The co-evolution of e-government and public libraries: Technologies, access, education, and partnerships

Paul T. Jaeger, Natalie N. Greene, John Carlo Bertot *, Natalie Perkins, Emily E. Wahl

Information Policy & Access Center, College of Information Studies, University of Maryland College Park, 4105 Hornbake Building, South Wing, College Park, MD 20742, USA

ARTICLE INFO

ABSTRACT

While many studies have discussed the impacts of electronic government (e-government) on public libraries, little research has considered the extent to which the current federal government's implementation of e-government relies on the public technology access, training, and support provided by public libraries. A range of data and policy materials are drawn upon in order to illuminate the co-evolution of public libraries and e-government. Beginning with a discussion of the development of e-government and its impacts in public libraries, the access, goals, and challenges of e-government are detailed as they relate to libraries, and the areas in which current implementations of e-government would not be possible without public libraries. Based on the explorations of the co-evolution of e-government and public libraries, key policy issues are offered that require reconceptualization in order to better support the interrelationship between e-government and public libraries.

© 2012 Elsevier Inc. All rights reserved.

1. Introduction

The widespread adoption of free Internet access in public libraries has closely paralleled the increases in government reliance on e-government as a means of delivering information, communication, and services. The rise of e-government and public library Internet access both began in earnest in the mid-1990s, in the context of the launch of the World Wide Web, rapid increases in Internet adoption, and the rise of e-commerce (Bertot, 2011; Jaeger, Bertot, & Fleischmann, 2011). The relationship between public libraries and e-government has been widely documented in terms of services, training, education, and other key areas that have reshaped the roles of computers in libraries and libraries in their communities (for a review, see Bertot, Jaeger, & McClure, 2011; Jaeger & Bertot, 2011a). This discourse has focused squarely on the impacts of e-government on public libraries, yet the widespread reliance of government agencies on e-government is only feasible with public libraries providing access, assistance, training, and support to those with limited or no access to computing and Internet-enabled technologies, digital literacy, and a range of literacy, language, and civics, and other challenges.

Though perhaps a subtle process, the past 15 years engendered a co-evolution of e-government and public libraries, with the former increasingly possible because of the changes adopted by the latter. As government agencies relied more on public libraries to deliver e-government access, training, and assistance, public libraries have reimaged themselves as community anchor institutions that provide an opportunity for members of the public to access, receive assistance, and engage e-government services. This shift toward emphasizing e-government access and assistance fits with a long-standing commitment of librarians to develop service roles that reflect community needs. While public libraries have changed in response to the expectations and demands of e-government, the evolution of e-government to its current state would be more limited without the changes in public libraries. This process of co-evolution has resulted in a dramatic shift in public expectations of both government and libraries.

2. Problem statement

Though initially envisioned as direct interaction between government and citizens (often referred to as G-2-C), businesses (often referred to as G-2-B), and governments (often referred to as G-2-G), the initial scholars and practitioners of e-government failed to account for the preference for multiple means of interaction with governments by users (Ebbers, Pieterson, & Noordman, 2008). Moreover, there was a lack of recognition that a range of user communities (e.g., immigrants or seniors) might prefer, and even require, intermediated assistance to engage in e-government activities, services, and resources in order to overcome a number of challenges with digital technologies, e-government service design, and system usability and accessibility (Bertot & Jaeger, 2006; Niehaves, 2011; Olalere & Lazar, 2011; van Deursen & van Dijk, 2009). Public libraries increasingly provide this assistance, but face challenges in the provision of these services.

---

* Corresponding author.
E-mail address: jbertot@umd.edu (J.C. Bertot).

3. Literature review

Over the last decade, the growth of e-government services by government agencies has led to an increasing awareness of the provision of e-government services in libraries from government, information, and library researchers. The following literature review provides context for the survey data and analysis, specifically relating to the intersections of e-government and public libraries, and the access goals and challenges of e-government policy in the U.S.

3.1. The intersections of e-government and public libraries

3.1.1. The growth of e-government

Today, a significant portion of the American public's interactions with the government occurs online. As of 2010, 61% of adults, and 82% of Internet-using adults, had used government Web sites. Online methods are the preferred way of contacting the government for Internet users, and the second-most preferred method, after the telephone, overall (Smith, 2010). As the government's online presence has expanded into the realm of social media, the public has ever-new and increasing opportunities for online interactions with the government.

Though the government's use of social media is a relatively new phenomenon, 31% of Internet users are government social-media users; 95% of these government social-media users, however, were also users of more traditional government Web sites, suggesting that the government's use of social media has not attracted much of a new audience. The public has not yet been receptive to certain forms of government social media; the population of Internet users following government agencies or officials on Twitter, for instance, is too small to be statistically significant (Smith, 2010). Overall, however, government agencies and officials, however, feel that they have been successful thus far with facilitating participation, engagement, and collaboration through government use of social media (Bonson, Torres, Royo, & Flores, 2012; Ganapati & Reddick, 2012; Nam, 2012; Sandoval-Almazan & Gil-Garcia, 2012). In large part, usage challenges are tied to a lack of usability, findability, and structural coherence of government social media presences (Bertot, Jaeger, & Hansen, 2012; Bertot, Jaeger, Munson, & Glaisyer, 2010; Jaeger, Bertot, et al. 2012; Jaeger, Shilton, et al., in press).

In the early 1990s, when e-government was in its infancy, interest among government agencies grew quickly. A number of agencies began releasing information in electronic format, and some experimented with electronic delivery of services, including an electronic filing program from the Internal Revenue Service (IRS) and electronic benefits transfer programs from the United States Department of Agriculture. The true beginnings of e-government, however, can perhaps be seen even decades earlier, with the automation in the government through such means as voicemail, video-conferencing, and eventually e-mail, allowing federal agencies to complete a much greater volume of work without dramatic staff increases (U.S. Congress, Office of Technology Assessment, 1993).

Ideally, many of the same benefits derived from the automation of government would further emerge with the introduction of e-government: greater efficiency, lower costs, and improved access. Still, a 1993 report from the U.S. Congress Office of Technology Assessment (OTA) raised a number of concerns, many of which remain today, concluding that there was no guarantee that e-government would produce the aforementioned benefits unless the implementation of e-government addressed certain challenges:

- Electronic delivery of services may not have been user-friendly, and may have amplified the digital divide;
- Structure of government information technology was not designed for electronic delivery and was out of date;
- Lack of universal and affordable access to the telecommunications infrastructure; and

- Information policy structure would need to be continually re-thought and updated as electronic delivery was implemented and expanded (U.S. Congress, Office of Technology Assessment, 1993).

