal government manages thousands of different grant programs. In spite of efforts like the GSA's "Catalogue of Federal Assistance," finding the appropriate grant opportunities can be a daunting task. OMB has been working to create a grants portal that makes it easy to find and apply for grants online, but such a project needs to be implemented.

BOX B: Three Well-Integrated Sites

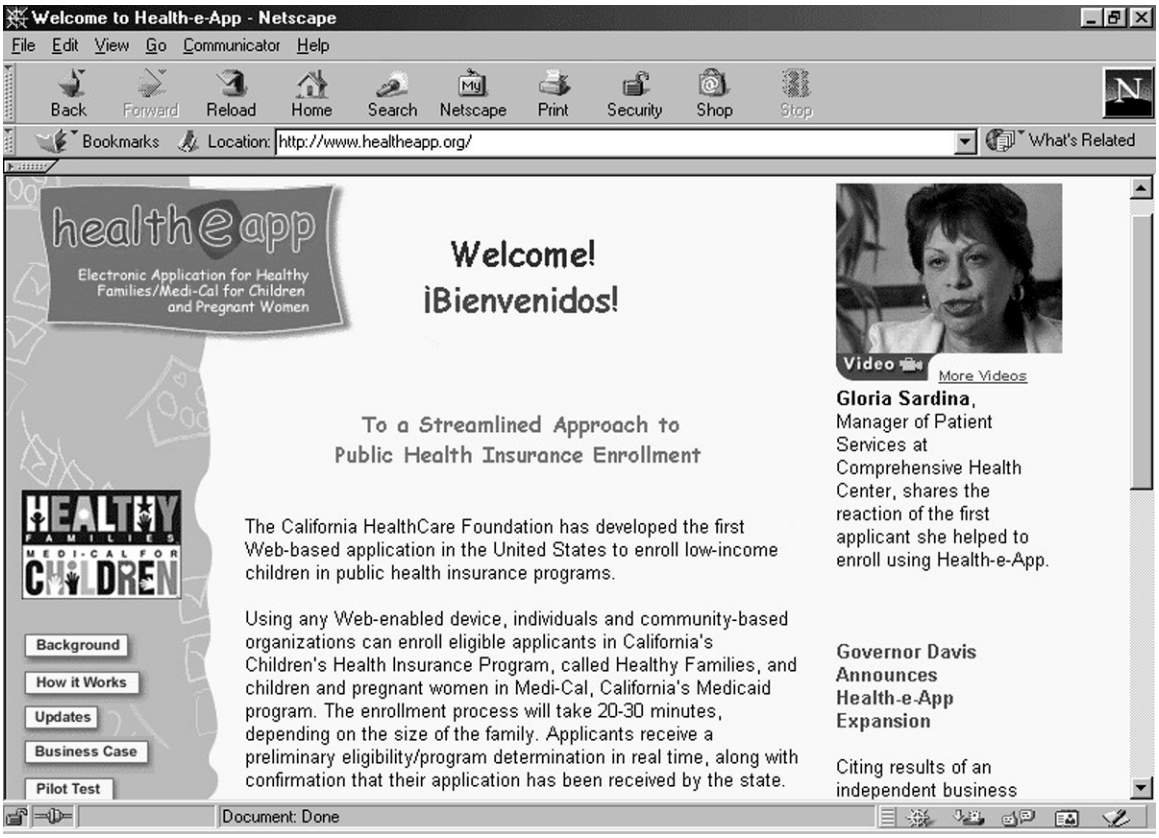
1. Student financial assistance. Through the clear, accessible *www.students.gov* portal, prospective college students can now fill out a single form online to apply for all forms of financial assistance. In our last report on digital government, PPI noted that the Department of Education's Easy Access for Students and Institutions (EASI) Web site (*easi.ed.gov*) was not linked to *www.students.gov*. We are pleased to report that the part of the EASI Web site dealing with student financial aid has now been incorporated into www.students.gov.



