

Global E-Government, 2002

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September, 2002

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Executive Summary

This report presents the second annual update on global e-government, i.e., the delivery of public sector information and online services through the Internet. Many governmental units across the world have embraced the digital revolution and placed a wide range of materials on the web from publications to databases. Since global e-government still is in its infancy, it is a perfect time to measure the extent of web service delivery, compare differences that exist across nations, and see how the 2002 results compare to 2001.

In this report, we study the features that are available online at national government websites. Using a detailed analysis of 1,197 government websites in 198 different nations, we measure the information and services that are online, chart the variations that exist across countries, and discuss how e-government sites vary by region of the world.

In general, we found that e-government has shown improvements over the previous year. Every region of the world has improved its e-government performance on nearly every indicator. However, there are continuing problems in the areas of privacy and security that need to be addressed. We close our report by making several practical suggestions for improving the delivery of government information and services over the Internet.

Among the more important findings of the research are:

- 1) 12 percent of government websites offered services that are fully executable online, up from 8 percent in 2001*
- 2) the most frequent services are ordering publications, making travel reservations, searching and applying for jobs, applying for passports, and renewing vehicle licenses*
- 3) 77 percent of websites provide access to publications and 83 percent have links to databases (the latter being up from 41 percent in 2001)*
- 4) 14 percent of government websites feature a one-stop services "portal" or have links to a government portal*
- 5) 14 percent (up from 6 percent in 2001) show privacy policies, while 9 percent (up from 3 percent in 2001) have security policies*
- 6) 33 percent of government websites have some form of disability access, meaning access for persons with disabilities. This is a dramatic improvement over the 2 percent which had disability access last year*
- 7) 19 percent of agencies responded to our email responsiveness test, 75 percent did not, and 6 percent had broken email links or addresses that prevented a response*
- 8) English has become the most commonly used language of e-government. Seventy-eight percent of national government websites have an English version, which is up from 72 percent in 2001*
- 9) 43 percent of sites are multilingual, meaning that they offer information in two or more languages*
- 10) countries vary enormously in their overall e-government performance based on our analysis. The most highly ranked nations include Taiwan, South Korea, Canada, United States, Chile, Australia, China, Switzerland, Great Britain, and Singapore*
- 11) there were major differences in e-government performance based on region of the world. In general, countries in North America score the highest, followed by Asia, Western Europe, Eastern Europe, Middle East, South America, Central America, Pacific Ocean Islands, Russia and Central Asia, and Africa. However, every region showed gains compared to the previous year.*

A Note on Methodology

In our analysis of websites, we looked for material that would aid an average citizen logging onto a governmental site. This included contact information that would enable a citizen to find out who to call or write at an agency to resolve a problem, material on information, services, and databases, features that would facilitate e-government access by special populations such as the disabled and non-native language speakers, interactive features that would facilitate outreach to the

public, and visible statements that would reassure citizens worried about privacy and security over the Internet. During the course of our study, we looked at a wide variety of political and economic systems, from monarchies, federated systems, and presidential democracies to parliamentary systems, dictatorships, and communist countries. In each system analyzed, we employed the same type of criteria in order to be able to compare the results across countries.

The data for our analysis consisted of two sources. First, we undertook an assessment of 1,197 national government websites for the 198 nations around the world (see Appendix for the full list of countries). We analyzed a range of sites within each country to get a full sense of what is available in particular nations. Among the sites analyzed were those of executive offices (such as a president, prime minister, ruler, party leader, or royalty), legislative offices (such as Congress, Parliament, or People's Assemblies), judicial offices (such as major national courts), Cabinet offices, and major agencies serving crucial functions of government, such as health, human services, taxation, education, interior, economic development, administration, natural resources, foreign affairs, foreign investment, transportation, military, tourism, and business regulation. Websites for subnational units, obscure boards and commissions, local government, regional units, and municipal offices were not included in this study. The analysis was undertaken during June and July, 2002 at Brown University in Providence, Rhode Island. Tabulation for this project was completed by Aiko Wakao, Jason Holman, Marilia Ribeiro, Umut Ones, Irina Paley, Bill Heil, Josh Loh, and Yen-Ling Chang. National government website addresses can be found at www.OutsidePolitics.org/world.html.

The regional breakdowns for the websites we studied were 24 percent from Western European countries, followed by 17 percent from Asia, 14 percent from Africa, 8 percent Eastern Europe, 8 percent the Middle East, 7 percent from Central America, 7 percent Russia and Central Asia (such as the areas of the former Soviet Union), 6 percent North America (which included Canada, the United States, and Mexico), 4 percent South America, and 4 percent Pacific Ocean countries (meaning those off the continent of Asia).

Regardless of the type of system or cultural background of a country, websites were evaluated for the presence of various features dealing with information availability, service delivery, and public access. Features assessed included the name of the nation, region of the world, and having the following features: office phone number, office address, online publications, online database, external links to non-governmental sites, audio clips, video clips, non-native languages or foreign language translation, commercial advertising, premium fees, restricted areas, user payments, disability access, privacy policy, security features, presence of online services, number of different services, links to a government services portal, digital signatures, credit card payments, email address, search capability, comment form or chat-room, broadcast of events, automatic email updates, website personalization, and an English version of the website.

For e-government service delivery, we looked at the number and type of online services offered. Features were defined as services only if the entire transaction could occur online. If a citizen had to print out a form and then mail it back to the agency to obtain 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 response.

Where national government websites were not in English, our research team employed foreign language readers who translated and evaluated national government websites. In some cases, we have made use of foreign language translation software available online through <http://babelfish.altavista.com>. Some of the non-English websites were assessed in part through English translations of portions of the websites.

In addition, we undertook an email responsiveness test in which we sent the following email, "I would like to know what hours your agency is open during the week. Thanks for your help." Email responses were recorded based on whether the office responded with an answer to the question and how long it took for each agency to respond in business days. This test was designed to measure public sector responsiveness to email questions.

Overview of Global E-Government

There were several important new developments in global e-government over the past year. In terms of information availability, many countries have made considerable progress at putting publications, forms, and databases online for citizen access. Government agencies have discovered that it is very efficient for the general public to be able to download common documents rather than having to visit or call the particular agency.

However, many countries have not made similar progress in placing official government services online. There is wide variation across countries and by region of the world in the extent to which citizens can access government services through the Internet. While some governments offices offer services online, most (88 percent) do not.

In terms of foreign language translation, non-English speaking countries in Asia and Europe have more English translations of their websites than those countries in Africa and Latin America. Developing countries tend to target foreign visitors and international investment possibilities more than domestic users on their websites. This is illustrated by the fact that tourism and foreign affairs websites often are much better developed than government offices serving domestic clientele.

Many global sites do not present many visible safeguards in terms of privacy, security, copyright, or other legal notices regarding displayed information. Despite the risks of hackers, cyber-attacks, and compromised security, there remains a need for continuing advancement in these areas. In addition, compared to 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. In general, national government websites do not take advantage of the interactive and two-way communications features of the Internet.

The regions of the world that have made the greatest progress on e-government are those in North America, Asia, and Europe. Reflecting the values of those areas, countries in these locales tend to utilize more advanced technology and put more information online. However, nearly every country needs to work to insure easier navigation, more common designs, and more standardized features in order to make it easy for citizens to move from site to site.

Online Information

In looking at specific features of government websites, we wanted to see how much material was available that would help citizens contact government agencies and navigate websites. In general, contact information is quite prevalent, and there were improvements over the 2001 results. The vast majority of sites provide their department's telephone number (77 percent) and mailing address (77 percent). These are materials that would help an ordinary citizen needing to contact a government agency reach that office.