Not long after this report was issued, the scope and speed of the development of e-government accelerated at a rate that has yet to abate. In addition, the Office of Technology Assessment was closed in a budget cutting move, eliminating the agency that could provide guidance to Congress in creating e-government-related legislation (Mooney, 2005).

Echoing the concerns of the OTA, a 1993 report from the Computer Professionals for Social Responsibility (CPSR) detailed the steps necessary to ensure that the then-proposed National Information Infrastructure program[1] best served the entire public, which included the need for universal access:

> Universal access to the NII is a necessary and basic condition of citizenship in our information-driven society. Guaranteeing such access is therefore an absolute requirement for any degree of equity. At a minimum... everyone in the country must have a place they can go to access the NII (Computer Professionals for Social Responsibility, 1993).

Recent government reports on Internet access have found these same issues to be key challenges today. In 2010, both the Federal Communications Commission's *National Broadband Plan* (Federal Communications Commission, 2010) and the National Council on Disability's *National Disability Policy: A Progress Report* (National Council on Disability, 2009), noted the continuing widespread failure of the federal government to adequately focus on, much less provide, equitable access to e-government.

A key emphasis of e-government development has been on interactions between the government and members of the public, with many government agencies viewing e-government as their primary method for interacting with members of the public (Bertot & Jaeger, 2006, 2008; Ebbers et al., 2008; Steib & Navarro, 2006). The promise of e-government is often presented as either to engage citizenry in government in a user-centered manner, or to develop quality government services and delivery systems that are efficient and effective (Bertot & Jaeger, 2008). From the agency perspective, however, the focus has typically been on making interactions with the public easier for the agency, not the citizen (Jaeger & Bertot, 2010, 2011b). The Medicare Part D Prescription Drug Plan enrollment program in 2006 provided a clear example of this situation as it required older adults—a group with large gaps in usage of the Internet—to examine the different benefits plans and sign up for one online (Jaeger, 2008). As e-government has developed, the challenges noted by the OTA in 1993 did not emerge as a major focus in public policy, which has focused more on the expansion of e-government than ensuring e-government is equally available to and usable by all members of the public (Jaeger & Bertot, 2010, 2011b).

3.1.2. E-government in the public library

With the advent of the World Wide Web in the 1990s, public libraries quickly became providers of free public access to the Internet, with virtually every public library offering public access by the year 2002 (Bertot, 2011; Jaeger et al., 2011). By the time the federal government began to increase its focus on e-government, public libraries had already established the Internet infrastructure in order to serve as a main access point to e-government information, communication, and services (Bishop, 2011; Jaeger & Bertot, 2011a, 2011b). As a result, for many years, the public library has served as the primary—or

---

[1] At its core, the National Information Infrastructure program was an initiative designed to build an Internet-based technical infrastructure over which to deliver a range of educational, government, and other services and resources (Department of Commerce, 1993).

only—available access point for e-government information, training, and assistance in communities across the country (Bertot, Jaeger, Wahl, & Sigler, 2011; Bertot, McClure, & Jaeger, 2008). Serving as a guarantor of e-government access is a natural extension of the established social roles of the public library: "The public library is one place that is culturally ingrained as a trusted source of free and open information access and exchange" (Jaeger & Burnett, 2005, p. 487).

In the current policy environment, public libraries serve as the main social institution ensuring access and assistance in using e-government, working to surmount the challenges noted by the OTA nearly two decades ago. Public libraries have taken on this role—or, frequently, had this role thrust upon them. As government agencies have placed greater emphasis on the electronic delivery of services, those people who do not have Internet access, have insufficient access, or lack the necessary technological skills or knowledge of government rely on the public library as a safety net. Sometimes users are referred to the library by the government agency with which they are attempting to interact. The U.S. Citizenship and Immigration Services, for instance, recommends public libraries both as a resource for information and for Internet access throughout the immigration process in their "Welcome to the United States: A Guide for New Immigrants" (U.S. Citizenship and Immigration Services, 2007). In addition, the public library is often simply the only option. Today, 99.3% of public libraries provide free public Internet access, and 64.5% are the only free provider of public access Internet in their community (Bertot et al., 2011). With just 60% of the American population having broadband access at home, many are therefore reliant on their public libraries as their sole point of Internet access (Rainie, 2010). Broadband access is increasingly important in interacting with e-government, as e-government services are increasingly designed to be high bandwidth applications that presume users will have broadband access (Bertot et al., 2012).

Public libraries have fallen not only into the role of providing Internet access for e-government, but also into providing training in the use of e-government. Simply providing access to the requisite technology is not enough for those who do not know how to use the technology, or who do not understand the e-government content with which they are interacting. In 2010, 89.7% of public libraries helped users understand and use government Web sites, 80.7% of public libraries helped users apply for e-government services, and 67.8% of public libraries helped users complete e-government forms (Bertot, Sigler, DeCoster, et al., 2011). This service is not without its challenges, however, which include lack of staff, lack of staff expertise, and lack of public computers.

Some public libraries have tried to work around these challenges by forming partnerships with community organizations and government agencies. One notable example is the Library Partnership, a branch of the Alachua County (FL) Library District. Through partnerships with nearly 40 community organizations (non-profits and the Florida Department of Children and Families), the Library Partnership shares space within its branch location with number of child-welfare-related agencies (Blumenstein, 2009). The librarians, then, do not need to become experts on every aspect of child welfare in order to best serve their users, and the users do not need to travel around to various agency offices.. Instead, the users can interact directly and in person with the relevant agencies themselves, and use library resources, all without leaving the building. The agencies benefit from the space and resources of the library, and the libraries benefit from the expertise of the agencies, all at maximum convenience to the users. Another such partnership is Hartford (CT) Public Library's "American Place" (http://tap.hplct.org/tap/), which provides a range of immigrant services, including English language classes, citizenship courses, and digital literacy courses. This program also serves as a passport center, and as a venue for new citizen swearing-in ceremonies. Hartford Public Library's program partners with the public school system, U.S. Citizenship and Immigration Services (USCIS), and a number of nonprofits that offer a range of immigrant services and resources.

