

# The State of Federal Websites: The Pursuit of Excellence



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E - G O V E R N M E N T   S E R I E S

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August 2002



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The PricewaterhouseCoopers Endowment for  
**The Business of Government**

F O R E W O R D

August 2002

On behalf of The PricewaterhouseCoopers Endowment for The Business of Government, we are pleased to present this report by Genie N. L. Stowers, "The State of Federal Websites: The Pursuit of Excellence."

In this report, Professor Stowers rated 148 federal websites along the following dimensions: site services provided online, quality of user help features, quality of services navigation, site legitimacy, and accessibility. Based on her analysis, the following five federal government websites were rated highest: U.S. Patent and Trademark Office, Department of Health and Human Services, Department of Education, Department of the Treasury, and Department of the Navy.

This is the second Endowment report that has rated public-sector websites. As part of the January 2002 report, "State Web Portals: Delivering and Financing E-Service," Professors Diana Burley Gant and Jon P. Gant evaluated the functionality of all 50 state websites based on their degree of customization, openness, usability, and transparency. The states of California, North Dakota, Maine, North Carolina, and Pennsylvania received the highest overall scores.

Another recent grant report, "Federal Intranet Work Sites" by Professors Julianne G. Mahler and Priscilla M. Regan, presents a qualitative assessment of six federal government intranet sites. Professors Mahler and Regan concluded that there was much room for improvement in the online services that the government provides to its own employees.

By supporting research that analyzes government websites, The PricewaterhouseCoopers Endowment for The Business of Government hopes that state governments and federal agencies will learn much from benchmarking both their Internet and intranet websites against other public-sector websites. We trust that this report, as well as other Endowment reports, will be helpful to public-sector executives across the nation as they attempt to improve the quality of government websites and the services provided to both citizens and employees through websites.

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## EXECUTIVE SUMMARY

This report discusses the legal and policy context of federal website implementation and some of the major issues that have faced federal web managers. These issues include the need to assess web content after September 11th to ensure security, provide security against hackers, and protect citizens' privacy.

It is crucial that federal web managers develop and implement sites that are user-friendly as well as stocked with useful services and information. Federal managers must consider the "other digital divide"—the lack of experience of many citizens in using computers or the Internet. This "other digital divide" also means that federal web managers must design with assistance and user-friendliness for those who are not familiar with government agencies.

Ensuring this level of usability means the delivery of effective online services and information, effective information architecture (how information is organized and presented), user help and service navigation tools, features that lend legitimacy and credibility to the site, and accessibility for those individuals with disabilities.

A total of 148 major federal websites were examined in depth to identify the features being used in each area listed above. The prevalence of each feature across the federal sector is described. The study included executive, legislative, and judicial sites.

Online services range from the provision of basic information to interactive forms and databases, and from e-commerce applications to GIS applications. At the federal level, many agency websites include services specific to the federal services: grant and contracting information, *Federal Register*, statistics and publications, and employment information. Most websites provide basic online information, documents, communication with officials, publications, and employment information.

Most federal sites also provide several important user help features (search engines, requests to e-mail for assistance, and site maps) and service navigation features ("in the news" sections, "about the site," direct links to Freedom of Information Act sites, and "what's new"). Frequently found features that lend credibility and legitimacy to sites include privacy policies and visible contact information. Two types of information architecture dominate on federal websites: those that focus primarily on listing topics and those that are hybrids of several types.

The analysis of the accessibility of these federal websites (using "Bobby Analysis") resulted in surprising findings. Although federal websites were required to be accessible in June 2001, only 13.5 percent of the sites studied here were fully accessible. This certainly indicates that monitoring on a more continual basis is warranted.



Finally, using an additive index of these features, the top five federal websites were identified and described: U.S. Patent and Trademark Office, Department of Health and Human Services, Department of Education, Department of the Treasury, and Department of the Navy. Other top sites were also identified: U.S. Department of Agriculture, Mine Safety and Health Administration, Indian Health Service, Department of Veterans Affairs, DefenseLink/Department of Defense, Small Business Administration, and Railroad Retirement Board.

Special attention is paid to the federal mega-portal, FirstGov.gov. Its role as the central gateway to federal information and services is explored as well as several initiatives under way to provide more of the same types of services to citizens, businesses, and government employees.

Recommendations are made for improvements and more effective development and management of government websites. These include giving user security and privacy a high priority, providing legitimacy to sites, making sites accessible, cultivating leadership support for innovative and effective sites, organizing with the end user in mind, designing for content and services, and thinking outside the box when considering new services.

Federal websites have enormous audiences and the potential for significant impact. They have made considerable strides in their efforts; the top sites identified here can provide important lessons to all those interested in e-government and web development.

# The Federal Government on the Web

## Introduction

This report provides an overview of federal e-government efforts, specifically elements of excellence in the websites that provide the backbone of electronic government, or e-government. The report identifies the top providers of those elements, including services, user help, service navigation tools, information architecture, legitimacy features, and accessibility. Federal websites were examined for the prevalence of these features across 148 federal executive, legislative, and judicial sites with their own domain names. The federal megaportal, FirstGov.gov, was also examined, and then the top 12 federal government websites were identified.

The federal government has made great strides in providing e-government to its citizens in the past five years. In particular, the policy and regulatory framework in support of e-government has been expanding.

## The Framework of Support

The following acts and policy initiatives, described in the order in which they were passed or promulgated, make up this framework.<sup>1</sup>

The **Clinger-Cohen Act of 1996** required the General Services Administration to provide online access to some kinds of information; in creating the office of chief information officer (CIO), the act also established the kind of leadership vehicle needed for sustained action, such as creating e-government and new agency websites.

A **Framework for Global Electronic Commerce**, issued by the Clinton administration in July 1997, provided strong policy support and impetus for the use of e-commerce by the federal government. Among other statements, this was followed by the National Defense Authorization Act for Fiscal Year 1999, discussed below.

The **Government Paperwork Elimination Act of 1998** (GPEA) instructed agencies, by October 2003, to allow (where practical) electronic maintenance, submission, and disclosure of information (this includes using electronic signatures). This act has played a critically important role in federal e-government, although it is possible that societal and governmental trends would have attained the same results, regardless. An effort by the U.S. General Accounting Office to determine, from early implementation plans, the progress being made suggested the following: "... although much potentially useful information was submitted in the October 2000 implementation plans, many omissions and inconsistencies were evident. Because electronic options for large numbers of activities were not planned until 2003 at the earliest or were not scheduled at all, many agencies may be at risk of not meeting GPEA objectives. Without more complete information collected in an integrated manner, agency progress in achieving GPEA's goals cannot be accurately assessed."<sup>2</sup>

The **National Defense Authorization Act for Fiscal Year 1999** required the Department of Defense to create a single electronic mall system for procurement purposes. This has had a profound impact on

e-commerce applications like the Defense E-Mall—and on e-procurement in general.

The **Presidential Memorandum on Electronic Government** (December 17, 1999) established the parameters and goals of e-government, including providing one-stop access to government services. This provided the impetus for the FirstGov portal site.

The **Electronic Signatures in Global and National Commerce Act of 2000** (ESIGN) ensures that digital signatures (crucial for the expansion of e-commerce efforts) will be recognized as legal across all 50 states.

Together with the great efforts by federal employees and vendors, these policy initiatives have created a framework for today's results—the FirstGov portal and the 20,000 federal websites that currently exist. Much progress has been achieved.

A 2000 study on providing access for consumer complaints found that 90 percent of the 32 agencies studied used only a list of agencies' phone numbers and addresses, 65.6 percent included an e-mail link for users, and only 21.9 percent had a structured complaint form that could be used for complaints.<sup>3</sup> A January 2001 study surveyed 1,371 federal e-government initiatives. Of those, 809 dealt only with information dissemination, 88 had forms only, 460 included online transactions of some sort, and 56 encouraged transformation. Forty-one percent of these initiatives were government to citizen (G2C); the rest were roughly equally distributed (22.9 percent to 25.7 percent each) between government to employee (G2E), government to government (G2G), and government to business (G2B).<sup>4</sup> Also in 2001, West suggested that federal (along with state) sites had made good progress between 2000 and 2001 and that the federal government's sites, in general, provided more information and services than did their state counterparts.<sup>5</sup>

In February 2002, the Bush administration announced an e-government strategy that focused on 24 separate initiatives with 1,000 intragovernment and 5,600 government to business (G2B), government to government (G2G), and government to citizen (G2C) transactions to be put online.<sup>6</sup> These initiatives include a one-stop searchable database of recreation areas, online eligibility assis-

tance, the streamlining of international trade processing, and consolidated health information. The Bush administration recognizes that spending for federal information technology will surpass \$48 billion in 2002 and \$52 billion in 2003; as the Clinton administration did, they are trying to focus those efforts toward goal-oriented e-government.<sup>7</sup> This report focuses on the websites themselves—the services they provide and how well they have been designed.

