The Intersection of the Digital Divide and e-Government and its Impact on Democratic Participation

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INFO653 Winter 2013

Abstract

The Internet has been hailed as a powerful means to create a more open and democratic society. However, since the Internet began in the 1990s, there has been a concern that many of this country’s citizens are technologically and socially barred from accessing the Internet. This barrier, dubbed the digital divide, has come to include not only the impediments to access but also the impediments imposed by the creators and distributors of Internet content. As many government information resources and services are increasingly available through e-Government websites, there is a concern that the digital divide, by restricting access to government information that is necessary in order to participate fully and meaningfully in civic affairs, is disenfranchising many of this country’s citizens, and is therefore having a detrimental impact on democratic participation. This paper explores the intersecting issues of the digital divide, e-Government at the federal level, and democratic participation with the intention of determining if the concerns have merit and what solutions may be available. One solution proposed includes improving federal government digital libraries.

Introduction

In the last twenty years Internet websites have continuously replaced physical sources of information and products with, for example, online news, e-commerce sites, digital libraries, and online government, commonly known as e-Government. It’s generally true that the Internet has revolutionized the speed and quality of our “horizontal” connections to each other, and perhaps also improved our “vertical” connections with organizations of authority, such as government entities (Faris, 2008). However, there is ample concern and considerable evidence that the Internet has introduced new and exacerbated existing barriers between these government bodies and the citizens they serve.
Before the Internet, our interactions with the government usually involved activities such as acquiring permits and licenses, navigating the criminal justice system, voting, and meeting with officials, all of which required our physical presence and were conducted in a one-way direction. While the latter two activities represent obvious forms of democratic participation, it can be argued that the former two do as well. Every time we freely and openly interact with each other or with authorities for political and government purposes, we experience democracy in action. The Internet has been lauded as a powerful “democratizing force” that would promote “empowerment and direct participation in the political process, allowing the accumulation of information to create informed choices about issues” predominantly by “improving service delivery and responsiveness to citizens, [and thereby] generating greater public confidence in government” (Helbig, Ramón & Ferro, 2009; West, 2004; Jaeger, 2005). This doesn’t in any way imply that obstacles don’t exist, many of which are seem insurmountable. Much evidence suggests that the Internet has indeed removed many impediments, but it has also introduced others. Regardless wherefrom the hindrances arise, they negatively impact democratic participation, and if they are not removed, can produce dire consequences for our country.

These obstacles take many forms. Before the Internet, they usually involved some sort of communication problem, whether the information was misunderstood, incomplete, intentionally withheld or misdirected, not produced, not available, lost, incorrect, or inaccessible. With e-Government, some of these have indeed disappeared or been greatly diminished. Others have simply transmogrified in the electronic environment and therefore are often made worse. The technology required to publish, disseminate, store, and access e-Government information is simply not available to all sectors of society and/or to all levels and divisions of government for a multitude of reasons, and indeed anywhere along the citizen-government information continuum. For the most part, these reasons are social inequalities, prohibitive costs, inadequate or nonexistent computer skills and/or equipment, and distrust in the technology and/or in the government’s use of the technology. Non-government Internet sources of information and products—news and e-commerce--aren’t exempt from these technological barriers, which are broadly umbrellaed under the phrase digital divide, coined by a New York Times writer in 1995, and publicized by Clinton and Gore in 1996 (Warschauer, 2010). However, when the digital divide intersects with electronic government information, democracy suffers.
This paper explores this intersection, determines whether there is indeed cause for alarm, and examines and proposes solutions, specifically focusing on the United States Federal Government. While the digital divide also collides with State, Local, and International governments, often more severely, evaluating the Federal level allows a more manageable discussion, one that encapsulates all levels of government simultaneously. The original focus of my research was the aforementioned intersection with the e-Government form of digital libraries, assuming, incorrectly, that a body of published research existed. Instead, I’ve had to widen the research net to include many forms of e-Government, but in doing so have discovered that the host of viable solutions to the digital divide dilemma does in fact include digital libraries.

This paper is structured as follows. Since many of the concepts that will be discussed—the digital divide, digital libraries, e-Government, and government information—have overlapping meanings in the literature, some of which are not agreed upon by others, I begin by defining these key concepts. Next, I present and discuss the existing research that explores how these concepts interact. Then I discuss the solutions offered by the research as well as my own. Finally, I conclude with a recommendation for further research.

**Definitions**

**Digital Divide:**

According to Warschauer (2010), the concept “refers to the gap between those who have access to computers, the Internet, and online information, and those who lack such access.” Originally meant to refer to social, economic, and cultural barriers to physical access, it has evolved, most pertinent to this paper, to include other factors, present on both ends of the information spectrum, such as inadequate and incomplete provision of information on one end, and low levels of technological skills and trust of government and of technology on the other. The phrase, coined in the 1990’s as the Internet gained popularity, reflected the concerns that officials and advocates were raising about unequal access to the Internet. Clinton and Gore, who popularized it in the context of their information policies, were strong advocates not just for expanding the Internet “information highway,” but also for government efforts to achieve citizen access. Policies to eliminate the digital divide have gained momentum with subsequent
presidential administrations. However, as the wealth of relevant research attests, some of which will be analyzed here, there is much to be done.