3.2. Access goals and challenges for e-government policy

Current e-government policy tends to be driven by an overarching goal of putting all information, communication, and services online, and expecting the public to follow. In the case of social media, the approach one often hears is "going where the people are." But as shown in studies (e.g., Smith, 2010), the number of people actually engaged in social media exchange with government agencies is quite small. The hope, to save money and to streamline government information by ignoring most avenues of interaction that are not Internet-based, is not necessarily supported in actuality. "To develop citizen-oriented E-Government services that achieve cost savings implies that governments know what citizens want from E-Government" (Bertot & Jaeger, 2008, p. 149). Currently, agencies are placing large amounts of material online and assuming that the American public will both want to interact with it, and also know how to interact with it. There are several inherent problems in this policy approach. Threats to the government's economic ability to sustain these ambitions, citizens' access problems, interfering security policies, and an unclear path for how to preserve these materials all get in the way of a robust e-government approach.

The early promise of e-government as a tool for transparency and access has been threatened by the economic recession and a change in administration. In 2009, the newly formed President Obama White House team planned an Internet strategy similar to President Obama's campaign, namely a heavy reliance on social media and a redesign of traditional government Web sites; President Obama signed the Open Government Directive shortly following his inauguration, which instructed every government agency to "open its doors and its data to the American people" (White House, 2009, p. 1). Through "Open for Questions," an online forum that enabled people to enter queries, the President responded to directly to the public in an online town hall meeting. Many Web sites were created to increase access to information, including Recovery.gov, which tracks stimulus dollars; USASpending.gov, which showcases general government expenditures; and Data.gov, which serves as a data warehouse for government datasets. After this promising start, however, budget cuts forced the Obama administration to scale back its plans for widespread open government innovations. Designated federal funds for e-government have been cut from $34 million in 2010 to $8 million in 2011, a loss of 76.5% (Lipowicz, 2011). Also, the initiatives implemented by agencies as required by the Open Government Directive, were largely perfunctory implementations to meet a mandate, rather than a more strategic look across an agency's overall electronic communications, dissemination, and technology efforts (Linders, in press).

3.2.1. The digital divide

The biggest challenge for e-government remains the digital divide, the gap between those who use the Internet and related technologies, and those who do not. The reasons for the lack of use include access barriers such as poverty, education, disability, geography, and missing infrastructure, that is, broadband (Holt & Holt, 2010; Jaeger, Bertot, Thompson, Katz, & DeCoster, 2012; Kinney, 2010). The U.S. has not attained equality of access when it comes to the Internet, and progress in bridging this divide has been slow. The Pew Internet & American Life Project (Pew Internet) found that in 2006, only 73% of American adults described themselves as Internet users (Horrigan, 2007). Approximately two years later, the same survey found that number had only increased to 75% (Béllanger & Carter, 2009). At the end of 2011, 74% of adults were Internet users; many of them relied entirely on a mobile device for access and a high number of Internet users were going online for exclusively entertainment purposes (Fox, 2011a; Rainie, 2010; Richtel, 2012; Zickuhr & Smith, 2012).

The digital divide remains a major concern for e-government, especially as government services are increasingly only available in electronic formats for constituents who typically have the least amount

of access. An ongoing study of libraries and e-government funded by the Institute of Museum and Library Services (IMLS) (Bertot & Jaeger, 2012; Bertot et al., 2011) found that:

- In 2002, the Florida Department of Children and Families created a one-stop online benefits application ("Access Florida"). This application, which now can only be completed online, is designed for those who need food, medical, and other forms of social benefits.
- In August 2011, Florida law mandated that all applications and processes for unemployment benefits take place online. This included signing up for benefits, renewing benefits, and providing proof of job-seeking efforts.
- New Jersey, Virginia, and a number of other states no longer make tax forms available in print formats, and the IRS is increasingly migrating towards online tax filing.
- USCIS has stated its intention of moving the immigration process completely online within the next three years.

In short, this migration to electronic-only services by agencies, particularly social service agencies, affect those who are least likely to have Internet access in the home, much less the digital or other skills necessary to complete the applications, file taxes online, or other mandated activities. In addition, age, level of education, income, race, disability, language, literacy, and the interactions between these various factors all contribute to the digital divide and prevent e-government from being universally and affordably accessible (Kinney, 2010).

A lack of availability of non-English materials related to the United States has hindered many Americans who do not speak English from using e-government. For example, 32% of Latinos in the United States who do not speak English use the Internet, but 78% of Latinos who speak English use the Internet (Fox & Livingston, 2007; Livingston, 2010). Similar language-related differences can be found in other groups (Fairlie, 2005; Spooner, Rainie, & Meredith, 2001). Additionally, lower levels of formal education are typically linked to lower levels of technological literacy—understanding how to use technologies such as computers and the Internet—and government literacy, which is understanding how government works and the reasons for using e-government (Jaeger, Bertot, Shuler, & McGilvray, 2012; Jaeger & Thompson, 2003, 2004; Powell, Byrne, & Dailey, 2010).

Currently, 74% of Americans are Internet users, but these numbers are lower for people of color, those over age 50, those whose annual household income is less than $30,000, those who have a high-school level education or lower, those who live in rural communities, and those with disabilities (Fox, 2011a; Rainie, 2010). The most dramatic differences are for people 65 years of age or older, of whom 38% are Internet users, and people with less than a high-school level of education, of whom 39% are Internet users (Fox, 2011a; Rainie, 2010). Worth noting is that the previously stated factors contributing to the digital divide interact with one another, and that many people may fall into multiple categories. People with disabilities, for instance, are statistically more likely to be 50 years of age or older, have an annual household income of $30,000 or less, and have a high-school level of education or less (Fox, 2011a; Rainie, 2010). Those who fall into multiple categories will presumably face even greater challenges in accessing the Internet, and therefore e-government.

Implemented policies attempt to bridge this divide, but the success of such policies has been spotty at best. Sections 254 and 255 of the Telecommunications Act of 1996, for example, regulate universal service and disability access to telecommunications devices. Section 254, mandating universal access, requires that telecommunications companies provide services to all regions of the country, at comparable and equitable rates (Telecommunications Act of 1996, 1996). Whether this has actually happened is unclear. Gabel (2007) found that several companies had managed to skirt the rules of universal service. This demonstrated the Federal Communications Commission's "problem of establishing imprecise and non-binding regulatory rules" that provide "parties considerable latitude" and "a large degree of flexibility

regarding the use of money," giving companies "the opportunity to ignore portions of the statute" (Gabel, 2007, p. 345).