## Challenges and Issues

Federal websites vary widely in the information they provide, the services they provide, how they provide services, and the way the sites are designed. The variations are attributable mostly to the vast differences among federal agencies, the missions that define them—and the many varied and unique issues they face. Here are some issues, challenges, and mandates federal web managers face:

- After the September 11th terrorist attacks on the World Trade Center and the Pentagon, federal web managers (as well as those of state and local governments) had to reassess the content on their sites and remove information that terrorists could use to harm the United States. In fact, even in 2000, the General Accounting Office was pointing out the potential harm in providing one site where users with damage in mind could easily access information. But those concerns have, of course, been severely heightened in light of the terrorist attacks.<sup>8</sup>
- After numerous hacker attacks against federal websites (FBI denial of service attacks and defacing of U.S. Senate and U.S. Department of the Interior sites, as well as others), the awareness of threats against the security of government websites was at an all-time high. Security gains importance as increased services are provided online to citizens and businesses—with potentially sensitive information being transferred across the Internet.
- The protection of citizens' and businesses' privacy is an important concern for public-sector web managers. More and more services are being conducted online, such as electronic filing of income taxes (<http://www.irs.ustreas.gov/>), buying stamps (<http://www.usps.com/>), applying

for student financial aid (<http://www.ed.gov/offices/OSFAP/Students/apply/express.html>), replacing a Medicare card (<https://s3abaca.ssa.gov/pro/imrc/imrchome.shtml>), and applying for a job (<http://www.usajobs.opm.gov/>). All of these applications—and many, many more—require privacy and the ability to conduct secure transactions. To continue to enjoy the public’s confidence, it is crucial that websites provide privacy and do not include sensitive information about private citizens, government employees, or contractors. In one instance in 2000, the U.S. Office of Management and Budget promulgated specific guidelines on the use of “cookies”<sup>9</sup> on the part of federal agencies to protect the privacy of individual users.

- It is very hard to tell that some federal websites are government sites because just as federal agencies differ in mission from purely public to quasi-public/quasi-private, so do their websites. The Amtrak, or National Railroad Passenger Corporation, site (<http://www.amtrak.com/>) and the site for the U.S. Postal Service (<http://www.usps.gov/> and <http://www.usps.com/>), which even has both a .gov and a .com address, appear very unlike other public-sector websites and very like any other private-sector e-commerce sites. In terms of web design and management, this means, first, many models from which to choose, and, second, that all cannot be designed alike, even when they still have issues like privacy and security with which to deal.
- Federal law and policies structure web design and development to some degree. For example, sites are required to have privacy policies about issues like cookies, and they were required to make their sites accessible to individuals with disabilities (<http://www.section508.gov/>) by June 25, 2001.
- Federal websites (like those of other levels of government) are affected by the legal process. Several sites within the Department of the Interior were closed in early December 2001 due to a legal decision declaring that any sites containing Indian trust data had to be disconnected from the Internet. These sites were unavailable to the public for several

months while this issue was resolved. (See <http://www.doi.gov/indiantrust/> for more information about this controversy and its resolution.)

The issues described here illustrate just some of the complexity surrounding federal web management. Achieving excellence in providing online information and services must be seen in light of these complexities and challenges.

# Providing Effective E-Government Service

Why is it important that the federal government aspire to excellence in e-government? Federal websites have to be accessible, in every sense, to individuals with varying understanding of government, computers, and the Internet. Even if individuals have access to computers and the Internet, can they effectively use what they find there? Can those without previous training and experience with government find the information they need and manipulate the system effectively enough to be on equal footing with early adopters and educated, trained individuals who came before them?

These concerns are particularly poignant for users of government websites, i.e., individuals who are seeking services from the government via technology. We already know that, in general, those who contact government tend to be middle class. The same individuals are the early adopters and have ready access to equipment and training in how to use the equipment.

This means that those without ready access already find it difficult to contact government and use services. These are also the individuals who tend to know the least about government, how government is organized, how to find information about and from government, and how to seek the correct services from government. Couple this with poorly designed websites—designed so that only those who really understand government and how it works can successfully navigate them—and another important barrier has been raised.

## The Other Digital Divide

We can deem this the “other digital divide”—the gap between those who not only know how to contact government but understand enough about it to be able to sift and sort their way through a perhaps poorly designed government website—and those who not only have less access to computers and the Internet but also understand less about the agencies whose websites they are visiting. The result is another digital divide.

Bridging the divide does not mean just making computers available; it also involves making the websites easier to use—by removing barriers due to lack of experience with the Internet.<sup>10</sup> Designers and developers of public-sector websites must assume that those using their sites have limited training and experience and will need sites designed with usability and effective information architecture in mind. They must also consider that the design lessons developed for private sector e-commerce sites might not necessarily work for public sector sites. In fact, private sector sites have very different organizing concepts than public-sector websites have.

Removing usability barriers includes designing for important elements of public-sector website use:<sup>11</sup>

- Any site must deliver effective online information and services. Unless you build it, they will not come—at all.
- Effective information architecture, defined as how the information of a website is structured or organized, first presents information to the

user of a website. Incorporated into this concept is the organization of the content and structure of the site, organized so that those who are unfamiliar with government can find the services and information they need—without having to understand how government agencies are structured.

- Usability and help features must ensure that users can get around the site and find what they want and what they need.
- Accessibility features must ensure that individuals with disabilities can use the site.
- Legitimacy features must ensure users' confidence in the site as well as its content and services.

The presence or absence of these features on public-sector websites can greatly affect the ability of a user to find and effectively use information and services available on the site.

## Features That Bridge the Divide

These elements (online services, user help features, service navigation, site legitimacy features, and information architecture) clearly are part of any effective site. Here's how they ultimately help make e-government efforts effective.

### Online Services

Providing online services to citizens, businesses, and other government employees is the most important part of an effective public-sector website. Content must be useful, generic services must be offered, and service provision mechanisms such as these must be extended consistently:

- Basic information
- Documents
- Communication with officials
- Downloadable forms
- Interactive forms
- Interactive databases
- Multimedia applications
- E-commerce applications

- Customizable content
- Mapping/GIS applications

Examples of these services include the downloadable tax forms at the Internal Revenue Service site (<http://www.irs.treas.gov/>), the interactive databases for government asset sales found at FedSales.gov (<http://www.fedsales.gov/realpro.htm>), the ability to purchase stamps online (<http://shop.usps.com>), and the ability to customize content on pages at MyGSA (found at <http://www.gsa.gov/> or <http://www.gsa.gov/Portal/common/registernewuser.jsp>).

Services that are more specific to federal agencies can be provided online through the mechanisms listed above. Although other levels of government may provide them, they include specific types of federal information:

- Grant information
- Contracting/procurement information
- *Federal Register*
- Statistics
- Publications
- Employment information

Examples include the voluminous grant information available at the National Science Foundation (<http://www.nsf.gov/>) and the National Institutes of Health (<http://www.nih.gov/>), the price and other data available at the U.S. Department of Energy (<http://www.energy.gov/>), and the research and *Federal Register* information at the National Archives and Records Administration (<http://www.nara.gov/>).

### User Help Features

In addition to the basic online services, governments must provide effective help so visitors to their sites can find information and services as well as their way around the website. They can do so through search engines and visible help features, including a help page, frequently asked questions (FAQs) about the site, site maps (pages that literally provide a map of the entire site), and tutorials on using the site.

Developers of public-sector websites must assume that those using their sites have limited training and experience and will need sites designed for ease of use. They must also consider that the design lessons developed for private-sector e-commerce sites might not necessarily work for public-sector sites. The 10 user help features identified and found on public-sector websites are listed in Table 1.

**Table 1: User Help Features**

Feature	Explanation
About the site	Link to information about the site
E-mail us	E-mail us for more information or for help with the site
FAQs	Questions frequently asked about the site
Feedback	Give us feedback about how the site works
Help	Agency-provided help with using the site
Index	Index of information, data, and agencies available on the site
Search	Facility to allow users to search the site
Site map	Visual representation of sections of the website
User tips	Helpful hints on how users can use the site
Other	Other user help features, including the use of other languages

### Service Navigation Features

Designing a website for effective use also means thinking about the services, information, and other content with the user in mind—in the case of public-sector sites, citizens without in-depth knowledge of government and how it works. How can sites lead users right to the services they most want? Twenty-one possible ways of identifying useful services are listed in Table 2.

### Accessibility Features

Accessibility features, those enabling access for individuals with disabilities, are also crucial. This is particularly true for public-sector websites, which must ensure equal access to all citizens. Accessibility features include having alternate versions of the site written in just text (and accessible with text browsers like Lynx), labeling all graphics with alternate text titles, labeling each frame clearly with text names, reducing animations, and otherwise making it easier for someone with limited vision to read information on a site.

Section 508 of the Rehabilitation Act of 1973, which was amended in 1998, required that all federal electronic and information technology be accessible to individuals with disabilities. As stated on the federal government's website dedicated to the topic:

Inaccessible technology interferes with an individual's ability to obtain and use information quickly and easily. Section 508 was enacted to eliminate barriers in information technology, to make available new opportunities for people with disabilities, and to encourage development of technologies that will help achieve these goals. The law applies to all Federal agencies when they develop, procure, maintain, or use electronic and information technology. Under Section 508 (29 U.S.C. 794d), agencies must give disabled employees and members of the public access to information that is comparable to the access available to others.<sup>12</sup>

These requirements took effect June 25, 2001. Whether this standard has been achieved for a site can be determined in several ways, one being "Bobby Analysis." Bobby, a methodology developed by the Center for Applied Special Technology (CAST at <http://www.cast.org/bobby/>), is software that examines websites for the presence of design errors that could prevent individuals with disabilities from fully accessing the contents.