**Digital Libraries:**

Many overlapping definitions exist, but Turock & Friedrich (2010) summed it up best: a collection of documents, images, data, sound and visual objects which are “created digitally, are digitized versions of materials that originated in other forms, or are hybrid models where data created digitally are combined with records in other formats, even paper.” Additionally, the authors noted that digital libraries exist in a “variety of forms, from narrow specialized collections with a distinct and limited disciplinary focus” to broad general interest collections containing multiple smaller ones (2010). However, digital libraries are more than a collection of links to digital objects. They’re also institutional databases and repositories of large quantities of data and resources, used and created by, for example, universities, corporations, and government agencies, that also “facilitate information sharing …[and ] improve access to users” by incorporating the latest interface and retrieval technologies (Turock & Friedrich; 2010). What’s more, when digital libraries employ consistent and standard metadata, the information resources become sharable across multiple institutions, extensionable to new platforms and formats, and capable of improved preservation and currency maintenance (Arms, 2000).

**E-Government:**

West (2004) gave the most comprehensive but concise definition: “the delivery of government information and services online through the Internet.” Other authors tended to limit the concept to basically a replication of traditional services deliverable through the Internet, but the diverse services and information that fall under this conceptual rubric are usefully expanded by West into four not mutually exclusive “stages of e-Government” (2004). First, the “billboard” stage is limited to reports and publications for viewing on an agency’s website. Second, in the “partial-service-delivery” stage, citizens can execute some services online, such as filing tax returns and renewing vehicle registrations. Third, the “portal” stage provides an integrated “one-stop” gateway to the services and information of multiple agencies. This usually takes the form of a state or city website that links to its various departments. In combination with the previous stages, the fourth stage also provides “interactive democracy with public outreach and
accountability enhancing features, [which thereby] boosts democratic responsiveness,” and I would add, democratic participation. For example, this stage includes options for personalization and “push technology” that provides email or RSS subscriptions related to individually selected interests.

**Government Information:**

Quinn, Finchum & Malone (2010) defined government information as “any informational matter printed by a government, at government expense or as required by law.” These laws are as old as this country and a keystone of a democratic government. Early in our country’s history, maintenance and access to the public record was of utmost importance. One of the indictments against the King of England in the *Declaration of Independence* stated, “He has called together legislative bodies at places unusual, uncomfortable, and distant from the *depository of their Public Records* (italics mine), for the sole purpose of fatiguing them into compliance with his measures.” Moreover, one of the signers of the *Declaration of Independence* refused to sign the Constitution because it did not specifically guarantee public access to government information (Jaeger, Bertot & Shuler, 2010). However, the Constitution does include three separate clauses, the particulars of which indicate that our founding fathers did indeed hold “fundamental expectations regarding government accountability and communication, the exercise of certain popular rights regarding government information, and subsequent legislation detailing and refining a few particular information policies” (Hernon, 2002). Later, the first act of the U.S. Congress of 1813, which established the Government Printing Office (GPO), “ensured the dissemination of printed legislative and executive materials,” (Jaeger et al., 2010), a mandate that has expanded over time to require that all federal agencies “make and preserve records documenting the official activities of the agency” (Hernon, 2002). Additionally, the law “directs federal agencies to establish a program for the management of agency records; put into place effective controls over the creation, maintenance, and use of records; and create safeguards against the removal or loss of records” (Hernon, 2002). As I will show, these laws are often unevenly followed and are void of enforcement mechanisms, adding to two components of the digital divide, inadequate access to and dissemination of information.
The Intersection

The Components of the Digital Divide

While the problems imposed by the digital divide impact all types of information exchange, be they commercial, news, or entertainment, its impact in the e-Government environment is especially insidious for a free and open civic society. As suggested above, the cause of the digital divide is multidimensional and located at overlapping points along the spectrum of the information flow between government and citizens. Existing social, economic, and cultural factors exposed the technological pressures experienced by what Turock & Friedrich called the “information poor,” a group already socially underserved (2010). They defined it as populations that are economically disadvantaged; geographically isolated by poor communication systems; disadvantaged by cultural and social poverty, especially the illiterate, the elderly, women, and children; minorities who are discriminated against by race, ethnicity, and religion; and the disabled (2010).

This dilemma, widely recognized by social scientists, information professionals, and policy makers, is supported by extensive statistical research. The Pew Internet and American Life Project (2013) has conducted numerous random surveys on various topics related to Internet use for many years. Warschauer (2010) cited Pew’s 2007 data related to the digital divide experienced by particular demographic groups: gender, age, race/ethnicity, geography, income, education, and disability.

- **Gender:** Men and women reported about the same level of Internet use, 70% of the population, although historically men generally dominated the information technology education and professional arenas.

- **Age:** 32% of those 65 and over used the Internet, and research suggested that factors contributing to this low number were income, cognitive ability, and whether they had access to assistance for connectivity and use. Unsurprisingly the two youngest demographic groups had the highest levels of use, those 18-29 at 87% and those 30-49, at 83%.