The E-rate program, developed out of requirements to provide equitable access to telecommunications services in schools, requires that "telecommunications services, Internet access, and internal connections will be provided at discounts ranging from 20% to 90% to eligible schools and libraries" (Gilroy, 2005). There are considerable controversies surrounding this policy, as well. First, the telecommunications companies shifted the costs of the program to their customers, in the form of a universal service surcharge on individual bills. Second, the fact that the administration of E-rate funding to the schools and libraries is now tied with compliance to the Children's Internet Protection Act (CIPA), has led to concerns about the impact of filters on the ability to access important information sources, such as e-government (Jaeger, Bertot, & McClure, 2004; Jaeger & Yan, 2009). CIPA requires that filters be placed on computers in schools and libraries, ostensibly to protect children from undesirable Web sites. Because there is such significant money involved, by 2005, 100% of schools complied with CIPA requirements in order to get funding (Jaeger & Yan, 2009).

Section 255 of CIPA, which promoted access for persons with disabilities, showed great promise. Rather than lump this topic into the universal service requirement, the Federal Communications Commission (FCC) actually divided it into its own category, stating that manufacturers "shall ensure that the equipment is designed, developed, and fabricated to be accessible to and usable by individuals with disabilities, if readily achievable," as well as notes about the service requirements for accessibility (Telecommunications Act of 1996, 1996). The issue with this particular section is the influence of the telecom corporations in the implementation of the policy, and the definition of "readily achievable." Kanayama (2003) found that the FCC defined "readily achievable" to mean "easily accomplishable without much difficulty or expense" (p. 191). This decision rendered unenforceable many complicated adjustments on behalf of service and equipment providers that are necessary for accessibility.

To summarize, the lack of success of such policies dealing with the digital divide shows that there is a large segment of the U.S. population that does not have access to the Internet, including the relevant government information services. In particular, the data show that there are physical (e.g., devices) and intellectual (e.g., multiple literacies) barriers to access that over time continue to exist, and even increase, because of the increased reliance on Internet-enabled devices, technologies, and skills. These are substantial challenges for successful e-government, and place public libraries on the forefront of bridging these divides.

3.2.2. Security and records

After the attacks of September 11, 2011, the federal government took extra precautions against security breaches, massively expanding the scope of classified documents (Batliner & Taylor, 2006). These measures included removing large numbers of physical documents from libraries and archives, and electronic documents from government Web sites, that were thought to have the potential to compromise national security (Jaeger, Bertot, & McClure, 2003). These actions directly affected e-government information because of access problems inherent in removing documents from public consumption: "To be informed about issues, citizens must be able to have access to relevant information to inform and shape the dialogue" (Jaeger & Burnett, 2005). Much government information that had been publically available was removed from public access. With this increase in classified information, fewer relevant documents can be shared online (Jaeger et al., 2003).

There were two further impacts on e-government, as well. First, the utility of e-government as a research tool was limited by the reductions in information made available to the public (Jaeger, McClure, Bertot, & Snead, 2004). Second, the removal of previously available information

served to erode confidence in e-government among many users (Jaeger, 2007). Though the Obama Administration has emphasized an open and transparent government (Obama, 2009), this policy is balanced against national security concerns that can often err on the side of caution when releasing government information deemed sensitive (Jaeger, 2007).

Finally, additional policies have been implemented to address how the government views born-digital documents. There are issues of preservation, policies that drive the behavior of government agencies, and a shift in how the Government Printing Office (GPO) shares official documents with the public. The issue of how to preserve government documents that are digitally native is complicated by various factors. Many agencies have instituted systems for saving e-mails and Web sites, but there is a lack of coordination with the National Archives and Records Administration (NARA) over how to do this on a system-wide scale. Personal e-mails, Web 2.0 technologies, and what to do with the data once stored are all outstanding problems that have yet to be addressed (Lipowicz, 2009). NARA does offer training for electronic records keeping, along with various online toolkits to assist managers, examples of records schedules, and a blog with tips on how to effectively preserve materials and Web 2.0 use, along with a variety of other links to studies completed by the agency (National Archives and Records Administration, 2011). Even with this help, however, there still seems to be a lack of awareness by individuals within agencies about what constitutes a record (Shuler, Jaeger, & Bertot, 2010). With technology constantly changing, both records-keepers and managers are constantly behind on addressing what needs to be saved and what does not. How these materials will be accessible in 100 years with evolving devices and data formats is another issue that NARA is being forced to confront.

Policies that have encouraged the use of e-government by government organizations include the:

- Information Technology Management Act, which "encouraged agencies to move toward producing more information electronically;"
- Electronic Freedom of Information Act, which "created obligations to disclose electronic information;"
- Government Paperwork Elimination Act, which "reduced paper records and accepted electronic signatures;" and
- E-government Act, which "ordered government agencies online" and contributed to the massive push of born-digital documents and the need for preservation and access discussions (Shuler et al., 2010).

This rapid move from print to electronic documents has caused a state of flux at the GPO. While the organization was once tasked with providing printed copies of government documents and shipping them to partner libraries through the Federal Depository Library Program (FDLP), with the advent of e-government, more and more documents are born-digital—90% (Sielaff, 2010). This shift is causing the libraries that participate in FDLP to consider shuttering their participation in the print collections of government documents (Jaeger, Bertot, & Shuler, 2010). With these issues threatening the preservation of historical government documents, e-government as a whole is complicated by the future of what "going digital" might mean.

4. Study methodology

Multiple data collection and analysis techniques relied on:

- *The Public Library Funding and Technology Access Survey.* Conducted for the American Library Association (ALA) and the Bill and Melinda Gates Foundation, this multiyear national survey explored a range of Internet-enabled services in public libraries, including e-government. The 2010–2011, received more than 8,000 responses, for a response rate of 83.4% (Bertot, Sigler, DeCoster, et al., 2011). The survey employed a stratified random sampling approach using the Public Library Survey of the Institute of Museum and Library Services as the sample frame (Institute of Museum and Library Services, 2011). This

sampling approach allowed for the generation of both national and state level data, through a weighted analysis regarding public library use of, and interaction with, the Internet, including Internet-enabled services and public access technologies.