2. The International Trade Data System (ITDS)[53.] Designed as a partnership between several government agencies, including the Customs Service, the Food and Drug Administration, the Environmental Protection Agency, and the Department of Agriculture, ITDS is intended to help exporters and importers deal with government reporting requirements. Once the system is operational, traders will provide information only once, and it will then be shared among all federal agencies, saving companies millions of dollars per year and allowing the government to create a real-time trade data system so that government can reac instantly. Our only criticism of ITDS is tha it hs not yet been implemented—althougl Vice President Gore chartered the system ir September 1995, at the time of writing, it is only now at testing stage, and may never be implemented.[54] ITDS is a textbook case o how agencies, in this case the Customs Service, fight to preserve their owr bureacratic power by attempting to kill sucl cross-agency initiatives, even though it woul be cheaper than the planned proprietar Customs system for which they get $1.8 billion in funding.



3. Health-e-App.[55] Low-income children and pregnant women in California can now apply online for public health insurance programs, including Medi-Cal (California's Medicaid) and Healthy Families (California's State Children's Health Insurance Program). By simplifying the application process, allowing for immediate online feedback, and accepting electronic signatures, the average time taken to apply has been cut from 60 minutes to 20 minutes, and successful applicants can now begin receiving benefits immediately. Following a trial run of the program in San Diego County earlier this year, Gov. Gray Davis announced that the program will soon be extended throughout the state.



For some examples of other innovative state and local government Web sites, see:

- **http://governing.com/webwatch.htm**
- **http://www.fcw.com/supplements/sl50/2001/winners.asp**

Appendix I—The Three Pillars of Digital Government—Accessibility, Security, and Privacy

Accessibility, security, and privacy are at the core of making e-government work. Without a system that everyone can use and trust, the proportion of the population interacting with government online is unlikely to grow far beyond the current half of the population who do so now. With these fundamentals in place, we can concentrate on making the system work as well as possible.

Key elements of accessibility include:

- Ensuring that those who do not have a computer at home or work can use public access terminals in libraries or government offices. (On the broader question of access to technology, see PPI's recent paper on the digital divide.[56]

- Seeing that those who cannot obtain a credit card are not unduly disadvantaged in paying their bills, licenses, and fines. One-third of Americans do not have a bank-type credit card (the most widely accepted type).[57] One answer may be for governments to begin accepting payment through electronic transaction services such as www.paypal.com and www.billpoint.com, which allow Internet payments to be made by users using only a checking account. However, for the 10 percent of Americans who do not have a bank account, other solutions need to be found.[58]

- Designing all federal Web sites so that they are accessible to people with disabilities, as section 508 of the U.S. code requires.[59]

- Making government Web sites accessible on mobile devices, such as PDAs and cell phones. The California state government recently made several services, including traffic updates and lottery results, accessible without cost to users of wireless devices.[60] Various other states, including Kansas and Virginia, are placing a high priority on this.[61] Notably, another government that makes online services available to users of wireless devices is the Indian state of Andhra Pradesh.[62]

Maintaining secure and private Web sites should be a priority for government. Yet according to a report by Darrell West (Brown University), only 5 percent of all government Web sites advertise some form of security policy.[63] Likewise, only 7 percent of government Web sites have a privacy policy. **All government Web sites should formulate privacy and security policies and make them available on their sites.** These policies should state clearly that personal information will not be used for purposes other than that for which it was given. Where forms are filled out, users need to be assured that only the required fields will be given to agencies that request it. The sale of personal information to private agencies will prove utterly counterproductive, diminishing consumer confidence in e-government.