In terms of the content of online material, many agencies have made extensive progress at placing information online for public access. Seventy-seven percent of government websites around the world offered publications that a citizen could access, and 83 percent (up from 41 percent in 2001) provided databases. Eighty-two percent had links to external, non-governmental sites where a citizen could turn for additional information, which is up from 42 percent in 2001.

Percentage of Websites Offering Publications and Databases

	2001	2002
<i>Phone Contact Info.</i>	70%	77%
<i>Address Info</i>	67	77
<i>Links to Other Sites</i>	42	82
<i>Publications</i>	71	77

<i>Databases</i>	41	83
<i>Audio Clips</i>	4	8
<i>Video Clips</i>	4	15

As a sign of the early stage of global e-government, most public sector websites do not incorporate audio clips or video clips on their official sites. Despite the fact that these are becoming much more common features of e-commerce and private sector enterprise, only 8 percent of government websites provided audio clips and 15 percent have video clips (up from 4 percent in 2001). A common type of audio clip was a national anthem or a musical selection

Services Provided

Fully executable, online service delivery benefits both government and its constituents. In the long run, such services have the potential to lower the costs of service delivery and make services more widely accessible to the general public, because they 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 websites examined around the world, however, only 12 percent offer services that are fully executable online, which is up from 8 percent in 2001. Of this group, 7 percent offer one service, 2 percent have two services, and three percent have three or more services. Eighty-eight percent have no online services.

Number of Online Services

	2001	2002
None	92%	88%
One	5	7
Two	1	2
Three or more	2	3

The most frequently found service on government websites was ordering publications, followed by travel reservations, searching and applying for jobs, applying for passports, and renewing vehicle licenses.

Most Frequent Online Services, 2002

Order Publications	N=18 sites
Travel reservation	7
Search and Apply for Jobs	6
Apply for Passports	5
Renewal of vehicle license	5
File complaints/police reports	5
Order birth/death certificates	4
File taxes	4
Apply for patents	3
Check exam results	3

North America (including the United States, Canada, and Mexico) is the area offering the highest percentage of online services. Forty-one percent (up from 28 percent in 2001) had fully executable, online services. This was followed by Asia (26 percent), the Middle East (15 percent), the Pacific Ocean islands (14 percent), and Western Europe (10 percent). Only 1 percent in

Russia/Central Asia and 2 percent of sites in Eastern Europe and Africa offered online government services.

Percentage of Government Sites Offering Online Services by Region of World

	2001	2002
<i>North America</i>	28%	41%
<i>Pacific Ocean Islands</i>	19	14
<i>Asia</i>	12	26
<i>Middle East</i>	10	15
<i>Europe</i>	9	10
<i>Eastern Europe</i>	--	2
<i>Central America</i>	4	4
<i>South America</i>	3	7
<i>Russia/Central Asia</i>	2	1
<i>Africa</i>	2	2

One of the features that has slowed the development of online services has been an inability to use credit cards and digital signatures on financial transactions. On commercial sites, it is becoming a more common practice to offer goods and services online for purchase through the use of credit cards. However, of the government websites analyzed, only 1 percent accepted credit cards and two-tenths of 1 percent allowed digital signatures for financial transactions (both the same as last year). Among the sites having a capacity for digital signatures were the Singapore governmental portal and Japan's Public Management office.

Services by Top Nations

Of the 198 nations analyzed, there is wide variance in the percentage of government sites with online services. The Bahamas, Vanuatu, Chile, and South Korea are first, with 100 percent of their websites providing some type of service, followed by Taiwan (74 percent), China (53 percent), North Korea (50 percent), Germany (47 percent), Hong Kong (44 percent), the United States (44 percent), and Australia (43 percent). 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.

Percent of National Sites Offering Online Services

<i>Bahama</i>	100%	<i>Vanuatu</i>	100%
<i>Chile</i>	100	<i>S. Korea</i>	100
<i>Taiwan</i>	74	<i>China</i>	53
<i>N. Korea</i>	50	<i>Germany</i>	47
<i>Hong Kong</i>	44	<i>United States</i>	44
<i>Australia</i>	43	<i>Malawi</i>	33
<i>Mauritania</i>	33	<i>Tunisia</i>	33
<i>Turkey</i>	33	<i>Fiji</i>	33
<i>Japan</i>	33	<i>Canada</i>	32
<i>Luxembourg</i>	31	<i>Jordan</i>	29
<i>Malaysia</i>	27	<i>Senegal</i>	25

Privacy and Security

Public opinion surveys in various countries place concerns over privacy and security at the top of the list of citizen worries about e-government. Having visible statements outlining what the site is doing on privacy and security are valuable assets for reassuring a fearful population and encouraging citizens to make use of e-government services and information. However, few global e-government sites offer policy statements dealing with these topics. Only 14 percent (up from 6 percent in 2001) of examined sites have some form of privacy policy on their site, and 9 percent have a visible security policy. Both of these are areas that government officials need to take much more seriously. Unless ordinary citizens feel safe and secure in their online information and service activities, e-government is not going to grow very rapidly.

	2001	2002
Privacy	6%	14%
Security	3	9

Security by Top Nations

Despite the importance of security in the virtual world, there are wide variations across nations in the percentage of websites showing a security policy. The countries most likely to show a visible security policy were Togo, Tuvalu, Uruguay, Chile, and South Korea, all with 100 percent of their sites including a statement. This was followed by Australia (93 percent), Canada (89 percent), Singapore (81 percent), United States (54 percent), Great Britain (35 percent), and Taiwan (35 percent). Most other nations did not have sites with a security statement.

Top Countries in Security Policy

<i>Togo</i>	100%	<i>Tuvalu</i>	100%
<i>Uruguay</i>	100	<i>Chile</i>	100
<i>S. Korea</i>	100	<i>Australia</i>	93
<i>Canada</i>	89	<i>Singapore</i>	81
<i>United States</i>	54	<i>Great Britain</i>	35
<i>Taiwan</i>	35	<i>Uganda</i>	20
<i>St Lucia</i>	17	<i>Hong Kong</i>	17
<i>Poland</i>	9	<i>Belgium</i>	8
<i>Japan</i>	7	<i>Germany</i>	5
<i>All others</i>	0		

Privacy by Top Nations

Similar to the security area, there are widespread variations across the nations in providing privacy policies on their websites. The countries with the highest percentage of websites offering a visible privacy policy were Australia, Togo, Tuvalu, Vanuatu, Chile, and South Korea, all with 100 percent of their sites featuring a privacy statement. These nations were followed by Taiwan (96 percent), China (93 percent), Canada (89 percent), Singapore (88 percent), United States (76 percent), and Great Britain (50 percent). Most other countries did not offer privacy statements online.

Top Countries in Privacy Features

<i>Australia</i>	100%	<i>Togo</i>	100%
<i>Tuvalu</i>	100	<i>Vanuatu</i>	100
<i>Chile</i>	100	<i>S. Korea</i>	100
<i>Taiwan</i>	96	<i>China</i>	93
<i>Canada</i>	89	<i>Singapore</i>	88

<i>United States</i>	76	<i>Great Britain</i>	50
<i>Israel</i>	43	<i>Hong Kong</i>	22
<i>Uganda</i>	20	<i>Ireland</i>	18
<i>St. Lucia</i>	17	<i>Armenia</i>	17
<i>France</i>	11	<i>Poland</i>	9
<i>Belgium</i>	8	<i>Brazil</i>	8
<i>Czech Rep</i>	7	<i>Japan</i>	7
<i>Turkey</i>	3	<i>All others</i>	0

Disability Access

There has been considerable progress on disability access. Whereas only 2 percent of government websites had some form of disability access last year, 33 percent do in 2002. To be recorded as accessible to the disabled, the site had to display features that would be helpful to the hearing or visually impaired. For example, TTY (Text Telephone) or TDD (Telephonic Device for the Deaf) phone numbers allow 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 of the national government.