- *Public Libraries and E-government Partnerships.* With research funded by IMLS, and in partnership with the IRS, the U.S. Citizenship and Immigration Services, the Government Printing Office, the ALA, five state library agencies, and numerous libraries, eight site visits were conducted, and 15 interviews with agency, library, and state library staff regarding e-government service provision, development, implementation, and collaboration between agencies and libraries (Bertot, Jaeger, Greene, et al., 2011). Site selection criteria included: (1) geographic dispersion across the U.S. (Northeast, Mid-Atlantic, Southeast, Southwest, Midwest, and West); (2) library diversity, including metropolitan status (urban, rural, suburban), operating budget, library staff full-time-equivalents, and public access technology infrastructure (e.g., number of workstations, broadband connectivity, Wi-Fi access); and (3) e-government service-provision diversity by libraries, including libraries that were beginning to provide e-government services to those libraries that had well-established e-government efforts. The study team used the Public Library Funding & Technology Access Survey (PLFTAS; see www.plinternetsurvey.org for details regarding the survey) data, review of library Web sites and literature, and discussions with state library agency staff, in order to identify the library sites.

- *Analysis and review of additional studies.* Over the years, government agencies, research centers, and others have conducted and issued studies relevant to the development of the Internet and e-government. A number of studies issued by the U.S. Department of Commerce, the OTA (now defunct), Pew Internet, NARA, the National Council on Disabilities, and others, were reviewed.

5. Findings

The context presented in the literature review, combined with survey data and interviews, shows a clear relationship between e-government and public libraries. Put simply, if public libraries did not exist—or did not universally provide free public Internet access—e-government would not be available to all members of the public. While it is rarely acknowledged in policy, e-government relies on public libraries to succeed. These areas of reliance fall into several primary categories, all relating back to the research objectives identified in the introduction: (1) issues associated with public libraries serving as providers of and vehicles for e-government (access and training; major life needs), (2) the changes in public library roles associated with the provision of e-government (professional preparation), and (3) the implications for e-government through a demonstrated intermediated approach through public libraries (partnerships). Should libraries cease to focus on any one of these areas, the success and availability of e-government would be significantly impaired.

These findings were identified through a thorough review of the literature, survey data, and interviews. The PLFTAS data (Bertot, Sigler, DeCoster, et al., 2011) provided a clear picture of library services and the challenges identified by public librarians, specifically, access, training, and life needs of users. The context outlined in the literature review also directly related to the findings; the change in library and information science education is an increasingly common topic in library science literature. Finally, interviews with public librarians (gathered from previous studies, and information found in the literature) gave valuable insights into the increasingly common partnerships that have developed between the government and public libraries. Through the survey data, interviews, and literature review, the research shows the changes in public libraries relating to e-government, the challenges these changes bring, and the implications for both e-government and public libraries.

5.1. Issues associated with public libraries serving as providers of and vehicles for e-government

5.1.1. Access and training

E-government is still deeply mystifying to large swathes of the population, including many of the 40% of Americans who do not have access to broadband Internet at home (Rainie, 2010), but also those people who tend to use their computers more recreationally, or for communicating with loved ones. The skills required to successfully navigate the Internet to find and use government information are imparted daily by librarians on a case-by-case basis as people come in with individual questions, and also to entire groups of patrons. The 2011 Public Library Funding and Technology Access Survey reported that 89.7% of libraries "provide as needed assistance to patrons for understanding how to access and use E-government websites," and 80.7% "provide assistance to patrons applying for or accessing E-government services" (Bertot, Sigler, DeCoster, et al., 2011, p. 41). In addition, the study found that nearly one-third of libraries reported offering classes specifically to teach patrons how to access government information.

The intercession between patron and e-government by librarians is requested for several reasons. The information contained in government Web sites is not intuitively laid out. Even graduate students tend to try a Google search, rather than attempt to get their government information straight from a government Web site (Duvall, 2010). The importance of government information also leads patrons to prefer the assistance of a professional, since the desired margin of error tends to be very low when one is attempting to serious tasks, such as paying income tax, or applying for citizenship. Libraries are open and answering questions in the evenings and on weekends, when government agencies are not (Bertot, Sigler, DeCoster, et al., 2011). Additionally, 50.2% of libraries reported that they were called upon to explain how government programs work, meaning that they were not only responsible for locating government information for patrons, but also needed to be experts in the functioning of the programs, a recent and sizable addition to their duties (Bertot, Sigler, DeCoster, et al., 2011). Finally, nearly two-thirds (67.8%) of libraries reported helping patrons complete government forms (Bertot, Sigler, DeCoster, et al., 2011). In short, many of the people who most need to use government information and government forms for programs are those who have the least experience with the Internet and computers, and require the most intercession (see Table 1).

Recently an influx of older adults came to libraries to register for the Medicare Part D Prescription Drug Plan, prompting a crash course for many librarians. Some gleaned the necessary information themselves, while others took advantages of articles written specifically for librarians on this issue (Martin, 2006). Only 38% of older adults have reported that they use the Internet (Rainie, 2010), which is a major hurdle that this demographic faces when trying to interact with e-government. Other demographics face similar difficulties. Adults who have not graduated from high school, for instance, are only 1% more likely to use the Internet (Rainie, 2010), making getting a GED online problematic at best. Barriers to access include physical limitations, such as disabilities or chronic illness, as well as economic obstacles (Jaeger & Bertot, 2011a). For example, according to a 2011 Pew Internet study, 54% of adults living with a disability used the Internet, compared with 81% of adults who did not have disabilities (Fox, 2011a, 2011b). A 2010 study found that while 95% of high-income households used the Internet at home in some fashion, just 57% of the poorest did (Jansen, 2010). Whether it be ability or resources that preclude members of the public from participating, it is clear that English-speaking middle- and upper-class individuals are the most likely to participate online (Kinney, 2010).

5.1.2. Major life needs

Patrons coming in with e-government needs do not always recognize them as such. The variety of tasks falling under this heading is sizeable: filing taxes, paying parking tickets, registering a car, securing water rights, paying child support, renewing a Green Card, and applying for unemployment, a passport, disaster relief, Medicare, or citizenship, to name a few essentials. Librarians are required to understand how the major life events in a patron's life translate into quests for government information, services, or forms.

One of the most compelling instances of library interaction with e-government involved FEMA and disaster relief. In the wake of Hurricane Katrina in 2005, public libraries, rather than any other governmental institution, became the rallying point for people seeking aid and shelter. The hurricane attacked Florida, Louisiana, Mississippi, and Alabama, eventually costing more than $81 billion and taking more than 1800 lives (Red Cross, 2010). When the waters began to recede, the local libraries worked to contact displaced or missing family members, collected news for patrons whose other avenues of information had been cut off, and acted as intermediaries for the

Table 1
Public library e-government roles and services by metropolitan status.

