State and Federal E-Government

in the United States, 2001

by

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Executive Summary

E-government refers to the delivery of government information and services online through the Internet or other digital means. As the Internet has become a major way to communicate with the general public, governmental units are utilizing electronic forms of mass communications to deal with citizens. Digital democracy offers the potential of more efficient public sector service delivery that enhances citizen accountability and governmental responsiveness.

In this report, we study the features that are available online at state and federal government websites, compare the progress between 2000 and 2001, and examine the differences that exist across the 50 states and between the state and federal governments. Using a detailed analysis of 1,680 state and federal government websites, we measure the information and services that are on-line, the kinds of variation that exist across the country as well as between state and national government sites, and how e-government sites respond to citizen requests for information. We compare the results of this analysis undertaken during Summer, 2001 with a comparable study completed in Summer, 2000 of 1,813 state and federal government websites. Funding for both projects was provided by Brown University.

In general, we find that e-government has made good progress over the past year. Comparing 2000 and 2001, we found that more information, services, and interactive features are available online this year, and that governments have made excellent progress on developing "one-stop" portals that integrate web service delivery. While there remain problems in the areas of privacy, security, and special needs populations such as the handicapped, the last year has seen notable progress. We close by making some practical suggestions for improving the delivery of government information and services over the Internet, and enhancing accountability and responsiveness.

Among the more important findings of the research are:
1) there were big improvements in access to publications (93 percent in 2001 versus 74 percent in 2000) and data bases (54 percent in 2001 compared to 42 percent in 2000)
2) of the websites examined this year, 25 percent offered services that were fully executable online, up slightly from the 22 percent that had online services last year
3) the most frequent service was the ability to file taxes online, being able to order publications online, filing complaints, registering vehicle registrations, and ordering hunting licenses
4) a growing number of sites are offering privacy and security policy statements. This year, 28 percent have some form of privacy policy on their site, up from 7 percent in 2000. Eighteen percent now have a visible security policy, up from 5 percent last year
5) Twenty-seven percent of government websites have some form of disability access, up from 15 percent last year
6) only six percent of sites offered any sort of foreign language translation feature, up slightly from the 4 percent we found last year
7) states vary enormously in their overall ranking based on our analysis. Indiana, Michigan, Texas, Tennessee, Washington, California, New York, Pennsylvania, Florida, and Ohio ranked highly while Wyoming, Alabama, New Hampshire, and New Mexico did more poorly
8) in terms of federal agencies, top-rated websites included those by the Food and Drug Administration, Department of Agriculture, Federal Communications Commission, Department of Housing and Urban Development, Internal Revenue Service, Department of Defense, Department of Education, Consumer Product Safety Commission, Department of Health and Human Services, and Small Business Administration. At the low end of the ratings were various judicial sites
9) in general, federal government websites did a better job of offering information and services to citizens than did state government websites

10) government officials were not as responsive this year as was the case last year in terms of responding to email queries. Whereas 91 answered our sample query last year, only 80 percent did this year

A Note on Methodology

Our project adopts a "citizen's perspective" on e-government. In our analysis of government websites, we looked for material that would aid an average citizen logging onto a site. This included contact information that would enable a citizen to find out who to call or write at an agency if there was a problem to be dealt with, material on information, services, and data bases, features that would facilitate e-government access by special populations such as the handicapped and non-English speakers, interactive features that would facilitate democratic outreach, and visible statements that would reassure citizens worried about privacy and security.

This project is based on two sources of data. First, we undertook a comprehensive analysis of 1,680 government websites (1,621 state government websites, the new federal portal firstgov.gov, 45 federal government legislative and executive sites, and 13 federal court sites). Among the sites analyzed were portal or gateway sites as well as those developed by court offices, legislatures, statewide officials, major departments, and state and federal agencies serving crucial functions of government, such as health, human services, taxation, education, corrections, economic development, administration, natural resources, transportation, elections, and agriculture. Web sites for obscure state boards and commissions, local government, and municipal offices were excluded from the study. An average of 32 websites was studied for each individual state so we could get a full picture of what was available to the general public. Tabulation for this project was completed by Sheryl Shapiro and Chris Walther during Summer, 2001.

Rather than surveying state and federal government chief information officials about what they have on line (which has been a research technique employed in other studies), this analysis examined the actual content of state and federal websites. Web sites were evaluated for the presence of 32 different features, such as office phone numbers, office addresses, online publications, online databases, external links to other sites, audio clips, video clips, foreign language or language translation, advertisements, user payments or fees, subject index, various measures of handicap accessibility, several measures of privacy policy, multiple indicators of security policy, presence of online services, the number of online services, links to a government services portal, digital signatures, credit card payments, email addresses, search capability, comment forms, broadcast of events, automatic email updates, and website personalization features.

We looked at the number and type of online services offered. Features were defined as services if the entire transaction could occur online. If a citizen could download a form for a service and then mail it back to the agency for the service, we did not count that as a service that could be fully executed online. Searchable databases counted as services only if they involved accessing information that resulted in a specific government service. Services requiring "non-routine" user fees or payments for access to the services were classified as premium services not accessible to all, and therefore were not included as general public-access services.

In addition, in order to examine responsiveness to citizen requests, we sent an email to the attorney general office in each state (or the state treasurer if no attorney general email address was given). The message was short, asking the question, "I would like to know how much it costs to obtain government documents from your office. Thanks for your help." Email responses were recorded based on whether the office responded and how long it took for the agency to respond. The remainder of this report outlines the detailed results that came out of this research.