Foreign Language Access

About half (43 percent) of national government websites have foreign language features that allow access to non-native speaking individuals. By foreign language feature, we mean any accommodation to the non-native speakers in a particular country, such as text translation into a different language. Ninety-five countries had no language translation on their site other than their native tongue.

	2001	2002
Foreign Language Translation	45%	43%

Ads, User Fees, and Premium Fees

Many nations are struggling with the issue of how to pay for electronic governance. As shown below, twice as many government websites in 2002 were likely to rely on ads (8 percent) as was true in 2001. However, ads are much more prevalent than user fees (1 percent) or premium fees (0 percent). The only country that has started to move into premium fee areas is Canada (and to a lesser extent Australia). Five percent of Canadian public sector websites had areas requiring payment to enter.

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.

	2001	2002
Ads	4%	8%
User Fees	--	1
Premium Fees	--	0

Tourism was the government sector most likely to have advertisements. For example, the Geographia Travel Service and Caribbean Tourism Organization had commercials on the Antigua and Barbuda tourism site. The Information Center for Scientific Research and Encyclopedia Britannica advertised on the Bhutan tourism site. Jetsave Travel had spots on the Cook Islands tourism portal, while CentralEurope.com, Radiocontact.ro (a radio agency), and Net-on.com (a net ad solution company) had commercials on the Romanian tourism website.

Other examples of public sector website advertisements included Turkmen Telecom on the Turkmenistan Communications page, Estat.com on the Algerian Finance site, World Road Congress on the South African transportation page, Healingsites.net on the Nigerian ports page, the American Heart Association on the Croatian Health Department page, Knowledgewave.org on the New Zealand government page, Bahraintoday.net on the Bahrain page, Absolute agency (a dating service) on the Russian Federation Agriculture page, and Mongolamedia.com on the Mongolia Foreign Affairs website.

Countries that had the largest percentage of websites with commercial advertising were Afghanistan, Mexico, Moldova, Bahama, Bahrain, Peru, Qatar, Turkmenistan, Uruguay, Vanuatu, Bhutan, Central Africa Republican, Chile, Cuba, Antigua, and South Korea. Each of these nations had ads on all their sites. This was followed by Argentina (69 percent), Kuwait (67 percent), China (53 percent), Nigeria (50 percent), Niue (50 percent), Bolivia (50 percent), and Kazakhstan (50 percent).

Examples of countries relying on user fees included visa applications in Singapore, Australia, and Hong Kong as well as access to court record charges in some U.S. Circuit Courts.

Restricted Areas

Some countries have started to develop restricted areas on their websites that require a username and password for accessibility. Sometimes, this is for security reasons, while other times, it occurs through an interest in personalizing service delivery. This year, 6 percent of government websites across the world had restricted areas.

Examples of website restrictions included access to bulletin boards, forums, and newsgroups (Algeria, Chad, Taiwan, Malaysia, and Mexico), transportation and accommodation reservations in Taiwan, Ireland, and the Dominican Republic, the Resource Center on the Malaysia Trade and Industry page, and Intranets on the pages of Venezuela, Canada, Guatemala, and Indonesia.

Countries Having Largest Number of Websites with Restricted Areas

<i>Mexico</i>	100%	<i>Tuvalu</i>	100%
<i>Venezuela</i>	100	<i>Zambia</i>	100
<i>Chad</i>	100	<i>Chile</i>	100
<i>Gabon</i>	100	<i>Iran</i>	100
<i>S. Korea</i>	100	<i>Bolivia</i>	50
<i>Comoros</i>	50	<i>China</i>	47
<i>Taiwan</i>	39	<i>Malawi</i>	33
<i>Mauritania</i>	33	<i>Pakistan</i>	33
<i>Bangladesh</i>	33	<i>Indonesia</i>	30
<i>Malaysia</i>	27	<i>Albania</i>	25
<i>Dominican Rep</i>	25	<i>Canada</i>	21
<i>Uganda</i>	20	<i>Algeria</i>	20
<i>New Zealand</i>	14	<i>Croatia</i>	14

Public Outreach

E-government offers the potential to bring citizens closer to their governments. Regardless of the type of political system that a country has, the public benefits from interactive features that facilitate communication between citizens and government. In our examination of national government websites, we looked for various features that would help citizens contact government officials and make use of information on websites.

Email is an interactive feature that allows ordinary citizens to pose questions of government officials or request information or services. In our study, we found that 75 percent (up from 73 percent in 2001) of government websites offered email contact material so that a visitor could email a person in a particular department other than the Webmaster.

Percentage of Government Websites Offering Public Outreach

	2001	2002
<i>Email</i>	73%	75%
<i>Search</i>	38	54
<i>Comments</i>	8	33
<i>Email Updates</i>	6	10
<i>Broadcast</i>	2	2
<i>Website Personalization</i>	--	1

While email is certainly the easiest method of contact, there are other methods that government websites can employ to facilitate public feedback. These include areas to post comments (other than through email), the use of message boards, 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 less prevalent than email, with 33 percent of websites offering this feature.

Fifty-four percent of the sites we examined had the ability to search the particular website. Two percent of sites offer live broadcasts of important speeches or events ranging from coverage of the government hearings and broadcasts of public speeches to weekly Internet radio shows featuring various department officials. Ten percent of government websites allow citizens to register to receive updates regarding specific issues. With this feature, web visitors can input their email addresses, street addresses, or telephone numbers 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 a prime minister's views or in the form of alerts notifying citizens whenever a particular portion of the website is updated. One percent of sites allow websites to be personalized to the interests of the visitor.

Email Responsiveness

It is useful to have email contact information on government websites, but this material is not helpful unless there is someone who actually answers the email. In order to test how responsive various governments were to citizen inquiries, we sent email messages to each of the 1,197 government websites we assessed. Our message was a simple question: "I would like to know what hours your agency is open during the week. Thanks for your help." We tracked whether agencies responded, and if so, how many business days it took them to respond.

As shown below, only 19 percent of agencies responded to our question, 75 percent did not, and 6 percent had broken email links or addresses that prevented a response. Twelve percent responded within one day, three percent took two days, two percent responded in three days, and two percent replied in four or more days.

	2002 Email Responsiveness
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Broken Link or Address	6
No Response	75%
One Day	12
Two Days	3
Three Days	2
Four Days	1
Five Days or More	1

Top E-Government Countries

In order to see how the 198 nations ranked overall, we created a 0 to 100 point e-government index and applied it to each nation's websites based on the availability of contact information, publications, databases, portals, and number of online services. Four points were awarded to each website for the presence of each of the following features: phone contact information, addresses, publications, databases, links to other sites, audio clips, video clips, foreign language access, not having ads, not having premium fees, not having restricted areas, not having user fees, disability access, having privacy policies, security policies, having a portal connection, 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 option for website personalization. These features provided a maximum of 96 points for particular websites.

Each site then qualified for a bonus of four 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, and four points for four or more services). Only 3 percent of government websites had four or more services. The e-government index therefore ran along a scale from 0 (having none of these features and no online services) to 100 (having all features plus at least four online services). Totals for each website within a country were averaged across all of that nation's websites to produce a 0 to 100 overall rating for that nation.