- **Race/ethnicity:** Although these gaps have been decreasing, in 2007 73% of Whites, 62% of Blacks, and 56% of Latinos reported Internet use. Research suggested that education...
and income explained some of the gap, as high-income Blacks and Latinos used the Internet nearly as much as high-income Whites. The data also suggested that language played a role in the Hispanic population, with 78% of English-dominant Latinos using the Internet, compared to only 32% of Spanish-dominant Latinos.

- **Geography**: Although 73% of both urban and suburban groups accessed the Internet, only 60% of rural residents did. This gap, though also decreasing, is attributed to the lesser presence of broadband in rural areas.

- **Household incomes**: Although these gaps have been decreasing as well, whether a household used the Internet appeared highly determined by income. Income was highly correlated to Internet use, with those under $30,000 at 55%, $30,000 to $49,000 at 69%, $50,000 to $74,000 at 82%, and $75,000 and over at 93%. This indicated the likelihood that higher income households had newer and more computers as well as high-speed Internet connections.

- **Education**: Education continues to be a major factor of the digital divide, with Internet use ranging between 40% of those with less than a high school education to 91% of college graduates. Education levels also correlated to different types of Internet use. For example, college graduates tended to use the Internet to increase productivity. Research also suggested that those with less education, having lower computer skills and knowledge, were less likely to own or trust connectivity devices of any kind.

- **Disability**: A number of factors explained why only 31% of people with disabilities used the Internet: predominantly limited mobility and income, and the prohibitive cost and uneven quality of specialized adaptive technology, the latter especially troublesome for those with hearing and visual impairments.

Digital divide factors aren’t limited to the social, economic, and cultural inequities listed above. Another related factor is whether people trust technology as a means of connectivity and social interaction. Matanda, Jenvey & Phillips (2004) suggested that a significant portion of the population, predominately the elderly, low income earners, and the less educated, experience various levels of “computer anxiety.” Fear of technology can stem from concerns about privacy and security, reluctance to learn new skills, and lack of confidence in the ability to navigate the Internet successfully. Also applicable to e-Government, Matanda et al. (2004) suggested that
degrees of computer anxiety vary according to “pre-existing tendencies and interests,” which suggests that a lack of interest--and I would add, trust--in one area can become entangled with distrust in technology, thereby placing impediments to sources of potentially useful information.

The so-called “supply-side” of the Internet, the people and the technology that is used to create, publish, and disseminate online information also contributes to the digital divide. Regardless of the public’s social or technical ability to access the Internet, “universal service” depends on the existence of available and retrievable information to access in the first place, along with functional equipment on both sides of the exchange (Turock & Friedrich, 2010). This applies regardless of the information sources or topics. While the citizen-side of the digital divide presents dire consequences to democratic participation, so too does the government-side. The laws that require the collection, publication, distribution, and maintenance of the country’s historical record are founded on the principle that widely distributed and accessible government information and an informed and participating citizenry “remains the foundation of the American constitutional republic” (Jaeger et al., 2010). This is no less true now that much of this information is only available on the Internet

While pointing out why “it’s not good public policy to provide government information in electronic format only,” Abbott-Hoduski (1996) illuminated some problems that plague all creators and distributors of online communication. One of the largest issues dates back to the first time data was created and stored electronically, namely preservation, i.e., how, where, and how long information is stored. Storage devices for electronic data have limited life spans due to losses in structural integrity, insufficient maintenance, and planned obsolescence. Software and hardware confront the same problems with the added complications of compatibility and persistent upgrades. In addition to preservation is the issue of human-computer interaction. Poorly designed and counter-intuitive user interfaces, ineffective retrieval systems, and an excessively diverse range of access channels often lead to extreme user dissatisfaction and frustration, and subsequently non-use, presenting one more unnecessary barrier. Since the advent of the digital age, no person or system has escaped at least one of these problems, but financial hardships add insult to injury, thus, the federal government’s current fiscal problems only exacerbate this component of the digital divide.
An Informed Citizenry

Considerable research asserted that as the popularity and prevalence of the Internet grows, the American people expect and favor electronic access to government (Hernon, 2002; Jaeger et al., 2010; Pew, 2002). In fact, Quinn et al. stated that one reason for the growth of demand for government information, albeit predominantly at the local level, is that citizens consider, rightly, public access to government information a “right of citizenship” (2009). Although some authors interpreted the increased demand for e-Government as an indication the digital divide is having less of an impact than commonly thought and therefore has been a positive influence on democratic participation, others had reservations, which I will discuss later.

People seek out government information for a number of reasons. Aside from convenience, these reasons include political engagement, educational research, and major life events. West’s examination of a national survey (CEG, 2001) showed that those who were more politically active were more likely to visit government websites (2004). Moreover, the research showed a correlation to party identification, income levels, and age. These results were cause for optimism among some authors because an increase in political participation, particularly among younger generations, “ensures reasoned reflection and active participation in deliberative democracy” with the added benefit of promoting government transparency and improving the public’s trust in government (Jaeger, 2005; Hernon, 2002; Mossberger, Tolbert & McNeal, 2008). This issue is not without its detractors however. West (2004) submitted that e-Government can reinforce some negative political patterns such as political polarization, especially considering, as Jaeger (2005) and Jorgensen (2006) warned, the possibility that government agencies can slant and/or obscure information in order to advance their party’s interest.