**Table 2: Service Navigation Aid Features**

<b>Feature</b>	<b>Explanation</b>
About	About the services available on the site
Answers a to z	Alphabetized listings of answers to questions
Calendars	Calendars of government events
Do you know/how do I ... ?	List of questions organized according to major service areas from the citizen's point of view, stating "how do I do x or y?"
E-government services	Direct link from home page to all e-government services
Events	Link to information on major events
Facilities locator	Direct link to way to locate government offices
Featured link/spotlight	Many sites have featured programs or links
FOIA	Many federal sites have direct links to Freedom of Information Act information on their site
Hot topics	Link to information on what are considered currently important issues
In the news/news online/press room	News items about the agency
Just for students/kids	Collection of links or information about the agency designed for use by children
Link to all agencies	Links to listings of all agencies
Link to contact information	Links to direct contact information
Maps	Link to maps relevant to agencies
Online public notice	Public notices are posted online
Most visited/frequently requested site	Links to or listings of the most frequently visited sites, indicating the importance of that information
Popular services/major programs	Links to popular services or major programs
Special initiatives	Current, new, or special initiatives from the agency
Welcome	Welcoming statement from the director
What's new	Listing of new items posted on the site



### Features Adding to the Legitimacy of Websites

Finally, there are several features that serve to legitimize government websites:

- Endorsements of the site by outside parties
- The presence of a visible security policy for the site
- A privacy policy that users can read and that informs users of the degree to which their privacy will be respected
- Disclaimer statements that inform users of the exact nature of the information available on the site—what is the product of the agency involved, what is not, and what other information is available through links
- Contact information so users know exactly how to ask the agency questions the site does not address

- The date the site was last updated, which tells users how current the contents are

### Information Architecture Features

The information architecture<sup>13</sup> for a website organizes and labels information, particularly on the home page, or splash page. For government agencies, this is important because not all citizens have a good working knowledge of how government agencies are organized. A traditional method of organizing by the agencies in a department is not effective for all users. Table 3 briefly defines 11 types of information architecture for government websites, including being organized like a newspaper, according to the services provided by agencies, and according to the needs of individual audiences and clienteles of particular agencies.

**Table 3: Types of Information Architecture**

Type of Information Architecture	Description of Site Organization
Audience/market	The needs of particular audiences or markets (for example, Firstgov.gov has information organized around online services for citizens, for businesses, and for governments)
Agencies/departments	Listings of agencies or departments
Branch of government	The various branches of government represented
Events	Events occurring in the life cycle of the agency
Metaphor	According to some metaphor
Officials	The main officials in the agency
Services/tasks/functions/processes	The services, tasks, or functions offered by the agency
Topics/issues	Various topics; often just miscellaneous listings of topics
Personalized/customizable	Customizable site; users can organize the site according to their own preferences, within certain limits
Newspaper listing	Listings of news items; newspaper-like in appearance
Hybrid site	Combinations of all of the above

# Evaluating Features on Federal Websites

All 148 federal websites were examined to determine which utilize desirable features and which do not. They were examined for the presence or absence of each of these features: online services, user help, service navigation, legitimacy, and degree of accessibility. The components of these features were identified for this project, their presence or absence on federal websites was coded, and some basic analysis was conducted. (See the Appendix for a detailed description of the methodology employed for this study.)

Figure 1 reveals the prevalence of numerous types of generic online services and of specific services that utilize numerous service delivery mechanisms. Clearly, basic information is the most prevalent (100 percent), followed by the provision of documents (95.3 percent) and communication with officials (85.8 percent). The more sophisticated and interactive mapping applications, customizable content, and e-commerce applications were the least seldom offered online services (2.7, 9.5, and 12.8 percent, respectively).

Of the specific services, employment information (85.1 percent) and publications (81.1 percent) were the two most widely found on federal websites. Information on grants (29.1 percent) and the *Federal Register* (33.8 percent) were found the least of the specific services.

Three user help features (Figure 2) were found in more than 50 percent of all federal websites: site-based search engines (89.9 percent), requests to “e-mail us” for assistance (66.2 percent), and site

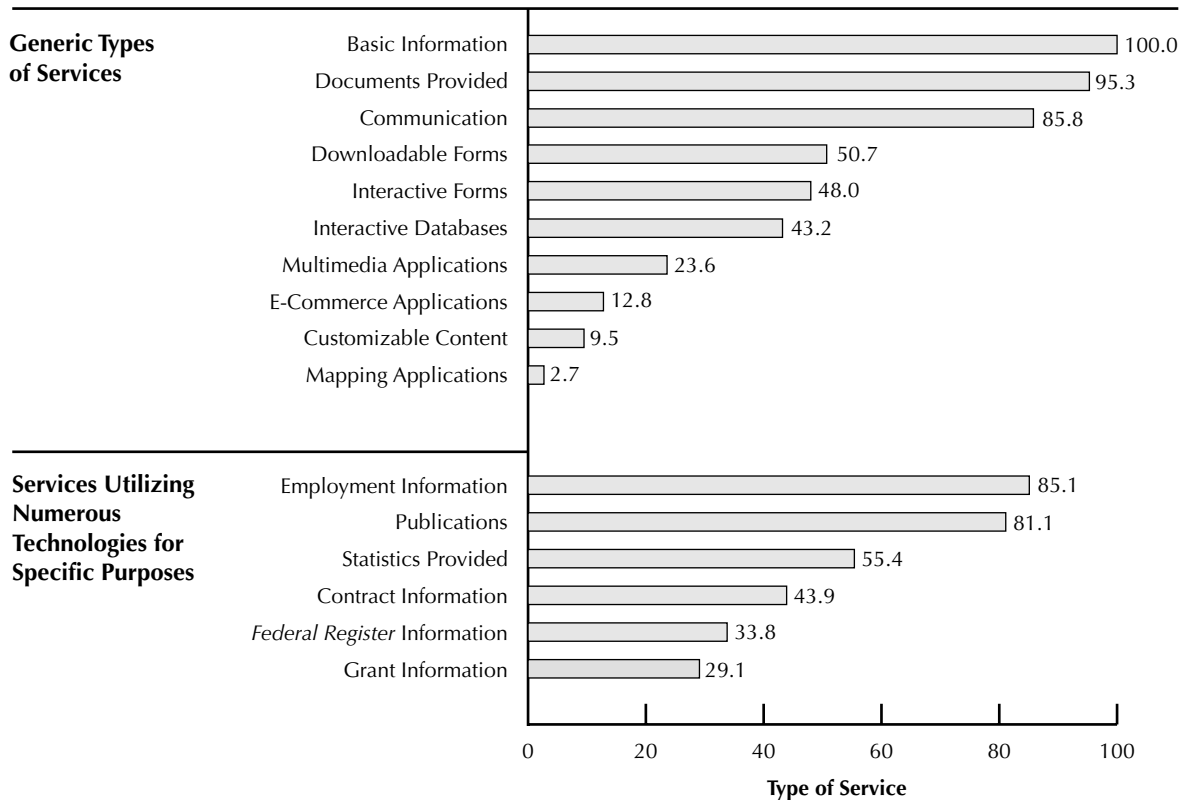
maps (52 percent). Frequently asked questions (FAQs) were included in approximately one-third and site indices were found in one-quarter of all websites; both of these features help users find agency services. Very few sites included user tips (2 percent).

Seven navigation aids to online services were found on at least 25 percent of all federal websites, indicating some convergence of these features across sites (Figure 3). They were the in-the-news feature (64.2 percent), about-the-site description (54.7 percent), the federal-only relevant FOIA information (52 percent), what’s new (44.6 percent), links to agencies (38.5 percent), links to contact information (35.8 percent), and the just-for-kids feature (28.4 percent).