Appendix II—Most Frequently Visited Web Sites in February 2001

Government

Rank	Site	Agency	Visitors (M)
1	irs.gov	IRS	6.70
2	fedworld.gov	Federal government portal	4.60
3	nasa.gov	NASA	3.33
4	ca.gov	California state government	2.89
5	ustreas.gov*	U.S. Treasury	2.58
6	nih.gov	National Institutes of Health	2.49
7	ed.gov	Education Department	2.46
8	noaa.gov	National Oceanic and Atmospheric Administration	2.20
9	usgs.gov	U.S. Geological Survey	1.43
10	navy.mil	U.S. Navy	1.41
11	loc.gov	Library of Congress	1.17
12	whitehouse.gov	White House	1.09
13	ssa.gov	Social Security Administration	1.06
14	state.tx.us	Texas state government	1.06
15	treas.gov*	U.S. Treasury	1.05
82	firstgov.gov	Federal government portal	0.02

* Although they are mirror sites, the survey treated ustreas.gov and treas.gov as separate Web sites. Combining them, the U.S. Treasury site recorded 3.63 million unique hits, placing it in third position on the table.

** Represents an aggregation of commonly owned and/or branded domain names.

Overall

Rank	Site	Visitors (M)
1	AOL Time Warner Network**	69.37
2	Microsoft Sites**	59.85
3	Yahoo!**	57.52
4	Lycos**	32.38
5	Excite Network**	30.54
6	About The Human Internet**	23.59
7	Walt Disney Internet Group**	20.94
8	Infospace Impressions**	18.77
9	CNET Networks**	18.44
10	Amazon**	18.05
11	Alta Vista Network**	17.50
12	eBay**	16.95
13	Napster Digital**	16.29
14	NBC Internet Sites**	15.36
15	eUniverse Network**	14.22
44	IRS.gov	6.70

Source: Data on government Web sites from Jupiter Media Metrix, reprinted in McCarthy, S., "Heavy Traffic Travels to Federal Web Sites," *Government Computer News*, 4/30/01. *http://WWW.GCN.COM/vol20_no9/tech-report/4050-1.html*; overall data from Jupiter Media Metrix, Press Release, 3/13/01. *http://www.mediametrix.com/press/releases/20010313.jsp*. The figures are an estimate of the total number of unique visitors that each site received between 2/1/01 and 2/28/01. Since February 2001 data is the most recent available for government Web sites, we have ensured direct comparability by also using February 2001 figures for overall Web site access.

Endnotes

1. The *www.whitehouse.gov* site was launched in 1993. In 1994, Congress went online, as did governments in a number of other countries, including Japan, the United Kingdom, and New Zealand. See Zakon, R., "Hobbes' Internet Timeline v5.3,"*http://www.zakon.org/robert/internet/timeline/*

2. Council for Excellence in Government, *E-Government: The Next American Revolution*, 2001, p.19, *http://www.excelgov.org.*

3. Ibid, p 18.

4. Tanner, L., "Connecting Government" in D. Glover and G. Patmore (eds.) *Labor Essays 2001: For the People* (Sydney: Pluto Press, 2001).

5. Cohen, S. and Eimicke, W., *The Use of the Internet in Government Service Delivery*, PricewaterhouseCoopers Endowment for the Business of Government, 2001, *http://www.endowment.pwcglobal.com*.

6. Accenture, *eGovernment Leadership: Rhetoric vs. Reality—Closing the Gap*, 2001, *http://www.accenture.com,* pp. 7, 10.

7. National Audit Office, *Government on the Web: A Report by the Comptroller and Auditor General*, HC87, The Stationery Office, London, 1999, p. 5, *http://www.nao.gov.uk.*

8. Cook, M., *What Citizens Want From E-Government*, Center for Technology in Government, University at Albany/ SUNY. *http://www.ctg.albany.edu/resources/htmlrpt/e-government/what_citizens_want.html*.