Research in academic settings also exhibited increases in demand and preferences for online government information. Hundreds of university libraries that participate in the Federal Depository Library Program (FDLP), which was created in the mid-19th century to collect, catalog, and ensure access to some portion of the documents printed by the GPO on behalf of government agencies (Jaeger et al., 2010). Due to the budget reductions affecting most universities, many have sought ways to decrease their physical holdings of Depository materials. Toward that end, some have assessed access and topic preferences. For example, the University
Of Montana surveyed a sample of the campus community in order to determine if the preference for access to government information had shifted to the Internet, and if so, what information was being sought. The results showed that over 70% used the Internet in order to find, in descending order, bills and law, data sets, scientific reports, statistics, and historical records (Burroughs, 2009). Although most participants chose Google to conduct searches, the results echo other findings that the public expects to access and find government information online.

As I will discuss later, public libraries have been valuable solutions for alleviating the digital divide. Although the increased reliance on public libraries poses financial burdens, many mitigation measures have been enacted. Nevertheless, for many segments of the population, public libraries are the sole access point to the Internet, and are therefore utilized for every conceivable online purpose, including interacting with e-Government. Bertot, Jaeger, Langa & McClure (2006) stated that the public relies on this access to online government in response to both major and minor life events. They presented the following scenarios: 1) responding to community-wide crises, such as hurricanes, fires, and floods, in order to locate displaced persons and pets as well as evacuation areas and shelters, filing FEMA and insurance forms, and tracking the disaster’s current conditions and cleanup efforts; and 2) accomplishing tasks that were previously conducted in person, such as enrolling in a Medicare prescription program, filling out student loan forms, and submitting immigration information.

As I noted in the introduction, these types of citizen-government communication aren’t obvious examples of democratic participation, but as some suggested, any successful such interaction has the potential to not only combat many components of the digital divide, but to also build trust in technology and in the government. To be fair, though, as I will discuss later, the jury is still out regarding trust.

Alluding to my earlier discussion about the contributions to the digital divide from the government, especially those highlighted by Abbott-Hoduski (1996), another area where there are reasons for both optimism and pessimism lies in whether online government information represents a technical advantage or disadvantage for government agencies and by extension, the public. On one hand, Lin & Eschenfelder (2008) were hopeful. They considered web publishing to be a “cost-effective means of information dissemination, especially in times of budget cuts, [primarily because] web content is easy to maintain,” but only up to a limit I would add.
However, on the other hand, many government information librarians (including some I’ve spoken to personally; see the Appendix), researchers, and advocacy groups expressed a number of concerns, chiefly related to preservation, compliance, and accessibility. Regarding preservation, they noted evidence that implied that many government agencies didn’t employ consistent metadata and storage standards (Jaeger et al., 2010; Lin & Eschenfelder, 2008). Compounding this problem is the lack of compliance of accuracy, currency, transparency, collection, publication, and dissemination requirements (Jorgensen, 2006). The issue is two-fold: 1) the “fluid nature of federal government agencies” (Jorgensen, 2006), and 2) as NAPA claimed, most agencies, “beyond posting information on their websites, don’t view dissemination or preservation to be a central part of their mission” (2013). Hence, the clarion calls for strengthening the Government Printing Office Electronic Information Access Enhancement Act of 1993 (more on this later), by adding enforcement measures for digital publishing and maintenance, and for promoting GPO FDsys as a centralized and integrated user interface and retrieval system (Jaeger et al., 2010; NAPA, 2013).

At the heart of the matter of noncompliance of accuracy, currency, and transparency requirements, not to mention privacy concerns, is the erosion of the public’s trust of government. As I suggested earlier, research has produced mixed results. On the one hand, Hernon (2002) cited a survey (MRG, 2000) that found that of the citizens who reported at least one e-Government transaction in the previous thirty days, 26% said they trusted the government to keep records confidential. Surprisingly to Hernon (2002), an updated survey conducted after 9/11 and the Patriotic Act of 2001 showed that even more citizens believed the e-Government would improve government accountability and national security. This is all the more bewildering considering that, according to Turock & Friedrich (2010), the Patriot Act led to a “decline in privacy, based on the premise that increased access to information formerly considered private is necessary for national security or law enforcement reasons.” In light of the latter statement as well as the recent revelations of Internet spying by NSA and telecommunication companies, I surmise that the public’s trust in government overall and e-Government in particular, is in decline, a conclusion with which West (2004) concurred. He examined a user survey conducted by the Council for Excellence in Government (2001) that measured the impact of e-Government usage on citizen attitudes that showed, “e-Government users were no more likely than nonusers
to be trusting or confident about government or to believe the government is effective in solving problems” (2004).

**The State of Democratic Participation**

Harkening back to the introduction, I broadly defined democratic participation as follows: freely and openly engaging with each other or with the government for the purpose of direct involvement in the political process by gathering information to inform our political decisions and activities as well as our personal and business affairs. This paper has explored many ways in which the digital divide has threatened if not squelched it, but some research has argued for the opposite. In light of this mix of research results, it begs the question, has the intersection of the digital divide and e-Government adversely affected democratic participation?