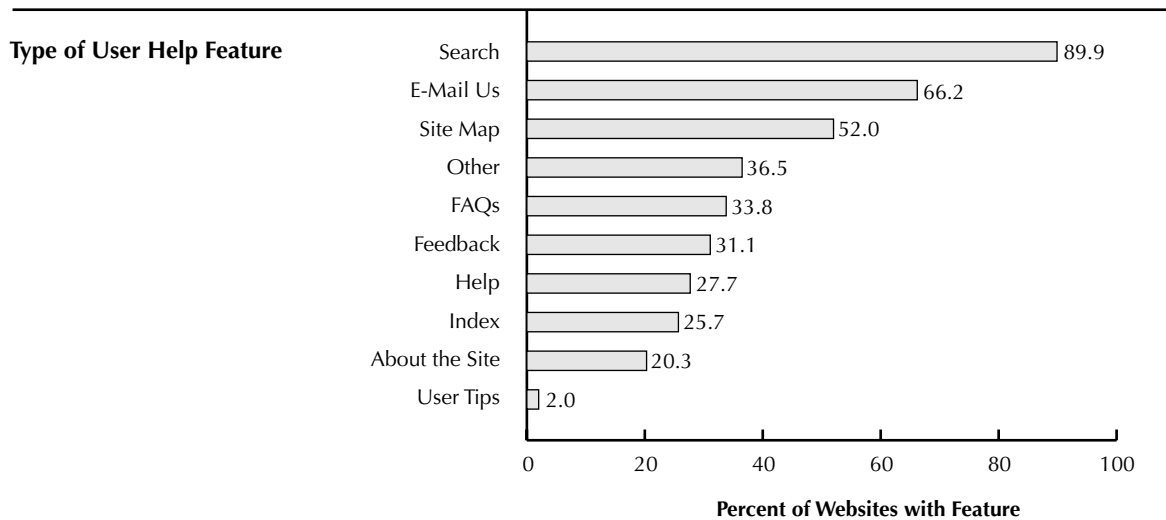
At least nine aids identified on public-sector sites were found infrequently, i.e., on less than 10 percent of all sites. These include online public notices, welcome to the site, most visited sites, events, do-you-know? links to popular services, direct links to all e-government services, answers a to z, and facilities locators.

Federal sites used legitimacy features consistently (Figure 4). Virtually all the websites (93.2 percent) had incorporated some kind of privacy policy; this comes as no surprise, given the emphasis placed on privacy by the Office of Management and Budget. A very high proportion of sites also had visible contact information (78.4 percent). A smaller proportion had a visible date when the site was last updated (43.9 percent), disclaimer

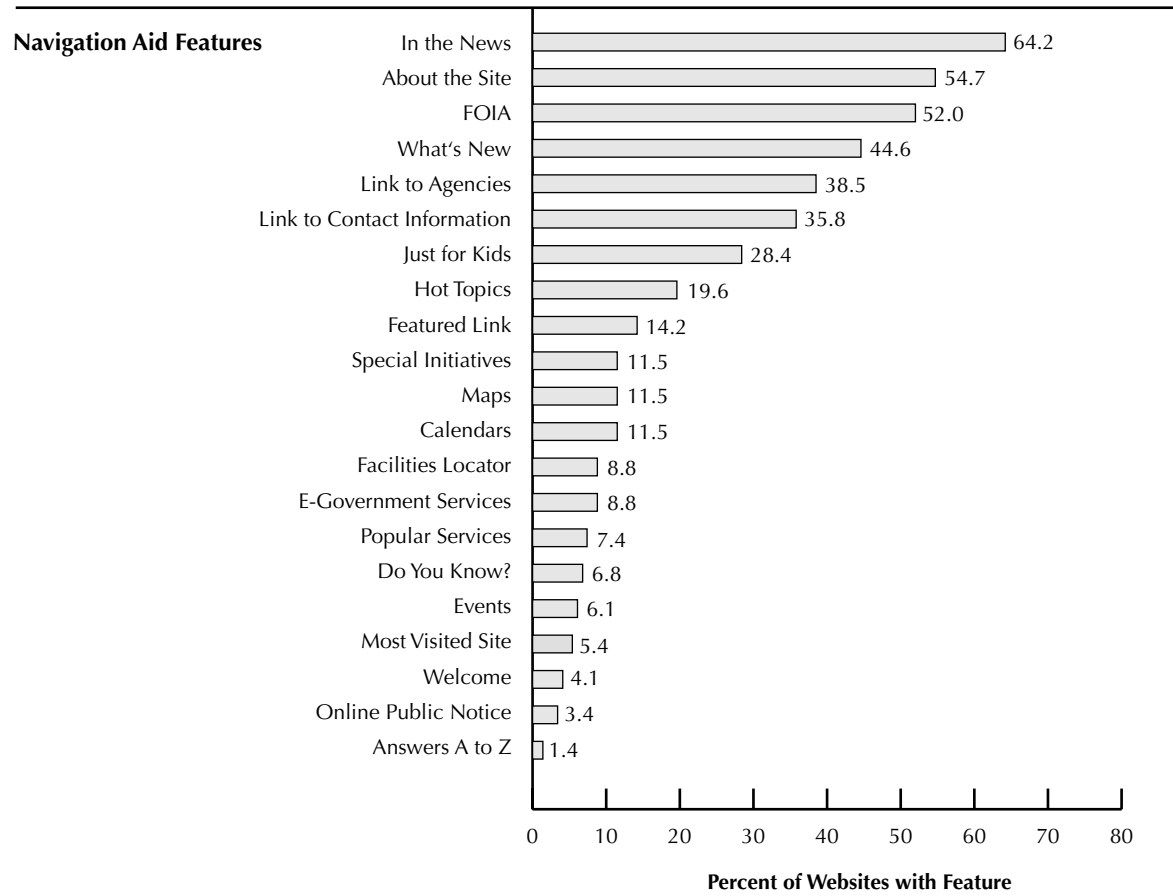
**Figure 1: Online Services Provided by Federal Websites**



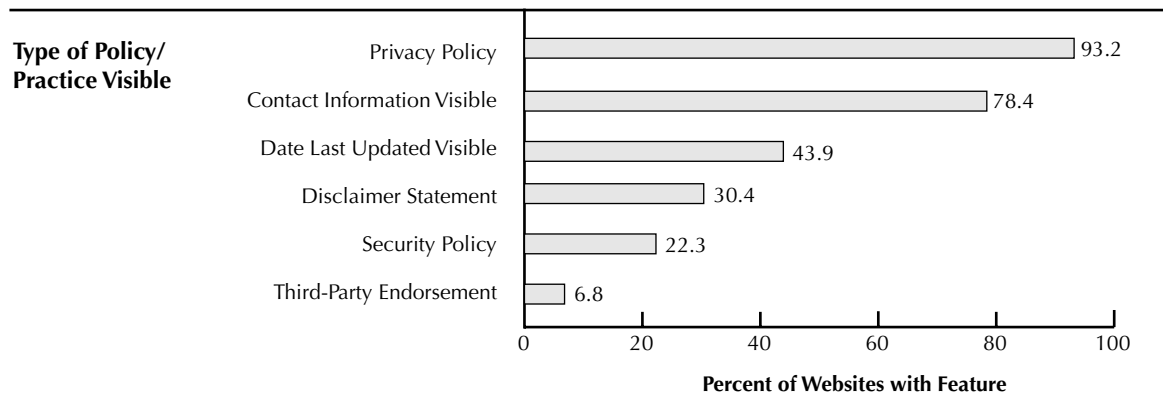
**Figure 2: User Help Features Provided on Federal Websites**



**Figure 3: Service Navigation Aids on Federal Websites**



**Figure 4: Features on Federal Websites Contributing to Their Legitimacy**



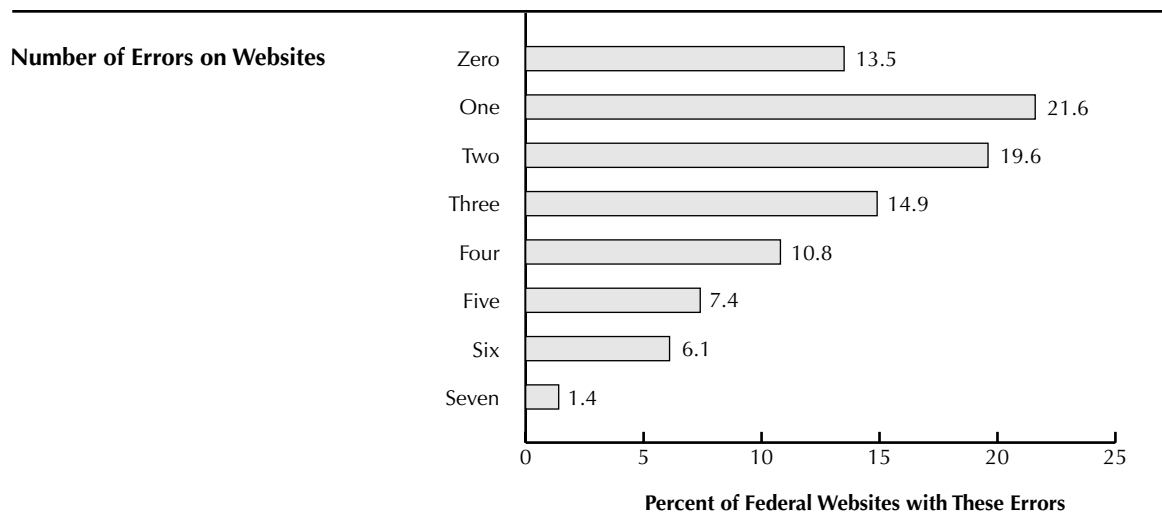
statements (30.4 percent), or security policies (22.3). Hardly any sites (6.8 percent) had third-party endorsements, another indicator of site legitimacy.

The Bobby Analysis of the accessibility of federal websites revealed that only 13.5 percent of the 148 sites had zero errors, indicating that they could be considered “Bobby approved.” Fifty-six percent of the sites had between one and three errors; many of these errors were simply the failure to provide text labels to all graphics and, when using frames, not labeling each frame with a text label. Twenty-five percent had between four and seven errors. Given that all federal sites were supposed to have complied with Section 508 of the Rehabilitation Act of 1973 by June 25, 2001, this is a surprising finding.