Overview of E-Government

In general, e-government has made good progress over the past year in putting material online that enhances citizen access to information and democratic accountability. Both state and federal government websites have placed more information online for citizen access and engaged in a determined effort to make available a variety of online services. On virtually every performance benchmark, there were advances in accessibility between 2000 and 2001.

One important new development has been the creation of online service portals in many states, i.e., single websites that integrate e-government service offerings across different agencies. These portals are a tremendous advantage for ordinary citizens because they reduce the need to log on to different agency websites to order services or find information. Instead, citizens can engage in "one-stop" shopping, and find what they need through a single site that integrates a variety of government websites.

Portals represent an advance because they typically present a more uniform design for particular states. Rather than have a "Tower of Babel" across different government agencies, each with their own language, navigational systems, and organizational style, these "one-stop" portals make it much easier for citizens to access online information and services. Some states, such as Pennsylvania, even have produced innovative marketing campaigns for these portal sites, such as by including the state web address on vehicle license plates.

A portal also has been developed at the federal level in the form of Firstgov.gov, which integrates federal government service offerings. Firstgov provides links to a variety of government agencies as well as the legislative, judicial, and executive branches of government. There furthermore are links to state governments and foreign governments outside the United States.

Recognizing the legal risks of online information and service delivery, a number of government sites have posted liability disclaimers, in which the site notes that in an era of linked sites, it is not responsible for information contained on other sites. For example, the state of New York has links to other governmental agencies and non-governmental organizations, and warns that "Our provision of these links does not imply approval of the listed destinations, warrant the accuracy of any information in those destinations, constitute endorsement of the entities to whose sites the links are made, or endorse any of the opinions expressed on any of these outside Web sites."

While considerable progress has been made this year on information provision and service delivery, there remain continuing challenges in the areas of privacy, security, democratic outreach, and interactive features. Compared to various commercial websites, the public sector lags the private sector in making full use of the technological power of the Internet to improve the lives of citizens and enhance the performance of governmental units.

Online Information

One thing we examined was the availability of basic information at American government websites, and how 2001 patterns compare to 2000. In general, contact information and access to publications and databases were more prevalent this year compared to the previous year. The vast majority of sites provide their department's telephone number (94 percent in 2001, compared to 91 percent in 2000) and address (93 percent as opposed to 88 percent last year).

There were big improvements in access to publications (93 percent in 2001 versus 74 percent in 2000) and data bases (54 percent in 2001 compared to 42 percent in 2000). Government agencies were more careful about providing external links to websites outside the department. Whereas 80 percent had links in 2000, only 69 percent did this year. Given the fears that government officials have about their legal liability for faulty information on linked websites

outside of their agency, many units have reduced the number of links that they provide from their sites.

Government sites have become much better at providing a site index and subject area guides to their websites. While only 33 percent did this last year, 99 percent provided some type of site guide this year.

Percentage of Websites Offering Publications and Databases

	2000	2001
Phone Contact Info.	91%	94%
Address Info	88	93
Links to Other Sites	80	69
Publications	74	93
Databases	42	54
Index	33	99
Audio Clips	5	6
Video Clips	4	9

Similar to the pattern last year, most websites do not incorporate audio clips or video clips into their sites. Only six percent provide audio clips and 9 percent have video clips (up from 4 percent last year).

Services Provided

Fully executable, online service delivery benefits both government and its constituents. In the long run, such services offer the potential for lower cost of service delivery and it makes services more widely accessible to the general public, who no longer have to visit, write, or call an agency in order to execute a specific service. As more and more services are put online, e-government will revolutionize the relationship between government and citizens.

Of the web sites examined this year, 25 percent offered services that were fully executable online. This is up slightly from the 22 percent that had online services last year. Of the sites this year, 75 percent had no services, 15 percent offered one service, 4 percent had two services, and six percent had three or more services (up from two percent in 2000). Even though it is expensive for governments to place services online, both state and federal governments have made a determined effort over the past year to get more services online.

Percentage of Government Sites Offering Online Services

	2000	2001
No Services	78%	75%
One Service	16	15
Two Services	3	4
Three or More Services	2	6

There is a great deal of variation in the services available on state government websites. The most frequent service found was the ability to file taxes online, which was offered by 85 different sites. Other common services included being able to order publications online, filing complaints, registering or renewing vehicle registrations, and ordering hunting licenses.

Ten Most Frequent and Visible Online Services, 2001

File taxes	N=85
Order publications	62

File a complaint	38
Vehicle Reg/Renewal	35
Order Hunting License	29
Request Forms	25
Order Fishing License	23
Order Vital Records	23
Register for Seminars, Conf	21
Shop Online	20

It is common practice for commercial sites to offer goods and services online through the use of credit cards. Of the government websites analyzed, however, 10 percent accepted credit cards, which is up from 3 percent in 2000. This tripling in the number of sites allowing for credit card payments shows that online financial transactions are becoming more accepted or even expected by the general public. Despite federal legislation authorizing digital signatures for financial transactions, less than 1 percent (six sites in all) have incorporated this technology into their sites.

Services by State

Of the 50 states and the federal government analyzed, there was wide variance in the percentage of states' web sites with online services. California was first, with 41 percent of web sites providing some type of service, followed by Pennsylvania (39 percent), Indiana (38 percent), Ohio (35 percent), Arizona (35 percent), and Michigan (35 percent). States offering few services online included Wyoming, New Hampshire, and Rhode Island. It is important to keep in mind that our definition of services included only those services that were fully executable online. If a citizen had to print out a form and mail or take it to a government agency to execute the service, we did not count that as an online service.