E-government roles and services	Metropolitan status			
	Urban	Suburban	Rural	Overall
Staff provided assistance to patrons applying for or accessing e-government services	77.5% ($n = 1761$)	81.2% ($n = 3991$)	81.4% ($n = 5610$)	80.7% ($n = 11,363$)
Staff provided as-needed assistance to patrons for understanding how to access and use e-government Web sites	92.2% ($n = 2094$)	92.1% ($n = 4525$)	87.2% ($n = 6011$)	89.7% ($n = 12,630$)
Staff provided assistance to patrons for understanding government programs and services	54.7% ($n = 1242$)	54.1% ($n = 2661$)	45.9% ($n = 3164$)	50.2% ($n = 7067$)
Staff provided assistance to patrons for completing government forms	71.7% ($n = 1631$)	66.0% ($n = 3246$)	67.8% ($n = 4672$)	67.8% ($n = 9549$)
The library developed guides, tip sheets, or other tools to help patrons use e-government Web sites and services	23.9% ($n = 542$)	20.5% ($n = 1010$)	14.2% ($n = 978$)	18.0% ($n = 2530$)
The library offered training classes regarding the use of government Web sites, understanding government programs, and completing electronic forms	20.1% ($n = 457$)	8.3% ($n = 410$)	4.6% ($n = 320$)	8.4% ($n = 1187$)
The library offered translation services for forms and services in other languages	11.7% ($n = 266$)	10.6% ($n = 521$)	3.5% ($n = 243$)	7.3% ($n = 1031$)
The library has partnered with government agencies, nonprofit organizations, and others to provide e-government services	33.4% ($n = 760$)	25.8% ($n = 1266$)	21.2% ($n = 1459$)	24.7% ($n = 3485$)
The library has worked with government agencies (local, state, or federal) to help agencies improve their Web sites and/or e-government services	11.7% ($n = 253$)	8.9% ($n = 422$)	5.7% ($n = 377$)	7.8% ($n = 1052$)
The library had at least one staff member with significant knowledge and skills in provision of e- government services	29.4% ($n = 669$)	19.1% ($n = 937$)	16.0% ($n = 1105$)	19.3% ($n = 2711$)
Other	2.8% ($n = 64$)	2.4% ($n = 120$)	3.0% ($n = 208$)	2.8% ($n = 392$)

Will not total 100%, as categories are not mutually exclusive.
Source: Bertot, Sigler, DeCoster, et al. (2011). *Public library funding and technology access survey: Survey findings and results*. College Park, MD: Information Policy and Access Center.

thousands of FEMA applications that needed to be filed (Bertot, Jaeger, Langa, & McClure, 2006a, 2006b). In the aftermath, libraries served as emergency operations centers and librarians as assistants for relief personnel, cooking, handing out supplies, coordinating with insurers, working as translators, and disseminating information (Jaeger, Langa, McClure, & Bertot, 2007. This natural disaster showed in a microcosm what libraries and librarians tend to do less dramatically all the time: meet community needs as they arise. E-government assistance is just one service that libraries have recently taken on, perhaps the largest.

In order to best provide e-government services, some librarians have become very familiar with e-government processes. In 2011, 19.3% of public libraries reported having at least one staff member with significant knowledge and skills in the provision of e-government service; this number has remained steady over the past five years (Bertot, Langa, Grimes, Sigler, & Simmons, 2010; Bertot, McClure, Thomas, Barton, & McGilvray, 2007; Bertot, McClure, Wright, Jensen, & Thomas, 2008, 2009; Bertot, Sigler, DeCoster, et al., 2011). With increasing frequency, libraries have turned to partnerships with government agencies, nonprofit organizations, and others, in order to provide e-government services. In 2011, 24.7% of public libraries were engaged in these sorts of partnerships, near double the 12.8% in 2007 (Bertot, Sigler, DeCoster, et al., 2011; Bertot et al., 2007).

The boom in community desire for Internet access is such that libraries often have more people wanting to use computers than the library has. According to the 2010–2011 Public Library Funding and Technology Access Survey, 44.9% of libraries "reported that their connection speeds are insufficient some or all of the time" and 76.2% "reported that they had fewer public access computers to meet demand some or all of the time" (Bertot, Sigler, DeCoster, et al., 2011, p. 1). In order to address this, time limits are the most popular solution. This is problematic for people trying to complete forms for e-government services, which can be a lengthy procedure. To keep up with increasing demand for computer time by patrons, more computer stations are necessary, which means more technology funding is needed. The slashed budgets of recent years have prevented libraries from providing the equipment and bandwidth to meet public demand. In 1997, grants from the Bill and Melinda Gates Foundation helped to jump-start technology programs in libraries, but library technology budgets have not been able to keep up with demand for additional access (Bill & Melinda Gates Foundation, 2011). For example, only 22% of reporting libraries increased their connectivity speeds in 2010: "68.4% of public library branches have no plans to add workstations in the next year largely due to cost factors" (Bertot, Sigler, DeCoster, et al., 2011, p. 9).[2]

Even as libraries face these budget challenges, as a result of the ever-increasing pressure to provide e-government services, public libraries have had to at least attempt to increase access to the Internet. In 1994, just 20.9% of public libraries were connected to the Internet. By 2004, 99.6% of all public library outlets were connected to the Internet; of those libraries connected to the Internet, 98.9% offered public access computing for their users (Bertot, McClure, & Jaeger, 2004). In 2004, public library outlets provided an average of 10.4 public access terminals within the library; by 2011, this number was 16 (Bertot, Sigler, DeCoster, et al., 2011; Bertot et al., 2004).