The top country in our ranking is Taiwan at 72.5 percent. This means that every website we analyzed for that nation has nearly three-quarters of the features important for information availability, citizen access, portal access, and service delivery. Other nations that score well on e-government include South Korea (64.0 percent), Canada (61.1 percent), United States (60.1 percent), Chile (60.0 percent), Australia (58.3 percent), China (56.3 percent), Switzerland (55.4 percent), Great Britain (54.8 percent), and Singapore (53.5 percent). The Appendix lists e-government scores for each of the 198 countries, plus comparisons between 2001 and 2002. In general, most countries scored higher this year compared to 2001.

Top E-Government Countries

<i>Taiwan</i>	72.5	<i>South Korea</i>	64.0
<i>Canada</i>	61.1	<i>United States</i>	60.1
<i>Chile</i>	60.0	<i>Australia</i>	58.3
<i>China</i>	56.3	<i>Switzerland</i>	55.4
<i>Great Britain</i>	54.8	<i>Singapore</i>	53.5
<i>Germany</i>	52.6	<i>Mexico</i>	52.0
<i>Bahrain</i>	52.0	<i>Qatar</i>	52.0

Differences by Region of World

There are some differences in e-government by region of the world. In looking at the overall e-government scores by region, North America scores the highest (60.4 percent), followed by Asia (48.7 percent), Western Europe (47.6 percent), Eastern Europe (43.5 percent), Middle East (43.2

percent), South America (42.0 percent), Central America (41.2 percent), Pacific Ocean Islands (39.5 percent), Russia and Central Asia (37.2 percent), and Africa (36.8 percent). These generally are higher than the 2001 regional ratings.

E-Government Ratings by Region

	2001	2002
North America	51.0%	60.4%
Western Europe	34.1	47.6
Eastern Europe	--	43.5
Asia	34.0	48.7
Middle East	31.1	43.2
Russia/Central Asia	30.9	37.2
South America	30.7	42.0
Pacific Ocean Islands	30.6	39.5
Central America	27.7	41.4
Africa	23.5	36.8

In looking at regional differences by particular feature, North America and Asian nations rank most highly on services, while North America, Asia, and Western Europe score highest on access to publications. The areas having the greatest access to foreign language translation included Eastern Europe, Western Europe, Russia/Central Asia, and the Middle East.

	Nor Am	Cent Am	S. Am	Wes Eur	Eas Eur	Rus	Mid Eas	Afri	Asia	Pac Oc
<i>Phone</i>	78	80	62	76	67	67	66	77	80	77
<i>Address</i>	99	80	64	81	75	66	66	72	81	78
<i>Publication</i>	100	69	73	86	82	76	77	52	84	49
<i>Database</i>	92	82	73	90	85	77	86	66	93	61
<i>Links</i>	85	83	91	90	88	65	83	66	89	55
<i>Audio Clip</i>	23	6	9	8	4	6	8	6	6	2
<i>Video Clip</i>	33	17	18	12	5	4	15	5	30	6
<i>Foreign Lang</i>	33	8	18	62	94	53	52	11	44	2
<i>Ads</i>	0	19	31	2	5	16	7	5	9	8
<i>Prem Fee</i>	1	0	0	0	0	0	0	0	0	0
<i>User Fee</i>	5	0	0	0	0	0	0	0	2	2
<i>Restrict</i>	14	6	7	2	2	2	3	5	15	6
<i>Privacy</i>	80	1	4	6	1	1	5	1	27	33
<i>Security</i>	63	1	4	3	0	0	0	1	13	29
<i>Disability</i>	30	25	33	42	37	16	27	51	22	29
<i>Services</i>	41	3	7	10	2	1	15	2	26	14
<i>Link to Portal</i>	51	5	36	6	5	6	10	8	22	14
<i>Credit Cards</i>	9	0	0	1	0	0	1	1	2	4
<i>Digital Sign</i>	0	0	0	0	0	0	0	0	2	0
<i>Email</i>	87	87	93	79	77	58	81	60	76	49
<i>Search</i>	81	44	51	72	50	46	42	26	61	41
<i>Comment</i>	32	51	27	45	12	2	40	18	43	29
<i>Broadcast</i>	12	2	4	3	0	0	1	1	2	2
<i>Updates</i>	27	14	4	14	3	3	8	4	11	14

<i>Personal</i>	6	0	0	1	0	0	1	0	0	0
<i>English</i>	100	45	27	76	100	68	83	76	85	100

Conclusions

To summarize, we find that progress has been made over the past year in the extent to which helpful material has been placed online. Most countries are putting more information online and providing disability access. Many nations also have developed plans designed to implement new e-government initiatives. While there are considerable variations in what each country would like to accomplish in this area, most places see great potential in incorporating the Internet as a tool for economic development and public outreach. In the long-run, we expect e-government to create a new dimension to the relationship between governments and citizens.

However, in order for progress to be made, more work needs to be undertaken by central governments to upgrade e-government. Aside from publications and links to other sources of information, few countries offer online services or describe their privacy and security policies. In addition, three-quarters of national government agencies do not respond to simple email requests for information. This impedes the ability of the Internet to serve as a two-way channel of communications between governments and citizens.

There are a number of steps countries need to take in order to improve navigation and provide access to information. One of the weaknesses of many national websites has been their inconsistency in terms of design features. Government agencies guard their autonomy very carefully, and it has taken a while to get agencies to work together to make the tasks of citizens easier to undertake. Common navigational systems help the average citizen make use of the wealth of material that is online.

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 services they would like to see. Governments should consider market research, public opinion surveys, or focus groups that would provide them with information on how citizens feel about e-government websites and what features would attract them to use these sites. This would help them design updates and service enhancements that would satisfy the interests of their particular users.

Clearly, a major challenge of e-government is the up-front costs of developing a website and putting information and services online. Right now, many nations appear to be undertaking these tasks in isolation from other nations, thereby robbing each country of the opportunity to achieve economies of scale that would lower the per unit cost of e-government websites. Smaller and poorer countries should undertake regional e-government alliances that would allow them to pool resources and gain greater efficiency at building their infrastructure. These efforts at regional cooperation are valuable because they put countries in a position where they can share knowledge and expertise as well as lower their overall costs.

Appendix

Note: The following table shows e-government rank orderings for the 198 countries, from most highly ranked to least highly ranked.

Taiwan	72.5	South Korea	64.0
Canada	61.1	United States	60.1
Chile	60.0	Australia	58.3
China	56.3	Switzerland	55.4
Great Britain	54.8	Singapore	53.5
Germany	52.6	Vanuatu	52.0
Bahrain	52.0	Qatar	52.0
Vatican	52.0	Japan	52.0
Mexico	52.0	Togo	52.0
Fiji	52.0	Zambia	52.0
Malaysia	51.5	Hong Kong	51.3
Israel	50.9	France	50.9
Yemen	50.0	Iceland	49.8
Sweden	49.1	Finland	48.8
Lithuania	48.4	Italy	48.3
Liechtenstein	48.0	Colombia	48.0
Cuba	48.0	Belize	48.0
Marshall Islands	48.0	Ireland	48.0
Estonia	48.0	Maldives	48.0
Botswana	48.0	Venezuela	48.0
Norway	47.7	Austria	47.4
St. Lucia	47.3	Malta	47.2
Uganda	47.2	Denmark	47.0
El Salvador	47.0	Ecuador	47.0
Senegal	47.0	Latvia	46.9
Trinidad	46.4	Jordan	46.3
Swaziland	46.2	Turkey	46.0
Malawi	45.3	Belgium	45.3
Kyrgyzstan	45.3	Poland	45.1
India	45.1	Macedonia	45.1
Lebanon	45.0	Spain	44.9
Luxembourg	44.6	Czech Republic	44.6
Iran	44.0	Nepal	44.0
Thailand	44.0	Grenada	44.0
Netherlands	44.0	Kenya	44.0
Angola	44.0	Tunisia	44.0
Sudan	44.0	Mozambique	44.0
Haiti	44.0	Croatia	43.4
Armenia	43.3	Guyana	42.7
Bosnia	42.7	Philippines	42.4
New Zealand	42.3	Hungary	42.3
South Africa	42.0	Cape Verde	42.0
Romania	42.0	Brazil	41.8