Percentage of State and Federal Government Websites Offering Online Services

CA	41%	PA	39%
IN	38	OH	35
AZ	35	MI	35
NE	34	TX	34
KY	34	ME	34
AR	33	KS	33
NJ	33	US	33
TN	32	IL	30
OR	29	FL	27
GA	27	AK	26
ND	26	NY	26
MO	26	MD	25
NC	25	UT	25
IA	24	SC	23
SD	21	DE	21
NV	21	LA	21
MN	20	MS	20
WA	20	WV	19
CO	19	ID	19
WI	19	AL	18

CT	18	HA	18
MA	18	VA	18
NM	15	MT	15
VT	13	OK	12
RI	9	NH	3
WY	0		

Privacy and Security

The virtually unregulated atmosphere of the Internet has prompted many to question the privacy and security of government websites. Public opinion surveys place these areas near the top of the list of citizen concerns about e-government. Thus, having visible statements outlining what the site is doing are a valuable asset for reassuring a fearful population.

Not surprisingly in light of this situation, a growing number of sites are offering policy statements dealing with these topics. In 2001, 28 percent have some form of privacy policy on their site, up from 7 percent in 2000. Eighteen percent now have a visible security policy, up from 5 percent last year.

In order to assess particular aspects of privacy and security, we evaluated the content of these publicly posted statements. For privacy policies, we looked at three particular features, whether the privacy statement prohibited commercial marketing of visitor information, creation of cookies or individual profiles of visitors, or sharing of personal information without the prior consent of the visitor. Only around 10 percent of sites prohibit these three activities, which is about one-third of sites which post a privacy policy. Clearly, more safeguards need to be undertaken in this important area.

In terms of security, only 8 percent of sites say they use computer software to monitor network traffic. This is one way to protect government websites against hackers and other security threats.

Assessment of E-government Privacy and Security Statements

Prohibit Commercial Marketing	12%
Prohibit Cookies	10
Prohibit Sharing Personal Information	13
Use Computer Software to Monitor Traffic	8

Security by State

Despite the importance of security in the virtual world, there are wide variations across states in the percentage of websites showing a security policy. Indiana was the state most likely to show a visible security policy, with 85 percent of its sites including a statement. This was followed by Tennessee (68 percent), Washington (63 percent), Massachusetts (58 percent), and the United States federal government (55 percent). Four states (Arkansas, North Dakota, New Hampshire, and Oregon) failed to have a single site with a security statement.

Percentage of State and Federal Government Websites Showing Security Policy

IN	85%	TN	68%
WA	63	MA	58
US	55	NV	39
CT	36	MI	35
PA	32	OH	29
NJ	27	MD	25

TX	25	UT	25
KY	23	NY	16
SC	16	ID	16
HA	15	VA	15
VT	13	CA	13
NC	13	WI	11
WV	10	DE	9
IL	9	MN	9
CO	6	RI	6
AR	6	FL	6
KS	6	NM	6
AZ	6	LA	6
ME	6	MO	6
WY	4	SD	4
NE	3	AL	3
GA	3	IA	3
OK	3	MT	3
MS	3	AK	0
ND	0	NH	0
OR	0		

Privacy by State

Similar to the security area, there are widespread variations across the states in publishing privacy policies on their websites. The state with the highest percentage of websites offering a visible privacy policy was Indiana (85 percent), followed by Texas (81 percent), the U.S. federal government (81 percent), Washington (77 percent), and Tennessee (68 percent). Two states (Oregon and South Dakota) do not offer privacy statements online.

Percentage of State and Federal Government Websites with Privacy Features

IN	85%	TX	81%
US	81	WA	77
TN	68	MA	61
VA	58	FL	55
NV	48	MD	47
MI	41	CA	41
CT	39	NY	32
OH	32	PA	32
NJ	30	KY	29
ID	28	NC	28
ND	26	UT	25
DE	24	KS	24
ME	23	MO	23
IA	18	MN	17
WV	16	RI	16
AR	15	VT	13
SC	13	NE	13
GA	12	HA	12
IL	12	MS	11

WI	11	*AK*	9
AZ	9	*LA*	9
AL	6	*NM*	6
WY	4	*CO*	3
OK	3	*MT*	3
NH	3	*OR*	0
SD	0		

Disability Access

Disability access is vitally important to citizens who are hearing impaired, visually impaired, or suffer from some other type of handicap. If a site is ill-equipped to provide access to individuals with disabilities, the site fails in its attempt to reach out to as many people as possible. Twenty-seven percent of government websites had some form of disability access using one of four measures that we employed. This is up from 15 percent last year.

To be recorded as accessible to the disabled, the site had to have any one of four separate features. First, it could display a TTY (Text Telephone) or TDD (Telephonic Device for the Deaf) phone number, which allows hearing-impaired individuals to contact the agency by phone. Second, the site could be "Bobby Approved," meaning that the site has been deemed disability-accessible by a non-profit group that rates internet web sites for such accessibility (http://www.cast.org/bobby/).   Third, the site could have web accessibility features consistent with standards mandated by groups such as the World Wide Web Consortium (W3C) or legislative acts, including Section 508 of the Rehabilitation Act of 1973. Fourth, the website could have a text version of the site or text labels for graphics, which are helpful for visually impaired individuals.