The definitive answer seems to be “it depends.” While many sectors of society have experienced technological hardships, the research cited above and the Pew surveys (2013) and reports (Rainie & Larsen, 2002; Smith, 2010) reflected that the access gaps are narrowing and that interest and trust in computer technology is growing. Moreover, the increased popularity for and ubiquity of the Internet as well as the increased awareness of and demand for e-Government indicate both an improvement in access and democratic participation.

But Garson and Helbig et al. remained unconvinced. They concluded that e-Government “has not produced the results of a more transparent, democratic, or efficient administration, nor has it produced a more engaged and informed citizenry” (Garson, cited in Helbig et al., 2009). Indeed, the public’s apparent distrust and increased political polarization supported this claim. Additional condemning evidence is the fact that many librarians and other information science professionals continue to be concerned the government does not adequately fulfill its digital responsibilities.

So where do we go from here? What measures have been implemented that support the optimism and what measures should be implemented to waylay the doubts? Before going on to reviewing solutions, let’s review the most insidious components of the digital divide in need of redress:

- Socially, economically, and culturally disadvantaged populations: the elderly; the disabled; racial, ethnic, and linguistic minorities, low income earners, those without college degrees, those less technically skilled and trusting, and rural residents.
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- Misapplied technology by the government: the lack of available, accessible, and retrievable information; insufficient equipment and inconsistent standards for collection, publication, distribution, storage, and preservation; poor interfaces and retrieval systems; and a confusingly high number and diverse types of access points.

Solutions

In the last 40 years, the federal government has created a number of policies aimed to mitigate the effects of the digital divide. These programs provided funding to both study the issues and propose policies. Three major pieces of legislation addressed the need for attaining both skills and low-cost access to computer and Internet technologies. First, in 1970, the U.S. Congress passed the National Commission on Library and Information Science Act. The policy, according to Jorgensen (2006), “substantiated the importance of maintaining public access to information and supported the use of technology as a tool for facilitating the sharing of information resources among libraries.” Although this predated the Internet, many foresaw that future technology, if not carefully employed, “could actually eliminate public access to numerous government publications” (Jorgensen, 2006). Although it’s unclear whether the Act explicitly led to the implementation of any mitigating actions, it’s arguable that these preliminary and crucial steps formed the foundation for the programs that followed as the “World Wide Web” became a household word.

Second, in 1993, the U.S. Congress passed and President Clinton signed the Telecommunications Act, which included a provision, the Universal Service Program for Schools and Libraries, also known as E-Rate. This provision “mandated that the Federal Communications Commission (FCC) use the Universal Service Fund (USF) to provide discounted eligible telecommunications, Internet access, and internal connections to eligible schools and libraries” (FCC, 2013). The USF is funded by mandatory contributions from telecommunications service providers based on a percentage of their revenues (FCC, 2013). Although the fee gets passed on to their customers, the law does not require them to do so.

Third, the Improving America’s Schools Act of 1994, a reauthorization of the Elementary and Secondary Education Act of 1965, provided additional government appropriations in order to, in part, create the Community Technology Centers (CTC) Program. This program provided
community assistance for expanding public library service hours and for creating telecommunications and technology education programs for children and adults. Both E-Rate and CTC were lauded as major achievements, providing millions of dollars annually to schools, community centers, and libraries nationwide, but unfortunately under the Bush Administration, CTC appropriations have since from adult training to only K-12 under the *No Child Left Behind Act of 2001* (Mossberger et al., 2008). While it’s argued that federal funding remains insufficient, Mossberger et al. (2008) noted that many nonprofit groups, such as the Bill and Melinda Gates Foundation and the Boys and Girls Club of America, have contributed significant financial and administrative support towards training, Information Communications Technology (ICT) infrastructure, and technical assistance to communities and schools alike.

Other groups, though not providing financial assistance, have played important role in raising public awareness about the digital divide as well as advocating mitigating measures. Turock & Friedrich (2010) mentioned that the American Library Association (ALA) addresses issues of access as one of its “overarching principles” informing all of its “key action areas.” Additionally, Warschauer (2010) noted that grassroots and advocacy groups, such as the Digital Inclusion Network (http://e-democracy.org), “attempt to coordinate information and organizing aimed at talking about the digital divide” with online forums, blogs, events, and article archives for research assistance. Other such organizations expand their focus to include government information and government transparency, such as Free Government Information (http://freegovinfo.info) and the Sunlight Foundation (http://sunlightfoundation.com).

A government policy that was specifically designed to address the government side of the digital divide is the *E-Government Act of 2002*, whose stated purpose was to establish a “broad framework of measures that require using Internet-based information technology to enhance citizen access to Government information and services,” including the promotion of public awareness of government services and information. Referencing this Act, West (2004) proposed that government agencies should publicize their websites with marketing tools such as placing their URL’s on license plates, government issued vehicles, and infrastructure projects, and in televised public service announcements. That these tools have indeed been employed in the years since West’s suggestions indicates that the *E-Government Act* has been effective toward this end, as have public libraries by playing a key role in raising public awareness and
providing access to online government information and services have noted (Bertot et al., 2006; Turock & Friedrich, 2010).