Argentina	41.8	Slovenia	41.7
Greece	41.5	Azerbaijan	41.3
Bulgaria	41.1	Egypt	41.0
Morocco	40.9	Cambodia	40.8
Indonesia	40.8	Costa Rica	40.7
Mauritius	40.6	Slovakia	40.5
Bahamas	40.0	Djibouti	40.0
Laos	40.0	Paraguay	40.0
Dominican Republic	40.0	Syria	40.0
Moldova	40.0	Tonga	40.0
Cyprus (Turkish Rep)	40.0	Yugoslavia	40.0
Liberia	40.0	Jamaica	40.0
Ethiopia	40.0	Tajikistan	40.0
Micronesia	40.0	Tuvalu	40.0
Panama	39.5	Seychelles	39.0
Andorra	39.0	Sri Lanka	38.7
Guatemala	38.7	Georgia	38.7
Cook Islands	38.7	Burkina Faso	38.4
Saudi Arabia	38.0	Vietnam	38.0
Barbados	38.0	Arab Emirates	38.0
Cyprus-Republic	38.0	Guinea	37.3
Mauritania	37.3	Pakistan	37.3
Mongolia	37.1	Russia	36.8
Portugal	36.4	St. Kitts	36.0
Peru	36.0	Rwanda	36.0
Palau	36.0	Eritrea	36.0
North Korea	36.0	Somalia	36.0
Chad	36.0	Kiribati	36.0
Zimbabwe	36.0	Lesotho	36.0
St. Vincent	36.0	Antigua	36.0
Oman	36.0	Samoa	36.0
San Marino	36.0	Honduras	36.0
Madagascar	36.0	Sao Tome	36.0
Kazakhstan	36.0	Brunei	35.5
Algeria	35.2	Myanmar	34.9
Cameroon	34.9	Comoros	34.0
Albania	34.0	Mali	34.0
Tanzania	33.8	Iraq	33.6
Belarus	33.2	Bolivia	32.0
Ukraine	32.0	Monaco	32.0
Uruguay	32.0	Nicaragua	32.0
Ghana	32.0	Suriname	32.0
Gabon	32.0	Gambia	32.0
Afghanistan	32.0	Equatorial Guinea	32.0
Libya	32.0	Kuwait	32.0
Sierra Leone	32.0	Niger	32.0
Central Africa	32.0	Nigeria	32.0
Somalia	32.0	Solomon Islands	30.4
Niue	30.0	Bangladesh	29.3

Turkmenistan	28.0	Namibia	28.0
Congo Dem Rep	28.0	Bhutan	28.0
Ivory Coast	28.0	Uzbekistan	27.3
Benin	26.0	Papua New Guinea	25.3
Burundi	24.0	Congo (Rep)	24.0
Nauru	24.0	East Timor	24.0
Guinea-Bissau	20.0	Dominica	16.0

Country	2001	2002
Afghanistan	16.0%	32.0%
Albania	30.7	34.0
Algeria	28.7	35.2
Andorra	20.0	39.0
Angola	26.4	44.0
Antigua	32.0	36.0
Arab Emirates	26.1	38.0
Argentina	38.0	41.8
Armenia	35.3	43.3
Australia	50.7	58.3
Austria	36.8	47.4
Azerbaijan	20.5	41.3
Bahamas	39.7	40.0
Bahrain	26.2	52.0
Bangladesh	28.5	29.3
Barbados	30.6	38.0
Belarus	26.2	33.2
Belgium	38.0	45.3
Belize	23.8	48.0
Benin	18.6	26.0
Bhutan	28.0	28.0
Bolivia	38.0	32.0
Bosnia	34.1	42.7
Botswana	25.3	48.0
Brazil	33.8	41.8
Brunei	32.7	35.5
Bulgaria	34.5	41.1
Burkina Faso	19.6	38.4
Burundi	14.6	24.0
Cambodia	29.6	40.8
Cameroon	22.2	34.9
Canada	49.6	61.1
Cape Verde	24.0	42.0
Central Africa	16.0	32.0
Chad	20.0	36.0
Chile	32.6	60.0
China	30.2	56.3
Colombia	25.7	48.0

Comoros	20.0	34.0
Congo (Rep)	8.0	24.0
Congo Dem Rep	30.0	28.0
Cook Islands	29.5	38.7
Costa Rica	30.6	40.7
Croatia	32.6	43.4
Cuba	24.6	48.0
Cyprus (Turkish Rep)	20.0	40.0
Cyprus-Republic	30.8	38.0
Czech Republic	26.1	44.6
Denmark	37.0	47.0
Djibouti	32.0	40.0
Dominican Republic	12.0	40.0
Dominica	27.2	16.0
East Timor	--	24.0
Ecuador	30.7	47.0
Egypt	33.0	41.0
El Salvador	35.6	47.0
Equatorial Guinea	16.0	32.0
Eritrea	26.7	36.0
Estonia	36.2	48.0
Ethiopia	30.5	40.0
Fiji	24.4	52.0
Finland	40.2	48.8
France	40.1	50.9
Gabon	22.7	32.0
Gambia	19.5	32.0
Georgia	32.7	38.7
Germany	40.6	52.6
Ghana	26.1	32.0
Great Britain	47.1	54.8
Greece	34.2	41.5
Grenada	26.0	44.0
Guatemala	28.0	38.7
Guinea	12.3	37.3
Guinea-Bissau	8.0	20.0
Guyana	30.8	42.7
Haiti	13.0	44.0
Honduras	27.3	36.0
Hong Kong	--	51.3
Hungary	33.0	42.3
Iceland	38.3	49.8
India	31.8	45.1
Indonesia	30.0	40.8
Iran	33.4	44.0
Iraq	24.0	33.6
Ireland	46.9	48.0
Israel	46.2	50.9
Italy	37.8	48.3

Ivory Coast	20.0	28.0
Jamaica	32.3	40.0
Japan	34.9	52.0
Jordan	28.1	46.3
Kazakhstan	20.0	36.0
Kenya	26.7	44.0
Kiribati	20.0	36.0
Kuwait	28.7	32.0
Kyrgyzstan	26.0	45.3
Laos	30.0	40.0
Latvia	33.8	46.9
Lebanon	31.3	45.0
Lesotho	40.0	36.0
Liberia	17.3	40.0
Libya	32.0	32.0
Liechtenstein	26.6	48.0
Lithuania	35.1	48.4
Luxembourg	35.9	44.6
Macedonia	29.7	45.1
Madagascar	26.0	36.0
Malawi	28.0	45.3
Malaysia	39.0	51.5
Maldives	32.5	48.0
Mali	20.0	34.0
Malta	27.6	47.2
Marshall Islands	18.6	48.0
Mauritania	36.0	37.3
Mauritius	29.4	40.6
Mexico	33.1	52.0
Micronesia	28.0	40.0
Moldova	21.6	40.0
Monaco	29.3	32.0
Mongolia	32.3	37.1
Morocco	36.0	40.9
Mozambique	16.0	44.0
Myanmar	26.8	34.9
Namibia	26.0	28.0
Nauru	12.0	24.0
Nepal	32.7	44.0
Netherlands	32.6	44.0
New Zealand	36.8	42.3
Nicaragua	27.7	32.0
Niger	18.7	32.0
Nigeria	15.2	32.0
Niue	24.0	30.0
North Korea	24.0	36.0
Norway	36.5	47.7
Oman	29.1	36.0
Pakistan	28.8	37.3