9. *http://www.students.gov.*

10. *http://www.healthfinder.gov.*

11. *http://access.wa.gov.*

12. Sander, T., "E-Government Risks." Presentation delivered at the 2000 NLC Congress of Cities, Dec. 8, 2000, in Boston, Massachusetts, based on data from the National League of Cities. *http://pti.nw.dc.us/links/e_government.html.*

13. *http://success.oracle.com/succst-wwwprd-dcd/plsql/oaw_display.show?i_customer_id=133&i_story_id=1577.*
14. Marc Strassman and Robert Atkinson, *Jump-Starting the Digital Economy (with Department of Motor Vehicles-Issued Digital Certificates)*, PPI, Washington, D.C., 2001. *http://www.ppionline.org.*

15. Blair, T., *The Observer*, May 31, 1998 (untitled article).

16. Salladay, R., "Gateway to Golden State Now Just a Click Away," *San Francisco Chronicle*, 8/1/01, *http://www.sfgate.com.*

17. For example, *www.google.com*, *dmoz.org*, *www.directhit.com*, and *www.teoma.com* are all search engines that rank Web pages by popularity or by the number of pages that are linked to that page. Within government, two search tools that are particularly effective are Washington state's "Ask George" (*http://access.wa.gov/*) and California's "How Do I?" Knowledge Base,*www.ca.gov/state/portal/myca_homepage.jsp*.

18. Cappe, M., *Seventh Annual Report to the Prime Minister on the Public Service of Canada*, Privy Council Office, Ottawa. *http://www.pco-bcp.gc.ca/7rept2000/cover_e.htm.*

19. "TIGERS Goes Fishing." Feb. 28, 2001. http://www.govonline.gov.au/projects/services&innovation/tigers.htm.

20. "TIGERS—Roaring into school." April 9, 2001. *http://www.govonline.gov.au/projects/services&innovation/tigers.htm.*

21. *http://www.ukonline.gov.uk/online/ukonline/leHome.*

22. A full list of federal government Web sites organized around user groups can be found at *http://www.firstgov.gov/topics/interests.html.*

23. NASCIO, *Creating Citizen-Centric Digital Government: A Guide for the States*, NASCIO, Lexington, Ky., , 2001. *http://www.nascio.org/publications/digital_government_report_2001.pdf.*

24. Office of Intergovernmental Solutions and Federal CIO Council, *An Inventory of Federal e-Government Initiatives: A Baseline Documenting the Status of e-Government Implementation*, GSA & CIO Council, Washington, DC, 2001, p 4, *http://www.gsa.gov.*

25. Others have also proposed boosting matching funds for e-government initiatives. See Dawes, S., Bloniarz, P., Kelly, K. and Fletcher, P., *Some Assembly Required: Building a Digital Government for the 21st Century*, Center for Technology in Government, National Science Foundation, Washington, D.C., 1999, p 31. http:// *www.ctg.albany.edu/research/workshop/dgfinalreport.pdf*

26. NASCIO, *The Chief Information Officer*, NASCIO, Lexington, Ky., 1998. *http://www.nascio.org/publications/cio.pdf.* Twenty states responded.

27. NASCIO, *The Role of the State Chief Information Officer*, NASCIO, Lexington, Ky., 2000. *http://www.nascio.org/publications/index.cfm.* Forty-five states responded.

28. Byerly, T., "The Rise of the Local CIO," *Government Technology*, Jan 1999. *http://www.govtech.net/publications/local.us/jan99/localcio/localcio.phtml*

29. Sarkar, D., "E-Gov a Low Priority for Bush," *civic.com*, 5/10/01. *http://www.fcw.com/civic/articles/2001/0507/Web-bush-05-10-01.asp*

30. See *http://www.tbs-sct.gc.ca/news97/0210_e.html*

31. Council for Excellence in Government, *E-Government: The Next American Revolution*, 2001, p. 18, *http://www.excelgov.org.*

32. *http://www.e-envoy.gov.uk.*

33. The UK government's e-envoy reports are available at *http://www.e-envoy.gov.uk/ukonline/progress/montprog.htm.*

34. *http://www.ncgov.com.*

35. *http://www.state.va.us.*

36. *http://www.ca.gov/state/portal/myca_homepage.jsp*. See "E-Government Innovations" in the Democratic Leadership Council's 2001 *State and Local Playbook*. *http://www.ndol.org.*