One technological barrier to Internet access that continues to plague low income earners, rural residents, and public libraries in less affluent communities, is the inability to afford and/or attain high-speed Internet connectivity due to the ever-escalating costs imposed by providers and the inadequate or complete lack of telecommunications infrastructure such as wired and wireless broadband. According to Turock & Friedrich (2010), the issues of whether such high-speed access was a universal right, who would pay for, and if it could be made affordable had been only recently debated by the library and information science community, federal legislators, and policy makers. Mossberger et al. (2008) also discussed this state of inattention at the federal level, but they did highlight that many municipalities have filled this access gap most prominently by providing tax-payer funded broadband wireless services. These services became available primarily in rural municipalities especially those restricted by terrain, but since have expanded to larger cities.

Have any of the proposed and implemented programs made a dent in the digital divide? The evidence suggests that they have. Each of the government policies included provisions for evaluation, and, by all reports, connectivity, skills, and awareness have all shown improvements. Additionally, the survey results and research discussed above showed that the use of public libraries for Internet connectivity has grown steadily and that the Internet use gaps among the demographic groups continue to narrow. It would seem that any efforts toward eliminating the conditions that have created the “information poor” could not but ease the burdens imposed by the digital divide (Turock & Friedrich, 2010). Unfortunately, this doesn’t necessarily translate to enhanced democratic participation, but doing nothing most certainly doesn’t. And quite possibly, considering that some research has reported that the demand for online government information and service has gained momentum, then perhaps democratic participation has as well, and therefore the digital divide may in fact be progressing toward a united digital society.

I now shift the focus to the internal ICT measures the federal government has and should carry out. West (2004) suggested a number of ways government could “harness the transforming power” of e-Government, many of which the E-Government Act was designed to and have addressed, namely inadequate funding, inconsistent and counterintuitive interface features, and the lack of integrated web offerings and cooperation among government agencies.
Regarding inadequate funding, West (2004) made the important observation that state and local (and I would add federal) governments have not made e-Government or other ICT infrastructure a budget priority. Although the costs of ICT have decreased over the year, by only spending 1-2% of their budgets, it has been nearly impossible for most state and local governments to keep pace with the rapid growth of these technologies in the current market. Therefore, the inability to adequately fund e-Government poses yet one more hurdle toward equitable access and democratic participation. I concur with West (2004) when he asserted that, given the revolutionary potential of e-Government, it makes sense to support it with [even more] tax dollars,” rather than with, as some have proposed, alternative funding sources—e.g., advertisements on government websites and user fees--that are fraught with complications. While the reliance on commercial dollars carries obvious conflicts, reliance on user fees would only widen the digital divide by “disenfranchising people with limited means” (West, 2004).

In 2003, the total initial appropriations in the *E-Government Act* were $63 million annually. Considering that the entire 2003 federal budget submitted by President Bush called for outlays of $2.3 trillion, federal e-Government spending accounted for only 0.003%. Compared to the state and local annual outlays of 1-2%, the federal government appears not to consider ICT a priority. However, on further examination this assessment doesn’t hold up. The 1-2% covers all the state and local agencies’ ICT expenditures, whereas each individual federal agency includes technology spending in their own budgets. But then again, the Act was meant to improve integration, develop and provide strategies, guidelines, and technical assistance to all federal agencies, huge undertakings that seem impossible under these financial conditions, especially considering that at least half of the $63 million is earmarked for creating and operating new departments within the Executive Branch, such as the Office of E-Government & Information Technology under the Office of Management & Budget.

The *E-Government Act* included further provisions, some that echoed West’s (2004) recommendations about interagency integration, coordination, and consistency, and others, such as keeping up with emerging Internet technologies and best practices, enhancing government information and services quality, and adhering to laws regarding security, privacy, record retention, and disabled persons. Although the *GPO Access Act*, being only an addendum to the U.S. Code Title 44 that governs GPO, included no new appropriations for e-Government, its mandate—to make digital federal information accessible to citizens, businesses, and government
agencies by creating an electronic storage facility and an online directory and integrated interagency access point—could potentially allow GPO to become, as it aims to be, a powerful and viable supply-side democracy-enhancing solution.

Following the passage of the *GPO Access Act*, GPO launched GPO Access in 1994, which provided online access to information from all three branches of the federal government. Then in 2009, GPO unveiled the “Next Generation” system FDsys, which enables users, according to the website, to search and browse with advanced navigational features, such as faceted results and pull-down query filters, and to access metadata, such as MODS and PREMIS in standard XML formats (2013). FDsys also serves as a Content Management System (CMS) which “controls digital content throughout its lifecycle to ensure content integrity and authenticity,” and as a preservation repository, which, by following archiving standards, “guarantees long-term preservation and access” (FDsys, 2013). To further reinforce its security and preservation values, NAPA (2013) said that once a document has been uploaded to FDsys, it cannot be withdrawn without going through a “lengthy and thorough process to ensure that documents are not withdrawn for improper (e.g., political) reasons,” thus also, I would think, adding the values of improved transparency and therefore citizens’ trust.