Palau	28.0	36.0
Panama	28.4	39.5
Papua New Guinea	21.6	25.3
Paraguay	29.0	40.0
Peru	36.1	36.0
Philippines	32.8	42.4
Poland	32.0	45.1
Portugal	17.5	36.4
Qatar	12.8	52.0
Romania	30.7	42.0
Russia	32.5	36.8
Rwanda	30.7	36.0
Samoa	28.0	36.0
San Marino	27.7	36.0
Sao Tome	22.0	36.0
Saudi Arabia	36.8	38.0
Senegal	26.0	47.0
Seychelles	27.6	39.0
Sierra Leone	27.0	32.0
Singapore	43.4	53.5
Slovenia	32.0	41.7
Solomon Islands	37.6	30.4
Somalia	19.8	32.0
Somalialand	20.0	36.0
South Africa	34.2	42.0
South Korea	33.4	64.0
Spain	32.8	44.9
Sri Lanka	29.8	38.7
St. Kitts	40.0	36.0
St. Lucia	37.0	47.3
St. Vincent	33.4	36.0
Sudan	23.0	44.0
Suriname	26.0	32.0
Swaziland	16.2	46.2
Sweden	29.4	49.1
Switzerland	37.7	55.4
Syria	24.0	40.0
Taiwan	52.5	72.5
Tajikistan	30.0	40.0
Tanzania	17.6	33.8
Thailand	30.8	44.0
Togo	26.0	52.0
Tonga	21.3	40.0
Trinidad	24.4	46.4
Tunisia	23.8	44.0
Turkey	30.3	46.0
Turkmenistan	28.0	28.0
Tuvalu	24.0	40.0
Uganda	20.5	47.2

Ukraine	30.4	32.0
United States	57.2	60.1
Uruguay	28.4	32.0
Uzbekistan	20.0	27.3
Vanuatu	30.0	52.0
Vatican	40.0	52.0
Venezuela	9.3	48.0
Vietnam	32.8	38.0
Yemen	26.7	50.0
Yugoslavia	19.7	40.0
Zambia	22.5	52.0
Zimbabwe	16.0	36.0

Note: The following table shows the percentage of websites in each country that have each feature, such as online services, publications, databases, privacy policies, security policies, and disability accessibility.

	<i>Online Services</i>	<i>Publications</i>	<i>Databases</i>	<i>Privacy Policy</i>	<i>Security Policy</i>	<i>Disability Accessibility</i>
Afghanistan	0%	0%	100%	0%	0%	0%
Albania	0	75	50	0	0	50
Algeria	0	60	100	0	0	0
Andorra	25	75	100	0	0	75
Angola	0	100	100	0	0	0
Antigua	0	100	0	0	0	0
Arab Emirates	0	50	100	0	0	0
Argentina	0	77	92	0	0	31
Armenia	17	100	100	17	0	0
Australia	43	100	86	100	93	29
Austria	23	100	100	0	0	23
Azerbaijan	0	67	100	0	0	33
Bahamas	100	100	100	0	0	0
Bahrain	0	100	100	0	0	0
Bangladesh	0	67	33	0	0	0
Barbados	17	67	83	0	0	33
Belarus	0	69	85	0	0	8
Belgium	0	100	100	8	8	25
Belize	0	65	12	0	0	0
Benin	0	0	100	0	0	0
Bhutan	0	0	0	0	0	0
Bolivia	0	100	100	0	0	0
Bosnia	0	67	100	0	0	0
Botswana	0	100	0	0	0	0
Brazil	15	69	31	8	0	0
Brunei	0	38	63	0	0	13
Bulgaria	0	57	86	0	0	0
Burkina Faso	0	80	100	0	0	0

Burundi	0	100	100	0	0	0
Cambodia	0	80	80	0	0	20
Cameroon	0	44	71	0	0	57
Canada	32	100	100	89	89	16
Cape Verde	0	100	100	0	0	0
Central Africa	0	0	100	0	0	0
Chad	0	0	100	0	0	0
Chile	100	100	100	100	100	0
China-Mainlan	53	100	100	93	0	20
China -Taiwan	74	100	100	96	35	0
Colombia	0	100	100	0	0	0
Comoros	0	50	100	0	0	0
Congo-Dem Rep	0	100	0	0	0	100
Congo-Rep	0	0	0	0	0	100
Cook Islands	0	33	100	0	0	67
Costa Rica	7	93	57	7	7	0
Cote d'Ivoire	0	0	100	0	0	50
Croatia	0	86	100	0	0	43
Cuba	0	100	100	0	0	0
Cyprus-Rep	0	100	100	0	0	50
Cyprus-Turk	0	100	100	0	0	0
Czech Rep	7	79	86	7	0	43
Denmark	0	100	75	0	0	88
Djibouti	0	100	100	0	0	0
Dominica	0	0	0	0	0	0
Dominican Rep	0	100	100	0	0	0
Ecuador	0	75	100	0	0	75
Egypt	25	50	75	0	0	25
El Salvador	0	100	100	0	0	13
Eq Guinea	0	0	0	0	0	100
Eritrea	0	0	100	0	0	0
Estonia	0	92	75	0	0	67
Ethiopia	0	75	100	0	0	50
Fiji	33	100	33	0	0	67
Finland	7	100	93	0	0	13
France	5	100	100	11	0	37
Gabon	0	0	0	0	0	100
Gambia	0	100	100	0	0	0
Georgia	0	50	50	0	0	67
Germany	47	100	89	0	5	37
Ghana	0	100	67	0	0	67
Great Britain	25	100	100	50	35	65
Greece	0	75	88	0	0	25
Grenada	0	0	100	0	0	100
Guatemala	0	58	67	0	0	8
Guinea	0	15	8	0	0	0
Guinea-Bissau	0	0	0	0	0	100
Guyana	0	50	83	0	0	100

Haiti	0	0	100	0	0	50
Honduras	0	50	50	0	0	0
Hungary	0	71	71	0	0	14
Iceland	0	91	82	0	0	91
India	21	100	100	0	0	11
Indonesia	0	40	90	0	0	10
Iran	0	100	100	0	0	0
Iraq	0	100	100	0	0	0
Ireland	12	100	100	18	0	24
Israel	14	100	100	43	0	14
Italy	0	100	100	0	0	8
Jamaica	9	73	91	0	8	36
Japan	33	93	100	7	7	13
Jordan	29	100	44	0	0	0
Kazakhstan	0	100	100	0	0	29
Kenya	0	100	100	0	0	0
Kiribati	0	0	100	0	0	0
Korea, North	50	50	0	0	0	50
Korea, South	100	100	100	100	100	8
Kuwait	0	100	67	0	0	33
Kyrgyzstan	0	100	100	0	0	33
Laos	0	50	100	0	0	0
Latvia	0	100	100	0	0	18
Lebanon	0	88	88	0	0	0
Lesotho	0	100	100	0	0	50
Liberia	0	100	100	0	0	0
Libya	0	0	0	0	0	0
Liechtenstein	0	100	100	0	0	33
Lithuania	0	91	100	0	0	36
Luxembourg	31	100	100	0	0	31
Macedonia	0	86	100	0	0	29
Madagascar	0	75	75	0	0	50
Malawi	33	100	100	0	0	100
Malaysia	27	100	100	0	0	13
Maldives	0	100	100	0	0	0
Mali	0	100	100	0	0	0
Malta	6	60	100	0	0	20
Marshall Islands	0	100	100	0	0	100
Mauritania	33	100	100	0	0	33
Mauritius	0	79	100	0	0	43
Mexico	0	100	100	0	0	0
Micronesia	0	33	100	0	0	67
Moldova	0	0	100	0	0	0
Monaco	0	0	100	0	0	0
Mongolia	0	71	71	0	0	14
Morocco	0	100	100	0	0	11
Mozambique	0	0	100	0	0	100
Myanmar	0	29	86	0	0	100