37. Hayes, H, "Evolving Doors," *Federal Computer Week*, 4/2/01, *http://www.fcw.com.*

38. Armstrong, D., "Blasting away bureaucracy," *San Francisco Chronicle*, 5/13/01. *http://www.sfgate.com.*

39. For a fuller description of how cookies operate, see *http://webopedia.internet.com/TERM/c/cookie.html.*

40. For example, California's portal does not use cookies at all (Paterson, D., "Portal Opens New Doors for California," *Government Technology*, January 2001. *http://www.govtech.net/news/features/news_feature.phtml?docid=2030000000001176*). For a summary of the use of cookies on state legislative Web sites, see OMB Watch, *Plugged In, Tuning Up: An Assessment of State Legislative Web sites*, 2001, OMB Watch, Washington D.C., pp. 22-23. *http://www.ombwatch.org/npadv/2001/stlg/stlg301.pdf.*

41. For more information on the P3P privacy standard, see Shane Ham and Ari Schwartz, "Adopting P3P for Congressional Web Sites: A How-To Guide," Progressive Policy Institute, Washington, D.C., 2001. *http://www.ppionline.org*

42. *http://www.nic.gov/REFERENCE/rfc2146.txt.*

43. Federal Advisory Committee Act 1972. See *http://www.fs.fed.us/r9/foia/faca.html.*

44. OMB Circular A-135 (1994). *http://www.whitehouse.gov/omb/circulars/a135/a135.html.*

45. *https://wws2.wa.gov/dshs/onlinecso/* (for more information about Washington state's online social services, see *http://www.ndol.org*).

46. On e-commerce, see Rob Atkinson, *The Failure of Cyber-Libertarianism: The Case for a National E-Commerce Strategy*, Progressive Policy Institute, Washington, D.C., 2001. *http://www.ppionline.org*

47. A full list of state park Web sites is at *http://www.indiana.edu/~naspd/stateparks.html.*

48. *http://www.acinet.org.*

49. *http://www.ajb.org.*

50. *http://www.servicelocator.org.*

51. *http://www.hud.gov/offices/cpd/communitydevelopment/index.cfm.*

52. The local housing and community development agencies are listed at *http://www.nahro.org/reference/internethousing.cfm.*

53. *http://www.itds.treas.gov/*

54. On the inter-agency disputes that hampered development of ITDS, see Rob Atkinson and Jacob Ulevich, *Digital Government: The Next Step to Reengineering the Federal Government*, 2000, PPI, Washington, D.C. *http://www.ndol.org.*

55. *http://www.healtheapp.org/default.asp.*

56. Andrew Leigh and Rob Atkinson, *Clear Thinking on the Digital Divide*, PPI, Washington, D.C., 2001. *http://www.ppionline.org.*

57. According to the latest figures from the Federal Reserve, 32.4 percent of families did not have a bank-type credit card—the most widely accepted type of card: Kennickell, A., Starr-McCluer, M. and Surette, B., "Recent Changes in U.S. Family Finances: Results from the 1998 Survey of Consumer Finances," *Federal Reserve Bulletin*, January 2000, p. 23. *http://www.federalreserve.gov/pubs/oss/oss2/98/scf98home.html.*

58. The Federal Reserve survey found that 9.5 percent of families did not have a transaction account: Kennickell, A., Starr-McCluer, M. and Surette, B., "Recent Changes in U.S. Family Finances: Results from the 1998 Survey of Consumer Finances," *Federal Reserve Bulletin*, January 2000, p 9. *http://www.federalreserve.gov/pubs/oss/oss2/98/scf98home.html.*

59. *http://www.section508.gov.*

60. For more information, go to *http://www.ca.gov/state/portal/myca_homepage.jsp*, and search for "wireless services."

61. Peterson, S., "Government to Go," *Mobile Government*, May 2001, *http://www.govtech.net.*

62. *http://www.andhrapradesh.com.*

63. West, D., *Assessing E-Government: The Internet, Democracy, and Service Delivery by State and Federal Governments*, 2000, *http://www.brown.edu/Departments/Taubman_Center/polreports/egovtreport00.html.*

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