In light of FDsys’ capabilities and functions, it not only serves as a centralized e-Government website containing elements of West’s (2004) e-Government “stages”—publications, central public access portals, and interactivity features—but also as a government digital library. FDsys contains all of the major elements of digital libraries as briefly defined earlier: metadata-driven digital collections, databases and repositories in a variety of forms, formats, and topics that are sharable extensionable, and preservable.

Although FDsys has the potential to “harness the transforming [and democratizing] power” of e-Government, it is essentially crippled by the absence of enforcement measures in both the *E-Government Act* and the *GPO Access Act*. This obstacle might be overcome if GPO worked in conjunction with various departments within the Executive branch and the Office of the White House, such as the aforementioned Office of E-Government & Information Technology and initiatives such as Business.gov, Data.gov, Science.gov, and Usa.gov. However, these types of programs are vulnerable to political upheavals and the “fluid nature of federal government agencies” (Jorgensen, 2006). Indeed many e-Government programs have only recently been initiated under the Obama administration, leaving one to worry about their
continuity. Making this coming together even less likely though is, ironically, one of the most insidious issues West condemned and the E-Government Act was enacted to combat: the propensity for government agencies and branches to “guard their autonomy” even when “collaboration would improve services to citizens [and] improve the agencies’ efficiency and effectiveness” (West, 2004; E-Government Act, 2002). That GPO operates under the authority of the Legislative branch makes such a collaboration only that much more improbable.

But it’s important to impart that FDsys is not the only federal government digital library providing access to and retention of the public record. The public record is vast and diverse, yet weighed down my politics and bureaucracy, as is the federal government whose many branches and agencies serve a variety of business, cultural, economic, educational, medical, historical, international, judicial, legislative, military, scientific, and statistical purposes and competing constituencies. Thus, FDsys, in its current rendition is incapable of satisfying everyone’s government information needs. Fortunately, countless other government digital libraries exist ranging everywhere from “narrow specialized collections” to large general interest collections, many of which are of high quality in their delivery of many if not all of the elements of digital libraries (Turock & Friedrich, 2010). Links to some are provided below. Conceivably, such collaboration as mentioned above could strengthen FDsys’ ability to act as an integrated access point to all federal digital libraries, which would go a long way toward untangling the intersection of the digital divide and e-Government. That democratic participation could only benefit as a result, makes such an endeavor necessary and well worth the effort.

**Conclusion**

This paper has shown that there are reasons to be concerned that the digital divide has adversely impacted democratic participation, but it has shown that there are also reasons to be hopeful. On one hand, research has shown that demand for, access to, and use of the Internet is increasing across most socially, economically, and culturally disadvantaged populations, primarily due to the government funding channeled into schools, public libraries, and communities for training and Internet technology infrastructure. What’s more, the cost of Internet technology has decreased steadily in inverse proportion to its functionality, making access more affordable for economically disadvantaged groups and communities and digital
information more manageable for government agencies. As Internet use has grown and as more government entities have promoted their online information and services, the demand for and use of e-Government has also gained momentum. Whether these positive signs indicate e-Government has not isolated citizens from democratic participation is still open for debate because some research indicates otherwise.

There are valid reasons for concern as well. Among citizens and information professionals, trust in government overall and its use of the Internet have shown signs of distress, particularly regarding privacy, security, transparency, and accountability. Recent economic crises affecting government budgets and disadvantaged populations have kept public and personal ICT expenditures too low to keep pace with the ever-increasing amount of Internet content and demand. The government programs that have addressed the digital divide and developed e-Government have not escaped from political and interagency conflict or from unwieldy bureaucracy. Thus, although the federal government has considerable content, technology, skilled professionals, and some great but underfunded e-Government initiatives at its disposal, the lack of integration and collaboration has only served to widen the digital divide’s impact on democratic participation.

So the answer to the question I asked earlier--has the intersection of the digital divide and e-Government adversely affected democratic participation?--remains, “it depends.” But I believe that the solutions put forward have had some success and have the potential to have more. There are additional reasons to be optimistic. I applaud the efforts that both the Clinton and the Obama administrations have initiated, without which the state of e-Government and democracy would probably be in more dire straits. I also applaud the Pew Research Center for its ongoing research into both the digital divide and online government, thus raising awareness among the public, policy makers, information professionals, and the ICT industry about the gains that have been made and the areas that need attention.

What seems to be lacking, and what I had originally sought, is published research on government digital libraries. Most researchers don’t properly differentiate them from the broad category of e-Government, and given the plethora of government digital collections, databases, and repositories, focused and targeted evaluation is warranted. They should be evaluated for accessibility, effectiveness, organization, content, and (dare I say) integrability for the benefit of citizens, information professionals, and the government agencies themselves. Although any
improvement on the supply-side of the digital divide can only enhance democracy in the long run, I propose that research into the intersecting impact of the two with government digital libraries can as well. Difficult as formulating the research might be, it needs doing.