Namibia	0	50	25	0	0	0
Nauru	0	0	0	0	0	0
Nepal	0	100	100	0	0	0
Netherlands	0	79	79	0	0	36
New Zealand	48	57	100	8	0	14
Nicaragua	0	100	100	0	0	0
Niger	0	50	50	0	0	50
Nigeria	0	50	50	0	0	50
Niue	0	0	0	0	0	10
Norway	50	92	92	0	0	100
Oman	0	100	100	0	0	0
Pakistan	0	100	67	0	0	67
Palau	0	0	0	0	0	100
Panama	0	63	75	0	0	0
Papua New Guinea	0	22	33	0	0	0
Paraguay	0	100	100	0	0	0
Peru	7	100	100	0	0	0
Philippines	0	80	80	0	0	30
Poland	0	91	91	9	9	27
Portugal	0	50	50	0	0	40
Qatar	0	100	0	0	0	0
Romania	9	63	88	0	0	63
Russia	0	96	83	0	0	4
Rwanda	0	100	0	0	0	0
Sao Tome	0	0	100	0	0	0
St. Kitts/Nevis	0	0	0	0	0	100
St. Lucia	0	100	100	17	17	33
St. Vincent	0	0	0	0	0	100
Samoa	0	0	0	0	0	0
San Marino	0	50	75	0	0	100
Saudi Arabia	11	100	75	0	0	0
Senegal	24	100	100	0	0	75
Seychelles	0	75	100	0	0	50
Sierra Leone	0	0	100	0	0	0
Singapore	19	94	94	88	81	6
Slovakia	0	100	88	0	0	25
Slovenia	0	67	83	0	0	25
Solomon Islands	0	9	9	0	0	100
Somalia	0	0	0	0	0	100
Somaliland	0	0	0	0	0	0
South Africa	0	100	94	0	0	25
Spain	7	100	93	0	0	29
Sri Lanka	0	17	67	11	0	100
Sudan	0	100	100	0	0	100
Suriname	0	0	0	0	0	100
Swaziland	23	85	77	0	0	31
Sweden	8	75	64	0	0	100

Switzerland	0	14	100	0	0	100
Syria	0	17	83	0	0	100
Tajikistan	0	0	0	0	0	100
Tanzania	0	0	38	0	0	75
Thailand	0	0	100	6	0	0
Togo	0	100	0	100	100	100
Tonga	0	0	0	0	0	100
Trinidad	0	20	80	0	0	100
Tunisia	33	100	100	0	0	33
Turkey	33	87	90	3	0	0
Turkmenistan	0	0	0	0	0	100
Tuvalu	0	100	100	100	100	100
Uganda	20	100	20	20	20	100
Ukraine	0	50	50	0	6	100
United States	44	100	90	76	54	34
Uruguay	0	100	100	0	100	0
Uzbekistan	0	67	33	0	0	0
Vanuatu	100	0	100	100	0	100
Vatican	0	100	100	0	0	100
Venezuela	0	100	100	0	0	100
Vietnam	0	50	100	0	0	100
Yemen	25	50	75	0	0	100
Yugoslavia	0	100	100	0	0	0
Zambia	0	100	100	0	0	0
Zimbabwe	0	60	100	0	0	20

Note: The following table shows the percentage of websites in each country that have each feature, such as foreign language translation, advertisements, premium fees, restricted areas, user fees, and search engines.

	<i>For Lang</i>	<i>Ads</i>	<i>Prem Fee</i>	<i>Restrict Area</i>	<i>User Fee</i>	<i>Search</i>
Afghanistan	0%	100%	0%	0%	0%	0%
Albania	75	25	0	25	0	0
Algeria	20	20	0	20	0	40
Andorra	75	0	0	0	0	25
Angola	0	0	0	0	0	100
Antigua	0	100	0	0	0	0
Arab Emirates	75	0	0	0	0	50
Argentina	15	69	0	0	0	69
Armenia	100	0	0	0	0	50
Australia	50	100	85	7	7	93
Austria	31	0	0	0	0	92
Azerbaijan	100	0	0	0	0	33
Bahamas	0	100	0	0	0	100
Bahrain	100	100	0	0	0	100
Bangladesh	67	0	0	33	0	0
Barbados	0	17	0	0	0	0

Belarus	23	15	0	0	0	8
Belgium	83	0	0	0	0	58
Belize	0	0	0	0	0	100
Benin	0	0	0	0	0	0
Bhutan	0	100	0	0	0	0
Bolivia	0	50	0	50	0	0
Bosnia	100	0	0	0	0	33
Botswana	0	0	0	0	0	100
Brazil	31	0	0	0	0	69
Brunei	63	0	0	0	0	13
Bulgaria	100	0	0	0	0	57
Burkina Faso	20	0	0	0	0	20
Burundi	0	0	0	0	0	0
Cambodia	40	0	0	0	0	40
Cameroon	0	0	0	0	0	0
Canada	0	0	5	21	0	100
Cape Verde	0	0	0	0	0	100
Central Africa	0	100	0	0	0	0
Chad	0	0	0	100	0	0
Chile	0	100	0	100	0	100
China-Mainlan	40	53	0	47	0	100
China -Taiwan	96	0	0	39	0	100
Colombia	0	0	0	0	0	100
Comoros	100	0	0	50	0	0
Congo-Dem Rep	0	0	0	0	0	0
Congo-Rep	0	0	0	0	0	0
Cook Islands	0	33	0	0	0	33
Costa Rica	0	18	0	0	0	91
Cote d'Ivoire	0	0	0	0	0	0
Croatia	100	14	0	14	0	0
Cuba	0	100	35	0	0	100
Cyprus-Rep	0	0	0	0	0	50
Cyprus-Turk	0	0	0	0	0	0
Czech Rep	100	0	0	0	0	50
Denmark	100	13	0	0	0	50
Djibouti	0	0	0	0	0	0
Dominica	0	0	0	0	0	0
Dominican Rep	50	25	0	25	0	25
East Timor	0	0	0	0	0	0
Ecuador	25	25	0	0	0	25
Egypt	75	0	0	0	0	75
El Salvador	38	38	0	0	0	63
Eq Guinea	0	0	0	0	0	0
Eritrea	0	0	0	0	0	0
Estonia	100	0	0	0	0	92
Ethiopia	75	0	0	0	0	0
Fiji	67	0	0	0	0	67
Finland	100	0	0	0	0	53