The most common way government websites provided handicap accessibility was through TTY/TDD phone lines, a feature that was available on 16 percent of sites. Eight percent offered text versions of their site or text labels for graphical images. Five percent were Bobby approved, and four percent were compliant with W3C or Section 508 regulations.

Percent of State and Federal Government Websites Having Four Types of Handicap Accessibility

TTY/TDD Phone Lines	16%
Bobby Approved	5
W3C or Section 508 Compliant	4
Text Version	8

Disability Access by State

When looking at disability access by individual states, it is clear there is tremendous variation in the percentage of each state's sites that are accessible. The states doing the best job on disability access are Maine (60 percent of their sites are accessible), Illinois (58 percent), Minnesota (54 percent), the U.S. federal government (53 percent), and Connecticut (48 percent).

Percentage of State and Federal Government Websites with Disability Access

ME	60%	*IL*	58%
MN	54	*US*	53
CT	48	*ND*	48
OR	47	*RI*	47
WA	47	*VA*	39

MD	39	MT	38
NH	35	KS	33
WY	32	KY	31
MO	31	CO	31
NY	29	TX	28
UT	28	DE	27
AK	26	WI	26
NC	25	NE	25
AR	24	MI	24
PA	23	CA	22
FL	21	LA	21
VT	20	HA	18
SD	18	SC	16
TN	16	OK	15
IN	15	IA	12
MA	12	AZ	12
NJ	10	OH	10
WV	10	GA	9
AL	6	NM	6
MS	6	ID	3
NV	3		

Foreign Language Access

Many business sites have foreign language features on their websites that allow access to non-English speaking individuals. Unfortunately, government sites have made little progress on this front. In our analysis, only six percent of sites offered any sort of foreign language translation feature, up slightly from the 4 percent we found last year that offered translation. By foreign language feature, we mean any accommodation to the non-English speaker, from a text translation into a different language to translating software available for free on the site to translate pages into a language other than English.

Texas leads the list with 38 percent of its sites having foreign language adaptability; The U.S. government comes in second with 24 percent of their sites providing non-English accessibility, followed by Oregon (21 percent), North Carolina (13 percent), and Florida.

Percentage of State and Federal Government Websites with Foreign Language Translation

TX	38%	US	24%
OR	21	NC	13
FL	12	MD	11
NY	10	CA	9
ID	9	CT	9
DE	9	IA	9
TN	6	RI	6
GA	6	MA	6
IN	6	MS	6
NJ	3	WA	3
OH	3	SC	3
CO	3	UT	3
AR	3	HA	3

IL	3	KS	3
NV	3	VA	3
LA	3	MT	3
KY	3	MN	3
MO	3	AK	0
AL	0	AZ	0
ME	0	MI	0
ND	0	NE	0
NH	0	NM	0
OK	0	PA	0
SD	0	VT	0
WI	0	WV	0
WY	0		

Ads and User Fees

Overall, use of ads to finance government websites has not become more prevalent. Whereas last year, 2 percent of sites had commercial advertisements on their sites, meaning non-governmental corporate and group sponsorships, this year it was the same (2 percent). When defining an advertisement, we eliminated computer software available for free download (such as Adobe Acrobat Reader, Netscape Navigator, and Microsoft Internet Explorer) since they are necessary for viewing or accessing particular products or publications. Links to commercial products or services available for a fee were included as advertisements as were banner, pop-up, and fly-by advertisements.

Examples of advertisements on the states' sites were for commercial tax preparation companies, golf courses, footwear manufacturers, IMAX theaters, American Express, Alamo and Dollar Rent-A-Car, Delta Airlines, amusement parks, IBM, various hotels, resorts, restaurants, Book4golf.com, and Xerox. The majority of advertisements were located on state tourism sites.

Government units that had the largest percentage of websites with commercial advertising were Washington (10 percent of all its sites), West Virginia (10 percent), Virginia (6 percent), and Louisiana (6 percent).

Furthermore, two percent of state and federal sites required user fees to access information and services, including archived databases of judicial opinions and up-to-the-minute legislative updates. A growing concern of e-government is that without adequate funding and support, states will increase the use of commercial advertisements and begin charging citizens for the right to access public information in order to generate the necessary revenue. The first creates potential conflicts of interest, while the latter exacerbates the digital divide between rich and poor.

Government units that had the highest percentage of websites with user fees included the U.S. federal government (19 percent of its sites), Indiana (12 percent), Kansas (12 percent), Maine (9 percent), Nebraska (9 percent), and Maryland (8 percent).

Democratic Outreach

One of the most promising aspects of e-government is its ability to bring citizens closer to their governments. While the technology to facilitate this connection is readily available, many government sites have not taken full advantage of its benefits. Government websites tend to offer more basic information than features that make their websites interactive. This interactivity is what serves as a democratic outreach—facilitating communication between citizens and government.

Percentage of State and Federal Government Websites Offering Democratic Outreach

	2000	**2001**
Email	68%	84%
Search	48	52
Comments	15	5
Email Updates	5	9
Broadcast	2	7
Personalization	0	1

In our examination of state and federal government websites, we looked for several key features within each website that would facilitate this connection between government and citizen. The first of these features is email capability. In this instance, we determined whether a visitor to the website could email a person in the particular department other than the Webmaster. If a person can merely look at information on a government website without being able to contact the department regarding specific substantive problems (as opposed to questions of web design directed at the Webmaster), the potential for two-way interaction is thwarted. In 2001, 84 percent had email addresses, up from 68 percent last year. The high percentage of email addresses on government websites indicates that email is now a viable third means of at-home contact with government agencies, along with telephone and mail services.