Whether purposefully or accidentally, government agencies have a history of ushering their users towards the public library for assistance, which has happened with increasing frequency in recent years. As increasing numbers of users come into their public libraries with e-government needs, libraries have had to respond by providing individual assistance, as well as training classes in accessing and using

e-government Web sites, and in applying for and accessing e-government services (Bertot, Sigler, DeCoster, et al., 2011). In some cases there is an explicit suggestion from government agencies to address requests to the library, such the Tennessee state Web site, which recommends that users go to the Tennessee Electronic Library for career resources, health information, and small-business assistance, and to the physical buildings of the Tennessee State Library and Archives system for assistance with job searches and computer classes (Tennessee Government, 2011) Other times the suggestion is more passive, as in the case of the closing of the Kalamazoo (MI), unemployment office. This office was opened in September 2009 to help deal with the sharp upswing in Michigan unemployment at the time. The office was closed in April 2011, despite the fact that Kalamazoo's unemployment rate was still twice the national average (Simply Hired, 2011). The reason for the closing was cited as an improved online experience "because online services have become more convenient, eliminating the need for the office" (Government Productions Service Unit, 2011). However, the push to move online means that people who need help in navigating the process will be left to their own devices, or will migrate to the public library, their only other option for one-on-one assistance from a government employee.

5.2. The changes in public library roles associated with the provision of e-government

5.2.1. Professional preparation

Another response in the library community to the increasing role of e-government in library services is a burgeoning focus on e-government in library education. A growing number of library and information science schools offer a course related to e-government, though they are still in the minority in preparing students specifically for e-government functions of public librarianship. More significantly, some schools, such as the College of Information Studies at the University of Maryland, have developed degree programs devoted to the study of e-government in order to ensure that future information professionals are ready to deliver e-government services in libraries (Jaeger, 2008; Jaeger & Bertot, 2009; Jaeger, Bertot, Shuler, et al., 2012; Jaeger et al., 2010).

5.3. The implications for e-government through a demonstrated intermediated approach through public libraries

5.3.1. Partnerships

To meet the significant e-government needs of their patrons, libraries are increasingly partnering with other local, state, and federal agencies to create e-government-based services that meet specific community needs. Such partnerships range from providing tax assistance, to helping to complete the immigration process, to creating the means to order groceries in food deserts, and providing social services in the library (Bertot, 2010; Bertot & Jaeger, 2012; Jaeger, Bertot, Thompson, et al., 2012; Sigler et al., 2011). In the most complex initiatives, entire suites of social services and training are available in libraries, such as the linking of services for unemployment, food assistance, and child support with educational programs for increasing job-seeking and employment skills.

There are many significant reasons for using the public library as an access point for government agencies. Libraries consider connecting people with information to be their core function. Libraries are typically open well beyond normal business hours, a necessity for patrons who work during the hours that a government office is generally open (Bertot, Sigler, DeCoster, et al., 2011). Libraries are perceived to be more trustworthy than any other institution by the public, and the trust in public libraries translates into more positive impressions of e-government accessed through libraries (Jaeger & Fleischmann, 2007; Public Agenda, 2006). Finally, libraries are already

---

[2] To be sure, some libraries will benefit from Broadband Technology Opportunities Program (BTOP) or Broadband Infrastructure Project grants and loans, as part of the American Recovery and Reinvestment Act. It is unclear at this time how many libraries will benefit from these grants and loans, however, and to what extent the programs will assist libraries in providing e-government services.

providing many of these e-government services, so it is natural that people think of these institutions as the place to go. A brief sampling of what kinds of services libraries offer include: staff assistance to patrons for completing government forms (67.8%), access to jobs databases and other job opportunity resources (90.9%), and access to civil service examination materials (77% of all libraries; 90% of urban libraries) (Bertot, Sigler, DeCoster, et al., 2011).

6. Discussion

In order for e-government to successfully capitalize on the library as an access and education center, there are several changes that need to occur to the overall policy and implementation environments related to e-government. The change being asked of public libraries is profound, and they have complied to the greatest extent possible in order to serve their patrons. But these changes have been made without meaningful support for e-government-related activities, and with little acknowledgement in policy for public library contributions to e-government. Most practically, libraries need sufficient funding, staff, expertise, and technology in order to help patrons effectively access and use e-government. Just as significant, government agencies need to recognize and acknowledge the fact that they are relying on public libraries as a conduit and support system for e-government information, communication, and services. By doing so, agencies need to take appropriate steps to coordinate their activities with libraries, offer support mechanisms, and include public libraries in the design and evolution of e-government services.

While public libraries will try to meet the information needs of patrons regardless of circumstances, the extra responsibilities that have been placed on public libraries to deliver e-government access, training, services, and support have significant costs. The amount of responsibilities that local, state, and the federal governments shift to public libraries result in considerable efficiencies and cost savings for government agencies, but they create new drains on already stretched library budgets, infrastructure, staff time, and space (McClure, Jaeger, & Bertot, 2007). Public libraries typically rely on local communities and private support for the majority of their funding, with states generally contributing less than 10%, and the federal government less than 1% (Bertot, 2011). The reliance of federal government on public libraries to support e-government and save money for its agencies is particularly problematic, given the extremely low contributions of the federal government to public library budgets.

Overall, funding from all sources for public libraries has decreased as need for e-government services has increased. In 2009, the ALA reported that 41% of states reduced library funding that year, many of them reporting losses in the double digits (American Library Association, 2009). According to the Public Library Funding and Technology Access Survey, 55.7% of libraries reported that their library did not have enough staff to effectively help patrons with their e-government needs, and 50.5% reported that the library staff did not have the necessary expertise to meet patron e-government needs (Bertot, Sigler, DeCoster, et al., 2011). "Libraries are part of the solution when a community is struggling economically—assisting the unemployed with job searches and filing unemployment benefits, helping the unskilled learn to use a computer, providing homework help and access to e-government services," noted James Rettig, then-president of the ALA (American Library Association, 2009). In spite of the ameliorating effects of the public library in times of economic hardship, budgets continue to be cut.

It is important for federal, state, and local government agencies to be aware of what they are doing when they transfer responsibility for acting as an intermediary to libraries. Lacking additional funding for these additional duties, libraries are unable to supply the sheer number of person hours necessary to make sure patrons understand how to best interact with government Web sites. These agencies are leaning on a crutch that was never intended to prop them up and may, in fact, not currently be strong enough to do so. The failure to adequately support public libraries and understand their roles as a central component of e-government will ultimately impede the availability and use of e-government.