References


**Federal Government Digital Libraries**

**Business, Commerce, Demographics, and Economics**

- Bureau of Economic Analysis: http://www.bea.gov/
• Census Bureau American FactFinder: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
• Federal Reserve Economic Data: http://research.stlouisfed.org/fred2/
• National Transpiration Library: http://ntl.bts.gov/

Education and History
• Clinton Presidential Library: http://www.clintonlibrary.gov/digital-library.html
• Department of Education Research & Statistics: http://www2.ed.gov/rschstat/
• Library of Congress. American Memory Project: http://memory.loc.gov/ammem/
• National Center for Education Statistics: http://nces.ed.gov/
• Smithsonian Institute Digital Library: http://library.si.edu/digital-library

International and Diplomatic Affairs
• Department of State Office of the Historian: http://history.state.gov/
• Peace Corps Digital Library: http://collection.peacecorps.gov/

Justice and Legislation
• Bureau of Justice Statistics: http://www.bjs.gov/

Military and Defense
• Central Intelligence Agency: https://www.cia.gov/library/publications/
• Homeland Security Digital Library: https://www.hSDL.org/
• Pentagon Digital Library: http://www.whs.mil/library/
Appendix

One of my job functions as a Library Assistant at the University of California Davis main library—a designated State of California and Federal Depository Library—is to receive and process government documents in the Acquisitions department. In order to keep abreast with changes in collection and processing procedures and policies affecting all libraries, I subscribe to two listservs, one for California collections and one for Federal collections. In order to assess concerns and opinions about the state of online federal government information, I distributed a brief survey, the questions of which are listed below, including some of the six responses I received from government information librarians. Some answers were combined when they were similar. Though only a small sample, their answers indicate concerns about preservation, funding, and notably government transparency. It’s heartening to note that some of noticed an improvement, or the appearance of, in accessibility of online government information.

1. What concerns and opinions, if any, do you have about the majority of Federal Government Documents being only available online? For example, are you concerned about government transparency, digital preservation, user accessibility, etc.? 
Online documents are much easier for geographically distant library patrons to access. Now our patrons can find the items in our catalog and link directly to them. I do have some concerns about preservation and the ability of government agencies to "revise" existing online materials, if pressured to do so by political concerns or expediency.

I worry about access over time. For less important (ephemeral) publications, digital resources would be fine, but who would make that decision? The people, libraries, the government agencies themselves?

Not enough free public computers at the library for accessing online docs, many people still not computer-literate, many federal sites are hard to navigate.

Sometimes documents become due to broken links and website redesign. Most library users have no problems accessing Government Documents online but some of our senior citizens don't have the skills or desire to work with online sources and so won't have the accessibility as others, also some of the developmental disabled in our community can't access online documents.

2. What steps can libraries, government agencies, lawmakers, or other organizations take to mitigate these concerns?

- Involve depository libraries to divide up preservation activities on a regional, state level.
- Libraries should catalog everything and make it visible and available to their users. Government agencies at all levels should post and archive public documents online and there should be legislation mandating this.
- I'm not at all certain that government agencies and lawmakers will concern themselves with continued access. It falls on the shoulders of GPO.
- Government agencies can commit to keeping a permanent online archive of what they currently have online, in addition to current and future years' online information.
- It’s always a money issue. If libraries received more money we could offer more classes on how to retrieve documents online.

3. Do you think that FDsys (Federal Digital System) or Federal Government agency websites and digital libraries, can potentially mitigate these concerns? If so, how specifically?

- Yes, they are another point of access; the more ways to get the needed information, the better. FDsys provides the authorized, official version of core US government
publications and this should be emphasized. USA.gov is a good, user-friendly portal for the general public to the wealth of federal government information available online.

- Individual agency websites are not a help because online documents disappear. They need to be in one centralized place.
- FDsys can also commit to keeping a permanent online archive of what they currently provide, so that previous years don't just fall off to make room for newer.
- Unfortunately, the Federal Government will do what is cost effective for them regardless of the accessibility issues.

4. In your work, if you often seek out Federal Government Information for selection and bibliography creation or on behalf of users, have you noticed less or more such information being available and/or accessible? In other words, do you think that having only online has decreased the overall availability of documents?

- No I think it can make this information more accessible.
- I think the availability of documents has increased, especially those published by the federal government.
- Online-only gives the impression of fewer items available, as few have the time and/or perseverance to seek out government information online
- There is more available because every library that has online workstations for their users has access to more updated information. The problem is marketing and promotion of the online resources. Another problem is that it is very hard to know how much people are accessing the information. Probably people are getting the government information they need online because our circulating tangible government materials are seldom checked out.

5. Have you noticed less or more users requesting or accessing Federal Government Information now in comparison to when only print was available? Regardless of your answer why do you think that is?

- I haven't noticed any trend but I would think having this information online allows patrons easier access to the information.
• There's more use now; online documents are readily available through the Library catalog. It's easier to publicize the existence and availability of government documents and information on the Library website and through subject guides.

• Yes, fewer questions; probably because people are getting the information (or only think they are getting the right information, which is far more dangerous) online through Google.

• Most definitely less are accessing our print collection because most of our tangible publications are of historical value only. If customers want the latest information they access through government websites and search engines.