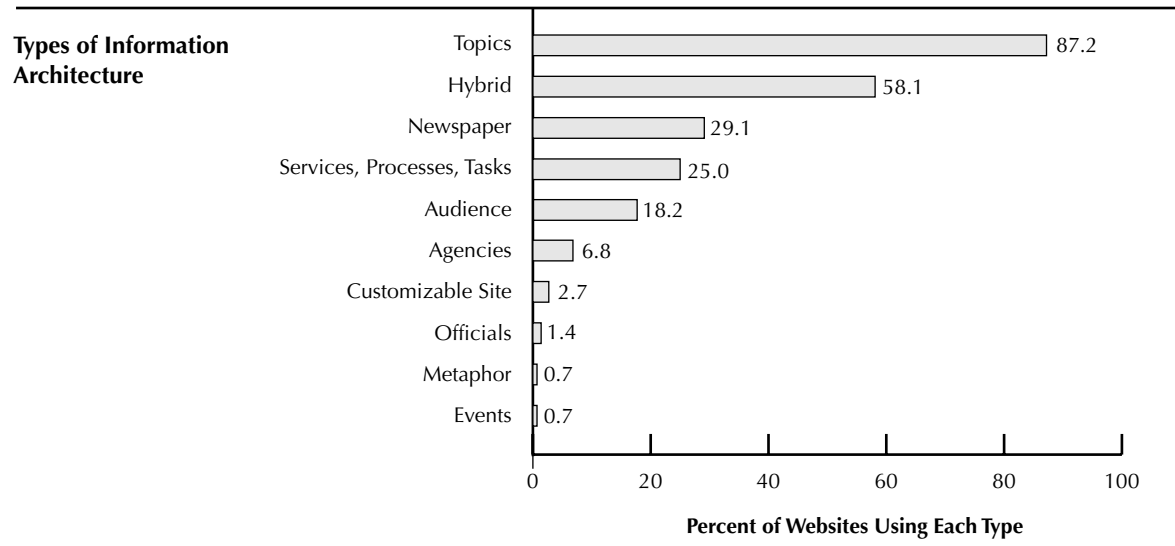
A previous analysis in August 2000 by the U.S. Department of Justice, Civil Rights Division, indicated some progress between 2000 and 2002, although many of the same errors (lack of text labels for graphics) were still being made after the June 2001 deadline and up to 2002.<sup>14</sup>

Thoughtful information architecture on federal websites is very limited and consists largely of combinations and listings of various relevant topics with little regard to overall organization and structure (Figure 6). Practically 90 percent of all sites had only some type of topic listing (87.2 percent); 58.1 percent were hybrid combinations of various other types of information organization and architecture. Another 29.1 percent used a newspaper-type presentation of recent information and announcements. Only 25 percent used an organization that revolved around the actual services provided to help users find those services, or an audience-oriented structure (18.2 percent), which lists services based on the interests or needs of each type of agency clientele. These last two, arguably, are organized best for usability by the nonsophisticated in that they are structured according to users’ understanding of government services rather than agency preferences.

**Figure 5: Number of Accessibility (“Bobby Analysis”) Errors**



**Figure 6: Federal Usage of Types of Information Architecture**



# Federal Websites Rated for Excellence

All the preceding elements were compared among the 148 federal websites and then combined into additive indices. Based on their excellence scores, the top five federal websites are presented below. Due to its immense influence as the federal portal, the FirstGov.gov site is described first. The methodology for determining the top sites is found in the Appendix.

## The Portal Site: FirstGov.Gov

FirstGov, the federal megaportal, deserves special mention in any discussion of excellence in federal e-government (Figure 7). FirstGov became operational in September 2000 as a result of a presidential memorandum asking that access to government information be organized by type of service, not by agency.<sup>15</sup> The General Services Administration manages the site.

Recently redesigned, FirstGov serves as an efficient, effective gateway into the full range of federal information and services (according to the site, a full 51 million pages and 2,000 websites of information). And, complying with its mandate, the site organizes its information according to audience—online services for citizens, for businesses, and for governments—to help users who are unfamiliar with the site navigate according to their own interests and needs rather than those of the designers. Three main components make up FirstGov: the user interface, making it easy for users to find information; the database of federal web pages; and the search engine itself.

The user interface to FirstGov provides immediate access to the search engine, which is prominently displayed at the top of the site; users can search federal or state sites or both. The sidebar navigation structure features links to alphabetically listed agencies and basic references—news releases, forms, laws and regulations, phone directories, and questions about governments.

The site managers have made special efforts to gain citizens' input and to allow citizens to tailor the site to their own interests. A topical section includes a featured link to what appears to be a comprehensive compilation of how America responds to terrorism, covering everything from travel tips to benefits and assistance for victims, anthrax- and biochemical-related precautions, and terrorism training.

Strongly citizen focused, the site has a good comment-to-government section containing direct e-mail links to officials and a customer survey. Users can also customize access to e-mail newsletters on 23 topics (everything from a general FirstGov newsletter to newsletters on travel and tourism, government sales, and health care, as well as one for students).

The FirstGov office is undertaking several other initiatives. Working with the CIO Council's E-Government Subcommittee, they are coordinating a series of cross-agency portals. Currently, three are available: FedForms (<http://www.fedforms.gov/>), FirstGov for Seniors (<http://seniors.gov/>), and

Figure 7: FirstGov, the Federal Megaportal ([www.firstgov.gov](http://www.firstgov.gov))

**FIRSTGOV**  
Your First Click to the U.S. Government

FirstGov Home About Us Help Site Map June 18, 2002

**The New FirstGov.gov** Welcome from President Bush  
The Official Government Gateways for:

**Search Federal/State**

Federal  State  Both

Search a State

**Agencies**

- Federal
- State, Local & Tribal
- International

**Reference**

- News Releases
- Federal Forms
- Laws & Regulations
- Phone Directories
- Questions About Government?
- More

Select a Topic

**America Responds to Terrorism**

**Citizens**  
interacting with Government  
Government helping citizens connect to services and more.

**Online Services for Citizens**

- ▶ Find Government Benefits
- ▶ Change Your Address
- ▶ Volunteer
- ▶ Shopping & Auctions
- ▶ Find a Government Job
- ▶ Social Security Online
- ▶ Apply for Student Loans
- ▶ Find a School or Library
- ▶ Zip Code Look-Up
- ▶ Passport Applications
- ▶ Buy National Park Pass
- ▶ Recreation One-Stop

**Business**  
interacting with Government  
Helping businesses from start to finish with tools and more.

**Online Services for Business**

- ▶ Business Opportunities
- ▶ Business Laws & Regs
- ▶ Federal Auctions & Sales
- ▶ E-File Your Taxes
- ▶ Employer ID Number
- ▶ Wage Reporting
- ▶ Small Business Procurement Registry
- ▶ Subcontracting Opportunities
- ▶ File Patents & Trademarks
- ▶ and much more

**Governments**  
interacting with Government  
Providing governments and their employees with services and more.

**Online Services for Governments**

- ▶ Grants
- ▶ FirstGov Search for Federal Agencies
- ▶ Employee Locator
- ▶ Per Diem Rates
- ▶ Federal Personnel-Payroll Changes
- ▶ Federal Thrift Savings Changes
- ▶ Government Jobs
- ▶ Buying Supplies & Services
- ▶ Auctions & Sales

Students.gov (<http://www.students.gov/>). Others in development include FirstGov for kids (<http://kids.gov/>) and Disability Direct.gov (<http://disabilities.gov/>).

This site merits special consideration—not just because it is the gateway to federal information—but because of its thoughtful and effective design and content.

## The Top Federal Websites

Once past FirstGov, there are numerous federal sites with excellent content, services, and user assistance. The top five, identified by means of the methodology discussed in the Appendix, are listed below, and Table 4 indicates an additional seven top websites. The calculation of total scores yielded several ties. While the ties were broken in terms of ranking the number of services, they did mean that instead of the top 10, the study named the top 12 sites (Table 4). The top five sites, ranked in order of their total excellence scores, are:

- U.S. Patent and Trademark Office
- U.S. Department of Health and Human Services
- U.S. Department of Education
- U.S. Department of the Treasury
- U.S. Department of the Navy



**Table 4: Top Federal Websites**

Rank	Website	Web Address	Total Excellence Score	Services	Help Features	Navigation	Legitimacy	Accessibility
1	U.S. Patent and Trademark Office	www.uspto.gov	31	10	7	10	5	-1
2	Health and Human Services	www.os.dhhs.gov	30	12	5	10	4	-1
3	Education	www.ed.gov	28	15	7	3	3	0
4	Treasury	www.ustreas.gov	28	13	5	6	4	0
5	Navy	www.navy.mil	28	12	6	7	4	-1
6	Agriculture	www.usda.gov	28	12	5	8	4	-1
7	Mine Safety and Health Administration	www.msha.gov	28	11	6	8	3	0
8	Indian Health Service	www.ihs.gov	27	12	5	8	3	-1
9	Veterans Affairs	www.va.gov	27	11	4	7	6	-1
10	Defense	www.defenselink.mil	26	11	6	5	5	-1
11	Small Business Administration	www.sbaonline.sba.gov	26	11	5	7	3	0
12	Railroad Retirement Board	www.rrb.gov	26	9	6	9	3	-1

## First: U.S. Patent and Trademark Office

The U.S. Patent and Trademark Office (<http://www.uspto.gov/>) ranks as the top federal website in terms of services, user help, navigation, legitimacy, and accessibility. It provides a vast amount of useful content and a comprehensive set of aids to the user—all designed with the user in mind (Figure 8).