While email is certainly the easiest method of contact, there are other methods that government websites can employ to facilitate democratic conversation. These include areas to post comments (other than through email), the use of message boards, surveys, and chat rooms. Websites using these features allow citizens and department members alike to read and respond to others' comments regarding issues facing the department. This technology is nowhere near as prevalent as email—only 5 percent of websites offer this feature.

Fifty-two percent of the sites we examined had the ability to search the particular website. This is a feature that is helpful to citizens because it allows them to find the specific information they want. Seven percent offer live broadcasts of important speeches or events ranging from live coverage of the Senate or House of Representatives hearings and broadcasts of a Governor's State of the State Address, to weekly Internet radio shows featuring various department officials. Nine percent of government websites allows citizens to register to receive updates regarding specific issues. With this feature, a web visitor can input their email address, street address, or telephone number to receive information about a particular subject as new information becomes available. The information can be in the form of a monthly e-newsletter highlighting an attorney general's recent opinions to alerts notifying citizens whenever a particular portion of the website is updated. One percent of sites allow for personalization of the site in order to tailor the website information directly to the individual viewer. This means for example that a textile manufacturer could see information relevant for his or her particular industry as opposed to a standard set of information. Some state portal pages are beginning to apply this technology (California and Michigan, for instance) by allowing users to customize the site to highlight the information that they indicate as the most important and useful.

Email Responsiveness

While it is important to have email addresses available on government websites, they serve no purpose unless someone actually reads and responds to the messages he receives. To

test democratic responsiveness, we sent sample email messages asking for information regarding the cost of government documents to the attorney general in each state. If the attorney general did not have an email address, we would then contact the state treasurer. We monitored their responses to see whether anyone responded and how long it took in days.

Government officials were not as responsive this year as was the case last year. Whereas 91 percent answered our question last year, only 80 percent did this year. Response times also were longer with only 52 percent responding within a single day, down from 73 percent in 2000. Eleven percent took five days or more to respond. Last year, our test was a single query about when the particular government office was open. The weaker results this year suggests that government officials need to make greater progress on organizing their staffs to handle email queries from citizens, not just letters and phone calls as currently is the case.

Ten states that did not respond to this email request included the attorney general offices in Alaska, California, Kentucky, Missouri, Nebraska, Ohio, Oklahoma, Pennsylvania, Virginia, and Wyoming.

Response Time	2000	2001
None	9%	20%
One day	73	52
Two days	6	12
Three days	4	2
Four days	4	2
Five days	3	4
Six days or more	1	6

Overall State E-Government Ranking

In order to see how the 50 states ranked overall, we created a 0 to 100 point e-government index for each website based on the availability of contact information, publications, databases, portals, and number of online services. Four points were awarded each website for the presence of each of the following 22 features: phone contact information, addresses, publications, databases, links to other sites, audio clips, video clips, foreign language access, not having ads, not having user fees, any kind of disability access, having privacy policies, security policies, an index, allowing digital signatures on transactions, an option to pay via credit cards, email contact information, search capabilities, areas to post comments, broadcasts of events, option for email updates, and allowing for personalization of the website. These features provided a maximum of 88 points for particular websites.

Each site then qualified for a bonus of six points if it were a portal site or linked to a portal site, and another six points based on the number of online services executable on that site (1 point for one service, two points for two services, three points for three services, four points for four services, five points for five services, and six points for six or more services).). Only two percent of government websites had six or more services. The e-government index therefore ran along a scale from 0 (having none of these features, no portal, or no online services) to 100 (having all 22 features plus having a portal and at least six online services). This total for each website was averaged across all of a specific state's web sites to produce a 0 to 100 overall rating for that state. On average, we assessed 32 government websites in each state across the executive, legislative, and judicial branches of government.

The top state in our ranking was Indiana at 52.3 percent. This means that every website we analyzed in that state had slightly more than half the features important for information availability, citizen access, portal access, and service delivery. Other states which scored well included Michigan (51.3 percent), Texas (50.9 percent), Tennessee (49.0 percent), Washington

(47.6 percent), California (46.3 percent), New York (45.8 percent), Pennsylvania (45.7 percent), Florida (45.6 percent), and Ohio (45.2 percent).

The states achieving the lowest rankings were Wyoming (31.5 percent), Alabama (33.0 percent), New Hampshire (33.0 percent), and New Mexico (33.3 percent). This means that the average website in these states had about one-third of the e-government features. In general, large states ranked more highly in this study than small states owing to the economies of scale and budget resources available in bigger states.

IN	52.3	MI	51.3
TX	50.9	TN	49.0
WA	47.6	CA	46.3
NY	45.8	PA	45.7
FL	45.6	OH	45.2
NC	44.1	ND	44.0
VA	43.2	ME	43.0
LA	42.8	MA	42.6
UT	42.6	NJ	42.4
AR	42.3	MT	42.3
OR	42.2	SD	41.8
IA	41.8	CT	41.4
MO	41.2	WI	41.0
SC	40.7	MD	40.6
CO	40.5	KY	40.5
NE	40.4	MN	40.4
NV	40.2	KS	39.8
DE	39.7	IL	39.5
GA	39.1	HA	38.1
ID	37.2	AK	37.2
WV	36.5	MS	35.5
VT	35.2	RI	34.8
OK	33.4	AZ	33.4
NM	33.3	NH	33.0
AL	33.0	WY	31.5

Overall Federal Agency E-Government Ranking

Federal sites were rated on the same dimensions as the 50 states. An identical e-government index was devised that rated federal websites on contact information, publications, databases, portals, and number of online services. The unit of analysis was the individual federal agency.