France	47	0	0	0	0	100
Gabon	0	0	0	100	0	0
Gambia	0	0	0	0	0	0
Georgia	100	0	0	0	0	033
Germany	74	0	0	0	0	84
Ghana	0	0	0	0	0	0
Great Britain	5	0	0	5	0	90
Greece	100	0	0	0	0	38
Grenada	0	0	0	0	0	0
Guatemala	0	17	0	8	0	58
Guinea	33	0	0	0	0	0
Guinea-Bissau	0	0	0	0	0	0
Guyana	0	0	0	0	0	17
Haiti	50	0	0	0	0	0
Honduras	0	0	0	0	0	50
Hong Kong	0	0	0	0	11	83
Hungary	100	0	0	0	0	57
Iceland	100	0	0	0	0	100
India	0	5	0	11	0	47
Indonesia	70	20	0	30	0	60
Iran	100	0	0	100	0	100
Iraq	80	0	0	0	0	0
Ireland	0	0	0	6	0	88
Israel	100	0	0	0	0	100
Italy	42	8	0	0	0	75
Jamaica	0	9	0	9	0	9
Japan	87	0	0	13	0	93
Jordan	100	0	0	0	0	43
Kazakhstan	100	50	0	0	0	50
Kenya	100	0	0	0	0	33
Kiribati	0	0	0	0	0	0
Korea, North	100	0	0	0	0	0
Korea, South	100	100	0	100	0	100
Kuwait	67	67	0	0	0	0
Kyrgyzstan	100	33	0	0	0	67
Laos	100	100	50	0	0	0
Latvia	100	72	28	0	0	64
Lebanon	75	86	50	0	0	25
Lesotho	0	0	0	0	0	0
Liberia	0	67	33	0	0	0
Libya	0	100	0	0	0	0
Liechtenstein	100	0	0	0	0	67
Lithuania	100	0	0	0	0	45
Luxembourg	8	0	0	0	0	46
Macedonia	100	14	0	0	0	43
Madagascar	25	0	0	0	0	17
Malawi	67	0	0	0	0	33
Malaysia	100	0	0	27	0	67
Maldives	100	0	0	0	0	0

Mali	0	0	0	0	0	0
Malta	80	40	0	0	0	100
Marshall Islands	0	0	0	0	0	100
Mauritania	0	0	0	33	0	0
Mauritius	0	0	0	0	0	14
Mexico	100	100	0	100	0	100
Micronesia	0	0	0	0	0	33
Moldova	100	100	0	0	0	100
Monaco	100	0	0	0	0	100
Mongolia	86	14	0	0	0	14
Morocco	22	0	0	0	0	67
Mozambique	100	0	0	0	0	0
Myanmar	0	0	0	0	0	0
Namibia	0	0	0	0	0	0
Nauru	0	0	0	0	0	0
Nepal	0	83	67	0	0	0
Netherlands	100	7	0	0	0	71
New Zealand	0	14	0	14	0	71
Nicaragua	0	0	0	0	0	0
Niger	0	0	0	0	0	0
Nigeria	0	50	0	0	0	50
Niue	0	50	0	0	0	0
Norway	0	0	0	0	0	92
Oman	0	0	0	0	0	0
Pakistan	0	0	0	33	0	0
Palau	100	0	0	0	0	0
Panama	0	13	0	13	0	63
Papua New Guinea	0	0	0	0	0	0
Paraguay	0	0	0	0	0	0
Peru	0	100	0	0	0	0
Philippines	0	30	0	0	0	70
Poland	100	0	0	0	0	36
Portugal	30	0	0	10	0	50
Qatar	100	100	0	0	0	100
Romania	100	13	0	0	0	38
Russia	4	25	0	4	0	79
Rwanda	100	0	0	0	0	0
Sao Tome	0	0	0	0	0	0
St. Kitts/Nevis	0	0	0	0	0	0
St. Lucia	0	17	0	0	0	17
St. Vincent	0	0	0	0	0	0
Samoa	0	0	0	0	0	0
San Marino	0	0	0	0	0	50
Saudi Arabia	50	25	0	0	0	75
Senegal	0	0	0	0	0	50
Seychelles	0	0	0	0	0	25
Sierra Leone	0	0	0	0	0	0

Singapore	0	19	0	6	6	81
Slovakia	100	0	0	0	0	50
Slovenia	100	0	0	0	0	75
Solomon Islands	0	0	0	0	0	0
Somalia	0	0	0	0	0	100
Somaliland	0	0	0	0	0	0
South Africa	0	25	0	6	0	81
Spain	100	0	0	7	0	29
Sri Lanka	100	17	0	0	0	33
Sudan	0	0	0	0	0	0
Suriname	0	0	0	0	0	0
Swaziland	62	0	0	0	0	77
Sweden	91	0	0	0	0	100
Switzerland	100	0	0	0	0	86
Syria	0	0	0	0	0	17
Tajikistan	50	0	0	0	0	0
Tanzania	0	0	0	6	0	0
Thailand	100	0	0	0	0	0
Togo	100	0	0	0	0	100
Tonga	0	0	0	0	0	0
Trinidad	0	0	0	0	0	40
Tunisia	67	0	0	0	0	100
Turkey	13	0	0	0	0	57
Turkmenistan	100	100	0	0	0	0
Tuvalu	100	0	0	100	0	100
Uganda	0	40	0	20	0	80
Ukraine	100	0	0	0	0	0
United States	44	0	0	12	7	75
Uruguay	0	100	0	0	0	0
Uzbekistan	0	33	0	0	0	17
Vanuatu	0	100	0	0	0	0
Vatican	100	0	0	0	0	100
Venezuela	100	0	0	100	0	100
Vietnam	100	0	0	0	0	0
Yemen	100	0	0	0	0	0
Yugoslavia	100	0	0	0	0	0
Zambia	0	0	0	100	0	0
Zimbabwe	0	0	0	0	0	20

Table A-5 Best Practices of Top Government Sites

- 1) Taiwan: The Executive Yuan of the Republic of China
<http://www.ey.gov.tw/web/index-ey2000.htm>

Taiwan, the number-one ranked E-government country, has an extensive system of information delivery via Internet. The site for the Executive Yuan of the Republic of China contains information varying from national statistics, history of Taiwanese art and culture, policy papers and timely news updates. It also provides all the information in English for an international audience. To promote interaction with the public, the contact information of the head office is presented clearly on the opening page. It features multimedia clips such as videos of notable speeches. All agencies' site, although not uniform, show the same amount of information.

- 2) Korea (Republic) : Ministry of Commerce, Industry, and Energy
<http://www.mocie.go.kr/>

The Korean (Republic of Korea) are mostly bilingual, interactive, informative and well organized. As shown in the snapshot above, the navigation bar at the top displays all categories of provided information. It also provides some statistical data on the side such as the stock prices and exchange rate. The search feature, link to the sitemap and contact information can be located very easily from the opening page. In addition, the colorful link bars to sites of affiliated groups and governmental agencies facilitate access to a variety of information.

- 3) Canada: Portal Site
http://www.gc.ca/main_e.html

The third ranked nation on the survey is Canada. The front page of the portal site contains various features in an organized fashion, in both French and English. Their interactive features include a customizing tool and a scroll-down navigation bar. They provide privacy and security related announcements under "Important Notices". Moreover, the site is designed to navigate users according to the users' personal interests and citizenship as seen in the three links in the center of the page. Finally, the site contains all e-mail, telephone numbers, and street address of major governmental agencies and services, facilitating interaction between the government and the population.

- 4) United States Portal
<http://www.firstgov.gov/>

This gateway is the ideal in organization. Very easy to look for services and most used features while keeping a very professional ad-free site. The United States' pages had the most privacy and security features than anyone else in the international category. Once we got past this portal page, there was no uniform organization between agencies and departments. Some sites have multimedia features while others did not. The US kept their spot in the top 5 because of their large amount of services, but could have been the top country if they used more multimedia features and kept their webpage information organization uniform. Other well-designed US federal agency sites are:

Federal Communications Commission: www.fcc.gov

Department of Labor: www.dol.gov

Environmental Protection Agency: www.epa.gov

- 5) Chile: Portal Site
<http://www.gobiernodechile.cl/>

This site was ranked as one of the highest because of its convenience and use of multimedia features. Chile has a video chat system that we have not seen anywhere else online. Although this page does not have an english translation feature, it out ranked other countries that did with their broadcasting and streaming audio and video features. This site also has a road congestion and access link showing locations and status of major road construction and delays on major roads are. We saw very few of these features on the international sites, showing that Chile has made some major improvements and jumped ahead in the E-government race.