### Site Services

Numerous services are available, including how to complete certain tasks (e.g., how to apply for a patent, <http://www.uspto.gov/web/patents/howtopat.htm>) and extensive information and resource listings about other aspects of the patent and trademark process. The site contains numerous searchable databases (existing patents and trademarks, published patent applications, patent and trademark applications) and even allows users to apply online for patents and trademarks (through the Electronic Filing System for patents, <http://www.uspto.gov/ebc/efs/index.html>, and

Rank	1
Web Address	<a href="http://www.uspto.gov">http://www.uspto.gov</a>
Services Score	10
User Help Features Score	7
Services Navigation Score	10
Site Legitimacy Score	5
Accessibility Score	-1
<b>Total Excellence Score</b>	<b>31</b>

the Trademark Electronic Application System, <http://www.uspto.gov/teas/index.html>). Through an e-commerce application, consumers can purchase patent and trademark documents online (<https://www3.uspto.gov/oems25p/index.html>).

Figure 8: The U.S. Patent and Trademark Office Home Page ([www.uspto.gov](http://www.uspto.gov))



After applying for patents or trademarks, users can check the status of their applications through the Office website (<http://www.uspto.gov/teas/index.html>).

The Director's Dialogues are another sign that this agency focuses strongly on their constituents. From reading these dialogues—transcripts of online discussions between high-level managers and the public—it is clear that these sessions, when happening in real time, enable citizens to get questions answered and government officials to have meaningful contact with the public.

Other interesting services include the Inventive Thinking Curriculum Project, curricular ideas for students on topics of invention, brainstorming, and innovative achievement. This section also includes a primer on patent, trademark, and copyright issues.

These Patent and Trademark Office services, very consumer and constituency driven, are immensely important to those interested in this area.

### Usability, Accessibility, and Legitimacy

From a user's perspective, the U.S Patent and Trademark Office website is designed well. Users can choose from several means of finding information—a series of drop-down menus organized by perspective (the Special Pages section, which includes everything from first-time visitors to vendors); the Search Collection drop-down menu (to search everything from patents to public comments to job announcements); or searching the entire site. They can also utilize the menu navigation system, which includes About USPTO, How To, Patents, Trademark, and Check Status. Three additional icons in the center of the splash page lead to Activities and Education (Director's Dialogues, Kids' Pages), Addresses and Contacts, and News and Notices. Five navigation tabs at the top of the page link to the text version of the site, to a site index, and to online business opportunities. One other helpful feature is a direct (and obvious) link from the splash page to contact information, mail, and other emergency-related information.

However, the site was not totally accessible, although a completely text-based version was clearly available by clicking an icon at the top of the screen. The site contained three accessibility

errors, and the drop-down menus could cause accessibility concerns. The site has the second highest score possible for legitimacy, including privacy and security policies, contact information, the date last changed, and a disclaimer.

Overall, the site is filled with innovative content and services and with well-designed navigation and user help systems. Oriented toward the agency's multiple audiences and constituencies, it provides well-thought-out services for each.

## Second: U.S. Department of Health and Human Services

Ranked second highest, the Department of Health and Human Services (<http://www.hhs.gov/>) offers useful information to multiple users with varying needs (Figure 9).

### Site Services

The site provides enormous amounts of information and types of services for many types of users. Each individual agency provides lots of information about services, grants, jobs, and resources (<http://www.hhs.gov/agencies/>). One useful service is GrantsNet (<http://www.hhs.gov/grantsnet/>), an Internet application designed by the Department of Health and Human Services to help those needing information about grant opportunities. A graphic approach is used to describe this process

### Scores for the U.S. Department of Health and Human Services

Rank	2
Web Address	<a href="http://www.os.dhhs.gov">http://www.os.dhhs.gov</a>
Services Score	12
User Help Features Score	5
Services Navigation Score	10
Site Legitimacy Score	4
Accessibility Score	-1
<b>Total Excellence Score</b>	<b>30</b>

Figure 9: The U.S. Department of Health and Human Services Home Page (www.os.dhhs.gov)

**U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES**

WELCOME | TEXT VERSION | FAQs | SITE INFO | WHAT'S NEW

SEARCH

NEWS

AGENCIES

OPPORTUNITIES

ABOUT US

RELATED SITES

1-877-696-6775  
200 INDEPENDENCE AVE SW  
WASHINGTON DC 20201

Help Us Improve This Site

Get Information On: A-Z or   FIRSTGOV

**Latest Headlines:**

- > [HHS Announces "Urban Partnership" Initiative to Help More Families Achieve Economic Independence](#)
- > [HHS Approves Wisconsin Plan to Extend Family Planning Services](#)
- > [HHS Announces Plans to Study Ephedra; Steps Up Enforcement of Illegal Ephedrine Marketing](#)

CLOSING THE Health Gap

SPOTLIGHT ON  
**Public Health Preparedness**

DISCLAIMERS | PRIVACY NOTICE | FOR KIDS | FOIA | CONTACT US

Last revised: June 17, 2002

(Electronic Roadmap for Grants, <http://www.hhs.gov/grantsnet/roadmap/index.html>), which leads to information about funding opportunities, the application process, managing grants, and useful resources.

Another interesting program is KnowNet, an example of the new knowledge management trend (<http://knownet.hhs.gov/>). Although unfortunately fronted with a long Macromedia® Flash™ animation, the site introduces this initiative. This project seeks to provide just-in-time information and training on a variety of managerial topics electronically (Microsoft® PowerPoint presentations, online training opportunities, and other means), through several formats, including the Desk Reference Series—all available 24/7/365. As stated on their website, “KnowNet delivers reliable, timely and comprehensive information, instruction, integrated resources, collaboration capabilities, field expertise and performance support in the core business operations of the Federal Government of the United States of America 24/7. Quite simply, KnowNet is aggressively pursuing performance improvement.”<sup>16</sup> The site also provides information on a wide vari-

ety of topics, including logistics, small businesses, and acquisition.

The Department also offers quick, handy, invaluable information to users through their 38 fact sheets, available at <http://www.hhs.gov/news/facts/>. Covering topics from aging to genetic testing, mad cow disease, and teen pregnancy, these sheets include statistics, data, trends, and additional resources.

### Usability, Accessibility, and Legitimacy

The user-friendly site is organized with numerous help and navigation features, employing multiple modes of communicating information. Information can be accessed according to topic (such as adoption, disease prevention, Head Start, and substance abuse) from a drop-down menu, through an A-to-Z listing, and through the graphic icons available on the home page portal. In addition, a navigation icon provides a listing of the agencies that constitute the Department of Health and Human Services.

Top news items are highlighted on the home page. Special programs and events, with graphic icons, are also highlighted on the splash page—among them, high blood pressure, youth summit, organ donation, and Closing the Health Gap, a program about African-American health initiatives. The effect of all of these icons and pathways to information can overwhelm the casual user, however.

The site had a direct link to a text-based version, but because of its four accessibility errors, some design features should be reconsidered with the errors in mind. The site included a privacy policy, contact information, and the date last changed along with a disclaimer, but no security policy or endorsements.

### Third: U.S. Department of Education

The Department of Education site is entered through a web portal titled No Child Left Behind (<http://www.ed.gov/>); users then go to the index page for the Department (<http://www.ed.gov/index.jsp>). This site had the highest services score

#### Scores for the U.S. Department of Education

Rank	3
Web Address	<a href="http://www.ed.gov">http://www.ed.gov</a>
Services Score	15
User Help Features Score	7
Services Navigation Score	3
Site Legitimacy Score	3
Accessibility Score	0
<b>Total Excellence Score</b>	<b>28</b>

of any of the sites studied as a result of offering every type of general service plus all but one of the specific types of federal services. It also contains links to numerous content areas and many user help and navigation features.

Figure 10: My.ED.gov (Customizable Page from the U.S. Department of Education Website)

The screenshot displays the My.ED.gov website interface. At the top, there is a navigation bar with links for "Skip Navigation", "Recursos en Español", "Privacy", "Security", and "Notices". The main header features the U.S. Department of Education logo and the text "U.S. Department of Education My.ED.gov". Below the header is a search bar with a "GO" button and a link to "Advanced" search. A secondary navigation bar includes links for "Home", "My.ED.gov", "Grants & Contracts", "Financial Aid", "Education Resources", "Research & Stats", and "Policy".