Overall, federal government websites did better than the states on our e-government index. The federal government clearly has made much more rapid progress on e-government than many of the 50 states.

However, there was considerable variation among the 59 federal agencies and departments we assessed. At the high end, the Food and Drug Administration achieved a score of 87 percent, compared to 78 percent for the Department of Agriculture, 76 percent for the Federal Communications Commission, 75 percent for the Department of Housing and urban Development, 72 percent for the Internal Revenue Service, 71 percent for the Department of Defense, 71 percent for the Department of Education, 70 percent for the Consumer Product

Safety Commission, 70 percent for the Department of Health and Human Services, and 70 percent for the Small Business Administration.

At the low end of the ratings were the various circuit court of appeals. The ten lowest performers on our e-government index came in the federal judiciary. Their score ranged from 24 to 38 percent.

Food Drug Admin	87		
Dept of Agriculture	78	Fed Commun Comm	76
Housing/Urban Dev	75	Internal Revenue Serv	72
Dept of Defense	71	Dept of Education	71
Cons Product Safety	70	Health/Human Serv	70
Small Bus Admin	70	Dept of Treasury	69
Soc Security Admin	68	Dept Transportation	68
Postal Service	68	Natl Science Found	66
Library of Congress	64	Veterans Affairs	63
Dept of Energy	62	Env Protect Agency	62
Gen Services Admin	62	Dept of Labor	62
NASA	62	Sec/Exchange Comm	62
Fed Reserve	59	Gen Account Office	59
Dept of Commerce	58	Eq Employ Opp	58
House of Rep.	58	Cong Budget Office	56
FirstGov portal	56	Fed Trade Comm	56
Dept of Interior	54	Dept of Justice	54
Nat Transp Safety	54	Senate	54
Dept of State	54	White House	54
Govt Printing Office	53	Cent Intelligence Ag	52
Fed Elect Comm	52	4th Circuit Ct Appeals	50
Office Man Budget	50	Fed Deposit	48
Natl Endow Human	48	Supreme Ct	48
US Trade Rep	48	Natl Labor Relations	46
Natl Endow Arts	44	Fed Circuit Ct Appeal	41
6th Circuit Ct Appeals	38	10th Circuit Ct Appea	36
2nd Circuit Ct Appeal	36	5th Circuit Ct Appeals	36
9th Circuit Ct Appeals	36	1st Circuit Ct Appeals	32
3rd Circuit Ct Appeal	32	7th Circuit Ct Appeals	32
8th Circuit Ct Appeal	28	11th Circuit Ct Appea	24

State-Federal Differences

Since we examined both state and federal government websites, we can compare the two levels of government to see how each is faring. In general, federal sites are systematically ahead of the states. For example, there are substantial differences in the area of citizen access to online databases. Whereas 90 percent of federal government sites had databases, only 53 percent of state sites did so. On electronic services, 34 percent of federal government sites offer some kind of services, compared to 24 percent of state sites.

The federal government also has made greater progress in the area of disability access (54 percent of sites offer some form of disability access compared to 26 percent of state sites). Eighty-one percent of federal sites offer a privacy policy, compared to 26 percent of state government websites. Fifty-six percent of federal sites have a visible, online security policy,

compared to 16 percent of those in the states. Twenty-seven percent of federal sites offer the option of credit card payments, compared to 9 percent of state websites.

	U.S. Federal Sites	State Sites
Database	90%	53%
Services	34	24
Disability Access	54	26
Privacy Policy	81	26
Security Policy	56	16
Publications	98	93
Comment	19	5
Links to Other Sites	81	68
Link to Portal	64	43
Foreign Language	25	5
Email	86	84
Ads	0	2
User Fees	19	2
Credit Cards	27	9
Searches	80	51
Email Updates	41	8

Differences by Branch of Government

There were some differences in e-government across branches of government. Legislative sites have the greatest percentage of databases, audio clips, and video clips. Executive sites have the most external links to other websites and are more likely to have privacy and security policies, disability access, and online services. Judicial pages generally were comparable to legislative sites, but lagged executive pages on some features, such as contact information, external links, and privacy statements. They also are less likely to offer services than the executive branch of government.

	Executive	Legislative	Judicial
Phone	97%	86%	88%
Address	96	82	89
Publication	95	88	87
Database	51	75	61
Links	71	60	52
Audio Clip	5	27	1
Video Clip	7	29	6
Foreign Lang	6	3	4
Ads	2	0	1
User Fees	1	3	6
Privacy	29	15	13
Security	19	5	10
Disability	28	16	18
Services	27	6	7
Link to Portal	46	33	25

Credit Cards	9	4	6
Email	87	84	55
Search	52	35	54
Comment	5	3	2
Broadcast	4	36	4
Updates	9	6	8
Personalization	1	1	1

Conclusions

To summarize, we find that considerable progress had been made in e-government information and services over the past year. There have been big improvements in access to publications and databases, and in the creation of portals. More websites are offering online services. A growing number of sites are offering privacy and security policy statements. Nearly twice as many government websites have some form of disability access. Each of these advances improves citizen access to government information, and puts the average citizen in a stronger position to hold leaders accountable.

Despite the potential of e-government, there remain major challenges. Most government websites need to make progress at incorporating services and interactive technologies into e-government. As it stands right now, there are problems in terms of access and democratic outreach that need to be addressed. While there have been improvements, a relatively small proportion of sites, for example, offer access to the disabled or non-English speakers. Many do not have visible security or privacy policies. More efforts need to be devoted to serving populations with special needs so that all have access to online material.