The main content area is divided into several sections:

- News:** A list of recent news items, including "Panel on Language Minority Children (May 14)", "Presidential Scholars Announced (May 14)", "Reading First Reviewers (May 13)", "Report on Special Education (May 10)", "Presentation at Meetings on No Child Left Behind (May 9)", and "Single-Sex Schools & Classes: Notice & Guidelines (May 8)".
- My Interests:** A section stating "No documents match your interests. Select My Profile to change your interest profile."
- Higher Education Administrators & Institutions:** A section titled "Financial resources for students" with a sub-section "Learning more about federal student aid" containing links for "Cohort Default Rates for Schools", "Conference Registration", "Information for Financial Aid Professionals (IFAP) Library", "Office of Postsecondary Education Program Data", "Schools Channel", and "Student Aid Publications and How to Order".
- My.ED.gov Bookmarks:** A section with a "More..." link.
- My.ED.gov Searches:** A section with links for "Advanced Search" and "Help".
- Survey on Personalization:** A section with a "Survey on Personalization" link.

### Site Services

The site organizes information well and in several ways, and individual users can create their own organization by means of the My.ED.gov portal service. Boxes throughout the splash page organize information and services into 10 categories:

- News
- Grants and contracts
- Policy
- Financial aid
- Research and statistics
- Education resources
- Education priorities
- Information for ... (various audiences of users)
- About ED (about the agency)
- My.ED.gov

Among the many resources available are the ERIC (Educational Resources Information Center) Digests, collections of research syntheses on a voluminous number of topics ([http://www.ed.gov/databases/ERIC\\_Digests/index/](http://www.ed.gov/databases/ERIC_Digests/index/)). Other publications on a variety of educational and policy research topics are available throughout the site. The National Center for Educational Statistics (<http://nces.ed.gov/>) is a treasure trove of information for those interested in education; their database may be searched to find relevant data, most reports are available online, and statistics are easily available at EdStats at a Glance (<http://nces.ed.gov/edstats/>).

### Usability, Accessibility, and Legitimacy

The boxes with the information in the preceding list are spread about the splash page in a somewhat confusing format because there are so many of them. Tabs at the top of the page lead to six of the topics listed above, plus the home page.

This information is organized by content (whether news, grants and contracts, financial aid, education resources, policy, or research and statistics) and by audience so that users can find what interests them (students, parents and families, teachers, principals, higher education administrators, and grantees and assistance providers). Also, users can choose

among four areas of customizable content for their personal My.ED.gov page (subjects, audiences, levels of education, and resources). Once they have selected their personal preferences, a page appears with that information highlighted and it is automatically updated. Figure 10 illustrates a sample result.

Only two accessibility errors were found on this site. Contact information is listed on the home page, and privacy and security policies are also available.

## Fourth: U.S. Department of the Treasury

The Department of the Treasury site (<http://www.treasury.gov/>) ranked fourth among the 148 sites examined. Its deceptively simple splash page serves as the gateway to much content and information—and the second highest level of services. Recently, the site was totally redesigned with a busier splash page and better-organized content (Figure 11).

### Site Services

Many services, particularly e-commerce services, are available. The various informational topics include current news and latest press releases, the federal budget, daily Treasury reports, statistics on the debt and financing, the war on terrorism, border protection, and the agencies within the Treasury Department.

### Scores for the U.S. Department of the Treasury

Rank	4
Web Address	<a href="http://www.ustreas.gov">http://www.ustreas.gov</a>
Services Score	13
User Help Features Score	5
Services Navigation Score	6
Site Legitimacy Score	4
Accessibility Score	0
<b>Total Excellence Score</b>	<b>28</b>

Figure 11: The U.S. Department of the Treasury Home Page (www.ustreas.gov)

The screenshot shows the U.S. Department of the Treasury Home Page. At the top left, the text reads "UNITED STATES DEPARTMENT OF THE TREASURY". To the right is a large image of the Treasury Department building with the seal. Below the header is a search bar with the text "search" and a "SEARCH" button. A navigation menu on the left lists: News, Key Topics, Press Room, Organization, Offices, Bureaus, and Education. The main content area is divided into four sections: "NEWS" featuring a photo of Secretary Paul O'Neill and a headline "Grants to Replace Loans to Poorest Counties"; "BROWSE KEY TOPICS" with links for Accounting & Budget, Currency & Coins, and Financial Markets; "E-MAIL SUBSCRIPTION SERVICE" with a link to subscribe to Treasury E-mail lists; and "LATEST PRESS RELEASES" with a link to a "Fact Sheet on G7 IDA Agreement" dated 06/17/2002. A "DIRECT LINKS" section on the left lists: Employment Opportunities, Frequently Asked Questions, OFAC/SDN List, Seized Property Auctions, Treasury Securities Auctions, and Secret Service.

From this site, users may buy savings bonds, T-bills, and notes through the Treasury Direct online service (or via telephone service or forms that can be downloaded from <http://www.savingsbonds.gov/sec/sec.htm>). Special coins and currency—like \$10,000 worth of shredded U.S. currency, \$1 Texas Lone Star notes, or \$1 Year of the Horse notes—may be purchased through the Money Factory site (<http://www.moneyfactory.gov/>). Such e-commerce applications alone are a major service to consumers.

All kinds of forms can be downloaded from the Treasury Department and its multiple bureaus. Another important service for citizens is the ability to sign up for automatic e-mail notification concerning law enforcement actions, interest rate statistics, policy papers, and general press releases (<http://www.ustreas.gov/ress/email/subscribe.html>).

### Usability, Accessibility, and Legitimacy

Users can find services and information in several ways on this site—through news on various topics, by browsing through a list of keywords (accounting and budget, currency and coins, financial markets, general interest, international, law enforcement, small business, taxes and technology), and through direct links to some services (Treasury service auctions, employment opportunities, seized property auctions, and other topics). The browse-key-topics area is quite useful, and users can always resort to the listing of agencies that is available through the navigation scheme.

The original site contained only two Bobby accessibility errors; perhaps because it was still being implemented, the redesigned site contained some basic errors, such as needing to include alternate text for all images, buttons, and frames. The site also contained a privacy policy, contact information, the date last changed, and a disclaimer.

## Fifth: U.S. Department of the Navy

The very sparse splash page of the U.S. Navy website (<http://www.navy.mil/>) is the gateway to considerable content, user help features, and navigation features (what's new, search, site index, about this site, the Lifelines link to numerous organizational topics on military life, got a question?) as well as several interesting applications. See Figure 12.

### Site Services

Enormous amounts of information are available here. For instance, the FactFile (<http://www.chinfo.navy.mil/navpalib/factfile/ffiletop.html>) and Navy Ships (<http://www.chinfo.navy.mil/navpalib/ships/>) provide information on the various types of missile systems, ships, submarines, and other portions of the Navy's mission, while Navy Organization (<http://www.chinfo.navy.mil/navpalib/organization/org-top.html>) details the organizational structure of the service. Status of the Navy (<http://www.chinfo.navy.mil/navpalib/news/.www/status.html>) provides up-to-date statistics on personnel, ships, and aircraft.

The site is also designed and used as an online reference source for Navy personnel and their families. An example is the All Hands Online manual (<http://www.chinfo.navy.mil/navpalib/allhands/ah0197/contents.html>) that includes basic information on being in the Navy.

Scores for the U.S. Department of the Navy	
Rank	5
Web Address	<a href="http://www.navy.mil">http://www.navy.mil</a>
Services Score	12
User Help Features Score	6
Services Navigation Score	7
Site Legitimacy Score	4
Accessibility Score	-1
<b>Total Excellence Score</b>	<b>28</b>

One very useful service for military personnel and their families is the Lifelines site (<http://www.lifelines2000.org/>), which addresses quality of life issues. Among the vast amount of information available here are what to do when deployed, housing, legal assistance, pay and personnel, and relocation assistance, as well as links to thousands of service providers. Another section, e-courseware and games, provides games to test financial skills, skills for dependent children facing deployment, and skills for facing stress. A video on demand from the commandant of the U.S. Marine Corps, news reports, and other audio and video on demand are also presented. Links to ombudsman programs, numerous Navy and other military resources, daily news updates, and breaking news are also available. The section focusing on Navy careers incorporates multimedia in the guise of Macromedia Flash animations.

In the careers section is the Life Accelerator (<http://www.navy.com/lifeaccelerator/index.jsp>), an interesting application that uses a drop-down survey to match users' interests and goals to jobs available in the Navy. Results can be stored in a Navy "locker" along with details about particular career paths and personal information that would be needed to apply to join the Navy. A description of a pilot online training program (Task Force Excel) is also available (<http://www.excel.navy.mil/>).

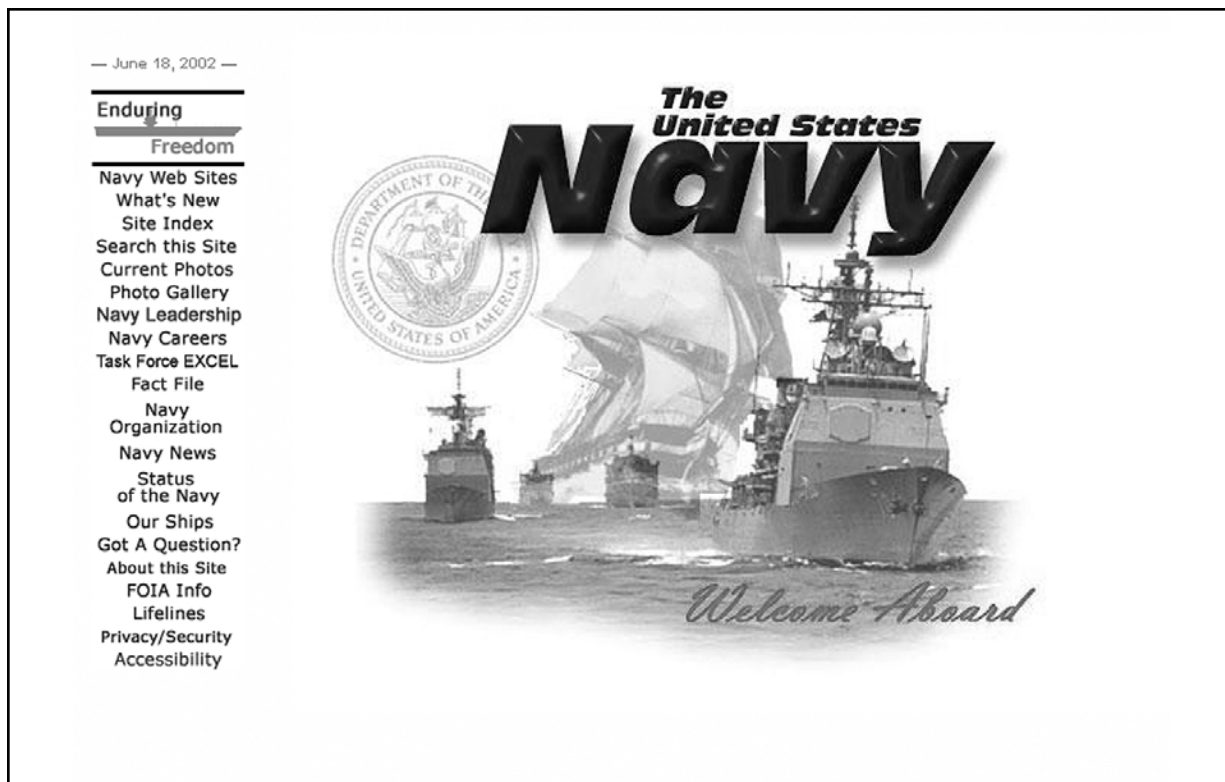
The Navy's award-winning web application, the Virtual Naval Hospital (<http://www.vnh.org/>) is a well-organized health promotion tool. Its digital library of training and reference materials helps members of the service who might need medical expertise while at isolated duty stations.

### Usability, Accessibility, and Legitimacy

The splash page for this site is quite simple—it begins with a graphic image of ships of several generations "slicing" through the ocean, and it lists topics on the far left of the page. The navigational scheme is not carried throughout the site, however, and the fair amount of animation and multimedia calls for the use of various plug-ins. The Navy site contained only two accessibility errors, and it stated privacy and security policies along with contact information and the date when last updated.



Figure 12: The U.S. Department of the Navy Home Page (www.navy.mil)



Overall, this is a content-rich site, designed to communicate to current employees as well as potential recruits, thereby addressing numerous constituencies. A more consistent navigation scheme would help in achieving this goal, but the overall quality cannot be ignored.

## Overall Assessment

These top five sites are outstanding examples of what can be accomplished utilizing the World Wide Web as a creative means of providing services and information to citizens, businesses, and employees. The remaining top sites are also good examples of what can be achieved: (6) U.S. Department of Agriculture (www.usda.gov), (7) Mine Safety and Health Administration (www.msha.gov), (8) Indian Health Service (www.ihs.gov), (9) Department of Veterans Affairs (www.va.gov), (10) DefenseLink/Department of Defense (www.defenselink.mil), (11) Small Business Administration (www.sbaonline.sba.gov), and (12) Railroad Retirement Board (www.rrb.gov).

Despite differing widely in approach and design, they are similar in providing outstanding content, good design, and useful user help and navigational features to citizens, businesses, and government employees. Government managers and web professionals should view them as models of effective content and services.

# Recommendations

From this examination of federal websites and the lessons we have learned, we make the following recommendations:

## **1. Consider users' privacy and security concerns to be high priority.**

The information exchanged on many federal websites is personal and confidential. Privacy and security policies, therefore, must be not only developed but clearly displayed as well. To fully meet users' needs, federal websites must create protected, private, and secure spaces for the mutual exchange of information.

## **2. Assure users that a website is the "real deal."**

Managers and designers should communicate the legitimacy of a site by including contact information for the agency, the date the site was last updated (hopefully, a very recent date so that users know the information they are accessing is current), and the agency's policies on privacy and security. While most of the sites examined had the required privacy policy (93.5 percent), the other features were far less prevalent. Web managers need not only to make information available but to display it prominently.

## **3. Make accessibility an ongoing high priority.**

The most surprising finding of this study was the relatively poor accessibility, according to the Bobby Analysis. Despite the mandate to comply with federal regulations by mid-2001, only 13.5 percent of the 148 sites examined had zero errors, and another 21.6 percent had one error. Even among our top five sites, only two had just one error, and the

others had more than two. They continued to be counted among the top five since they had much higher scores on service delivery and on usability. The unresolved question is whether these sites adhered to the policy last year and have since "slipped" as a result of constant changes in content and design—or whether they ever complied with the requirements. Web designers and web managers need to give more attention and priority to accessibility issues, including monitoring updates and changes to ensure that all content meets standards.

## **4. Cultivate support by educating leadership about the Internet and its potential for public service.**

Although support from leadership is essential for information technology, e-government, and web management success, managers and other leaders do not always understand the issues—or the potential—involved. Web managers and designers need to educate leaders about what is happening in these fields and how they have grown in order to cultivate support for e-government and web management initiatives in the future of public service.

## **5. Organize websites with the user in mind.**

Web managers and designers need to organize sites for users who may know nothing about a particular government agency or its structure. Organization should therefore include ample and varied types of user help and clear navigational aids that direct users to services and specific types of information.

## **6. Design for content and services, not for glitz.**

Federal and other public sector web managers and designers need not follow the path of many private-

sector websites—high on concept and graphics and animation, low on content and services. Citizens from any audience need to be able to find their way *directly* to the appropriate services on federal websites. Rely on the audience or services information architecture approach, by the far the friendliest to users. Design for outside users, not for agency insiders.

### **7. Think outside of the box when considering web services and websites.**

Current website development and e-government should not be reduced to an “add technology and stir” formula. Public-sector managers, web managers, and web designers have the opportunity to rethink how services should be provided. They should explore and expand their horizons—to create new applications, new ways of looking at government, and new ways of serving constituents. The potential for effective e-government is enormous, but the basics should not be forgotten as we move ahead in applying technology to deliver public-sector services.

Many federal agencies have made enormous strides in creating attractive, useful, and helpful content and services on their websites; others still face challenges in achieving the highest level of quality. The top five sites identified by this study can serve as examples for other agencies—examples of how to present information in helpful and useful ways—and, ultimately, of how to serve their users.

# Appendix:

## Methodology and Resources

### Methodology

In the research project discussed here, two reviewers conducted a cross-sectional comparison of federal websites, comparing results in order to validate their assessments.

The study included all federal websites of executive agencies (cabinet departments and agencies with their own domain names, and independent agencies), plus major legislative and judicial sites with their own domain names. Federal boards and commissions were not included, resulting in 148 federal websites. Because the period of the study, January to April 2002, unfortunately included the time during which three Department of Interior websites were offline due to legal difficulties, these sites were excluded.

Online services, user help features, navigation features, and the information architecture on each website were examined and coded as to presence or absence. The presence of online services was determined by examining the home page and links down to the third click (considered by many to be the farthest that users will go in their search for information). The presence of usability, help, navigation, and legitimacy features and information architecture was determined by examining the site's home page, the point where users need these features. Bobby Analysis (see <http://www.cast.org/> for more information on this web accessibility analysis tool) was conducted on all sites, to links two levels down, to assess the degree of accessibility.

Both reviewers analyzed sites initially and later completed the same sites, in the middle and at the end of the project, for cross-comparison purposes. Then they were assigned their own to complete. The lead researcher reviewed all results to ensure validity.

To determine the highest number of "best" websites, the reviewers used four additive indices plus a scale for accessibility:

- An index of federal services (from one to 16)
- An index of help features (from one to 10)
- An index of service navigation features (one to a possible 22 features, although no site had more than 10)
- An index of legitimacy features (from one to six)
- A scale for accessibility (sites with zero errors received a +1, sites with only one or two errors received zero points, and sites with more than two errors had one point deducted from their total points, or -1)

These four indices plus the scale added together yielded the total excellence score, which had a potential range from three to 55. The highest score any site received was 31.

### Resources

A collection of the sites listed here and additional resources is available at <http://bss.sfsu.edu/~mpa/faculty/facultyprojects/federalproject.htm>.

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