One of the virtues of the web is the capacity for interactivity. While the private sector has gained expertise in allowing consumers to tailor commercial websites to their particular interests, most government agencies have not yet managed to do this. Few sites use push technology to provide information to citizens with particular interests or needs. Most do not allow for website personalization.

Progress has been made in state and federal governments creating websites that have more uniform, integrated, and standardized navigational features. This is crucial because Internet information and service delivery often has had weak consistency across websites. Government agencies guard their autonomy very carefully, and it has taken a while to get agencies to work together to make the task of citizens easier to undertake. Common navigational systems help the average citizen make use of the wealth of material that is online. Our hope is that as the e-government revolution evolves and new technology emerges, that citizens will have an easier time navigating government websites.

In looking toward the future, it is important that all states create government portals which serve as the gateway to a particular state's websites and that offer a "one-stop" web address for online services. A number of states have adopted portals and have put in one place services for citizens, businesses, and government agencies. This is a tremendous help to citizens interested in making use of online resources.

Having created governmental portals, both state and federal governments need to publicize the existence of these service portals to the average citizen. According to a 2000 national survey conducted by Hart/Teeter for the Council for Excellence in Government, a non-profit organization, only 54 percent of Americans have logged onto a federal government website. While some of this access problem reflects lack of availability to computers and the Internet, some citizens clearly need to be educated as to the existence of online services in their state as well as the federal government.

Marketing tools are required in order to publicize the existence of e-government information and services. States and the federal government should consider such steps as placing the portal address on public documents, putting the address on vehicle license places (as done by the state of Pennsylvania, for example), and using televised public service announcements would help the average citizen learn where to go to make use of existing information and services, such as Firstgov.gov.

Governments need to figure out how to take advantage of features that enhance democratic accountability. Simple tools such as website search engines are important because such technologies give citizens the power to find the information they want on a particular site. Right now, only half of government websites are searchable, which limits the ability of ordinary citizens to find information that is relevant to them.

The same logic applies in regard to features that allow citizens to post comments or otherwise provide feedback about a government agency. Citizens bring diverse perspectives and experiences to e-government, and agencies benefit from citizen suggestions, complaints, and feedback. Even a simple feature such as a comment form empowers citizens and gives them an opportunity to voice their opinion about government service delivery.

The issue of how to pay for portals and other e-government costs remains a pressing challenge in the public sector. While a few sites employ commercial advertising and user fees, there are risks either in commercializing e-government or relying on user fees. The former creates potential conflicts of interest for government agencies if their websites become dependent on commercial revenue. The latter disenfranchises people of more limited means and widens the digital divide between rich and poor in the United States. Our view is that e-government is a valuable part of the public sector and needs to be supported with tax dollars. In the long run, a flourishing e-government offers the potential of improved service delivery with enhanced democratic accountability.

Appendix

Note: The following table shows the percentage of websites in each state and the U.S. federal government that have each feature, such as phone numbers, addresses, and publications.

Table A-1 Individual State/Fed Profiles for Contact Info., Publications, and Databases (%)							
	Phone	*Address*	*Pubs*	*Data*	*Links*	*Audio*	*Video*	*ForLan*
AK	91%	97	88	76	41	15	26	0
AL	94	88	85	48	70	6	6	0
AR	100	91	97	70	61	12	18	3
AZ	97	68	74	65	56	0	9	0
CA	94	91	100	78	59	6	16	9
CO	91	94	94	78	53	6	3	3
CT	94	97	97	52	55	0	12	9
DE	97	97	94	48	55	0	12	9
FL	97	94	100	79	61	6	24	12
GA	91	88	100	58	45	12	21	6
HA	100	97	100	39	39	0	3	3
IA	97	91	100	73	61	9	9	9
ID	97	100	100	59	53	6	6	9
IL	100	100	100	70	52	9	9	3
IN	97	94	97	71	71	0	9	6
KS	97	97	91	67	61	6	0	3
KY	100	100	97	60	69	14	3	3
LA	100	100	97	71	71	12	12	3
MA	97	97	94	30	61	0	6	6
MD	97	97	89	64	58	6	3	11
ME	100	100	97	60	66	3	6	0
MI	100	97	97	74	82	15	18	0
MN	97	94	100	69	69	9	6	3
MO	100	100	97	74	63	11	9	3
MS	91	94	89	49	83	0	6	6
MT	100	97	97	47	74	3	0	3
NC	94	94	100	53	72	9	9	13
ND	97	97	84	32	58	6	6	0
NE	94	94	94	66	84	0	6	0
NH	85	88	91	38	71	3	0	0
NJ	100	97	93	33	53	3	13	3
NM	94	85	100	39	73	3	3	0
NV	100	100	97	45	91	9	9	3
NY	97	90	100	65	81	6	10	10
OH	90	94	94	48	81	6	10	3
OK	76	94	88	36	85	9	6	0
OR	97	97	94	82	71	9	18	21
PA	84	84	100	35	77	13	16	0
RI	94	94	72	34	72	0	0	6
SC	90	94	90	32	61	0	13	3
SD	100	100	86	25	79	14	11	0
TN	97	94	94	42	77	3	6	6

TX	97	91	88	50	91	13	16	38
US	97	98	98	90	81	14	24	24
UT	94	91	75	28	75	3	9	3
VA	91	94	85	21	88	6	3	3
VT	93	83	100	30	93	0	3	0
WA	97	93	83	40	83	0	0	3
WI	85	89	96	33	67	15	4	0
WV	81	81	87	61	87	0	6	0
WY	64	72	80	24	68	12	12	0

Note: The following table shows the percentage of websites in each state and the U.S. federal government that have each feature, such as ads, user fees, and services.

Table A-2 Individual State/Fed Profiles for Ads, User Fees, and Services (%)							
	Ads	UserFee	Services	Portal Link	Digital Sign	Credit Card	Email
AK	0%	0	26	0	0	18	85
AL	3	0	18	3	0	0	79
AR	0	0	33	58	0	6	85
AZ	3	0	35	0	0	9	65
CA	3	0	41	59	0	19	88
CO	0	0	19	63	0	9	63
CT	0	0	18	6	0	3	76
DE	0	0	21	64	0	3	79
FL	3	0	27	64	0	15	85
GA	0	6	27	30	0	15	82
HA	0	0	18	45	0	15	73
IA	0	0	24	58	0	3	88
ID	0	3	19	0	0	3	91
IL	0	0	30	6	0	12	73
IN	3	12	38	100	0	21	85
KS	0	12	33	27	0	12	97
KY	0	0	34	6	0	14	77
LA	6	3	21	56	0	9	88
MA	0	0	18	45	0	15	88
MD	3	8	25	8	0	6	94
ME	0	9	34	60	0	20	80
MI	3	0	35	97	0	12	94
MN	3	3	20	0	0	3	89
MO	0	0	26	14	0	0	97
MS	0	0	20	6	0	6	83
MT	3	6	15	74	0	9	91
NC	0	0	25	91	0	9	78
ND	3	0	26	84	0	10	97
NE	0	9	34	59	3	9	91
NH	0	0	3	0	0	0	71
NJ	0	0	33	87	0	17	83
NM	0	0	15	0	0	0	79
NV	0	0	21	0	3	21	79

NY	0	0	26	81	0	13	81
OH	0	0	35	90	0	10	84
OK	0	0	12	0	0	3	85
OR	0	0	29	3	0	6	91
PA	0	0	39	77	3	16	90
RI	0	0	9	0	0	0	72
SC	0	0	23	77	0	10	87
SD	4	0	21	82	0	11	93
TN	3	0	32	100	0	13	87
TX	3	0	34	81	0	13	84
US	0	19	33	64	0	26	86
UT	3	0	25	84	3	3	84
VA	6	0	18	82	0	6	73
VT	3	0	13	0	0	0	90
WA	10	0	20	73	3	20	93
WI	0	0	19	78	0	15	74
WV	10	0	19	0	0	6	87
WY	4	0	0	0	0	0	68

Note: The following table shows the percentage of websites in each state and the U.S. federal government that have each feature, such as disability access, privacy, and security statements.

Table A-3 Individual State/Fed Profiles for Disability Access, Privacy, and Security								
	Search	*Comment*	*Broadcast*	*Update*	*Personalization*	*Disab. Access*	*Priv*	*Secur*
AK	29%	0	12	3	0	26	9	0
AL	18	0	9	0	0	6	6	3
AR	24	9	12	18	0	24	15	6
AZ	32	0	12	12	0	12	9	6
CA	81	9	16	9	6	22	41	13
CO	66	0	6	6	0	31	3	6
CT	64	15	9	15	0	48	39	36
DE	24	0	6	0	3	27	24	9
FL	45	0	15	15	6	21	55	6
GA	52	3	15	6	6	9	12	3
HA	52	6	3	3	0	18	12	15
IA	55	3	12	3	0	12	18	3
ID	41	6	3	6	0	3	28	16
IL	48	6	6	0	0	58	12	9
IN	91	12	9	12	0	15	85	85
KS	39	12	3	0	0	33	24	6
KY	57	6	6	3	0	31	29	23
LA	53	9	15	15	0	21	9	6
MA	42	6	6	6	0	12	61	58
MD	50	8	6	3	3	39	47	25
ME	37	9	3	9	0	60	23	6
MI	85	6	12	21	6	24	41	35
MN	66	9	9	11	3	54	17	9
MO	60	9	11	6	0	31	23	6

MS	37	6	3	3	0	6	11	3
MT	62	6	0	12	3	38	3	3
NC	44	3	0	6	3	25	28	13
ND	71	0	3	19	6	48	26	0
NE	22	3	3	3	0	25	13	3
NH	26	3	3	9	0	35	3	0
NJ	67	0	3	0	3	10	30	27
NM	33	3	0	0	0	6	6	6
NV	24	9	9	3	0	3	48	39
NY	58	3	10	6	3	29	32	16
OH	68	0	10	3	0	10	32	29
OK	30	0	0	3	0	15	3	3
OR	71	3	12	21	0	47	0	0
PA	65	10	6	10	3	23	32	32
RI	63	0	0	3	0	47	16	6
SC	39	0	10	13	3	16	13	16
SD	57	0	4	18	0	18	0	4
TN	81	3	0	6	0	16	68	68
TX	84	6	13	22	0	28	81	25
US	79	17	7	40	5	53	81	55
UT	59	3	6	9	0	28	25	25
VA	55	3	0	3	3	39	58	15
VT	30	0	3	3	0	20	13	13
WA	57	3	0	10	0	47	77	63
WI	48	11	4	4	0	26	11	11
WV	65	0	6	10	0	10	16	10
WY	48	0	12	0	0	32	4	4