Along with providing a fair level of support for their reliance on public libraries in delivering e-government, acknowledgment and consideration of the roles and needs of libraries as an essential part of the e-government are also needed. In the case of public libraries as central to the post-Katrina recovery, federal government officials went out of their way to downplay the contributions of libraries (Jaeger, Langa, et al., 2007; Jaeger, Shneiderman, et al., 2007). And when the centrality of public libraries to e-government-related activities is recognized by government agencies, such acknowledgments are undercut. The FCC's National Broadband Plan recognizes the role of public libraries in supporting digital inclusion, while simultaneously recommending that funding for programs that support public libraries be reallocated (Federal Communications Commission, 2010). Similarly, in late 2011, the chairman of the FCC complimented public libraries for providing broadband access, but also implied that they were not putting enough recourse into providing broadband access (Federal Communications Commission, 2011; Jaeger, Bertot, Thompson, et al., 2012). These types of comments obviate the fact that government agencies simply do not understand the roles they have thrust upon public libraries in terms of e-government and, as a result, do not how to account for them in policy discussions and decisions.

In response to an e-government policy that insufficiently funds, supports, and recognizes their roles, libraries are trying to fill in the gaps to make a cohesive and useful tool out of e-government, identifying what patrons may need, becoming familiar with the various sites and programs, and teaching patrons how to get what they want from e-government. Some gaps do not fill easily, such as when the money and staff necessary to meet e-government head on are not available. The disparity between the increased duties of the public library directly attributable to e-government and the reduction in assistance is problematic. While libraries soldier on, there is a cost being paid by the faltering upkeep of buildings and a reduction of hours, a situation that cannot go on indefinitely (Bertot, Jaeger, Greene, et al., 2011; Sigler et al., 2011).

Beyond the issues of funding public library activities related to e-government and accounting for public libraries in policy decisions related to e-government, strengthened communication could serve to increase understanding between the agencies and libraries. Like many problems in government, this could be ameliorated with better communication between government agencies and public libraries. If agencies and libraries communicated what they need from one another, the effect would be more impressive. If agencies worked with each other to create a consistent e-government experience, libraries and users would not have the steep learning curve that they currently face. In short, there is an opportunity to create an e-government system that benefits agencies, libraries, and the public.

In addition, IMLS released its report on the principles of digital inclusion, and core to the principles are equity of access to digital technologies across a range of user communities and the ability to engage civically (Institute of Museum and Library Services, 2011). Furthermore, the National Telecommunications and Information Administration recently released its digital literacy portal (http://www.digitalliteracy.gov/), which seeks to bring communities together and offer resources to promote and foster digital literacy awareness, needs, and resources. Initiatives such as these offer significant opportunities for the public library, policymaking, and e-government communities to come together to create robust approaches to e-government in communities across the nation.

7. Limitations

This study, although supported by national survey data, interviews and case studies from a wide variety of public libraries, and

an extensive review of other research, is limited by the fact that many of the implications and changes brought on by the co-evolution of public libraries and e-government are still quite new. In addition, the breadth of government agencies and the large number of public libraries makes generalizations about relationships difficult; communities have different e-government needs and agencies have different missions. Finally, policies about e-government affect information that agencies can provide, and the resulting public library services. For example, classified information is unavailable to libraries, regardless of the needs of users. Commonalities in public library services, needs, and e-government challenges are sought, but it is important to recognize the possible limitations of the research.

8. Future research

As quickly as e-government has evolved over the last decade, it is likely that public library services will continue to adapt. Future research should focus on the changing context of both. In addition, the continuing loss of funding for public libraries will inevitably change the environment for which e-government services are offered. How users react to this change is something that government agencies will have to consider when developing new e-government services. User perceptions and behavior toward new developments in e-government will continue to present research opportunities in libraries. New developments in e-government can also be studies in terms of the design of e-government and the ways in which libraries package or repackage it to make it more understandable to patrons.

Similarly, each new development in e-government also presents new areas for study of the interrelationships between public libraries and e-government. For example, the roles that public libraries play in helping patrons learn to use, see the value in, and feel comfortable interacting with government through social media presents important new areas in both library service and research about libraries. As governments embrace further new technologies, library efforts with each of these technologies will present important research opportunities.

Research into ways in which libraries can be better supported in their e-government roles is extremely important. Since the amount of current government contributions are low, research in this area will need to focus on better documenting and articulating the contributions of public libraries to e-government in order to more effectively advocate for support for their e-government activities. As such, research can serve to develop measures of e-government activities within public libraries that disaggregate e-government efforts from larger library services, such as reference and technology training, as well as continue to explore the scope of these efforts and their impacts on the individuals and communities that libraries serve. This kind of data could then serve libraries in advocating for increased funding to support these activities.

Additionally, partnerships between government agencies and public libraries, though a quickly growing trend, are far from ubiquitous. Studies into why successful partnerships work, how they can address challenges that e-government brings to public libraries, and potential effects on communities would all be valuable contributions to the literature. A new Web resource, LibEGov.org, aims to help librarians address the e-government needs of users, specifically relating to taxation and immigration. It highlights existing partnerships between agencies and libraries and offers practical guidance on how to identify, connect with, and work with potential partners. It is hoped that the outcomes of this project, funded by IMLS and developed in conjunction with the ALA and various state library agencies, public libraries, and government agencies, will lead to additional information on how e-government and public library services can be coordinated to address some of the challenges inherent in the coexistence of the two entities.

From the early days of e-government, different nations instituted widely-varied approaches to the goals, services, and presentations of e-government (Jaeger, 2003; Jaeger & Thompson, 2003, 2004). Similarly, different nations have varied approaches to public libraries. The U.S. and the U.K., for example are facing similar funding challenges, but dealing with them differently, as can be seen in the very different reactions to the idea of the privatization of libraries in the two nations (e.g., Jerrard, Bolt, & Strege, 2012; McMenemy, 2009; O'Beirne, 2010; Usherwood, 2007). Globally, libraries in most nations are taking on more responsibilities with less funding and support (Institute of Museum and Library Services, 2010). As a result, the ideas presented have potential relevance to research about the relationships between public libraries and e-government in other nations, and such relationships merit individual studies.

9. Conclusion

The co-evolution of e-government and public libraries has resulted in significant changes to government and libraries, as well as the ways in which members of the public expect to interact with both. The imbalances between the responsibilities that have been given to libraries and the support they receive, threaten to impede the ability of libraries to guarantee e-government access, training, and assistance, and is hindering the further evolution of e-government. Increased support for libraries, recognition, and understanding of the roles of libraries, and communication between agencies and libraries, however, could serve to promote a continued co-evolution with stronger libraries better able to provide ever-increasing amounts of e-government information, communication, and services.

Acknowledgment

References

American Library Association (2009). *State funding for many public libraries on the decline.* Retrieved from http://www.ala.org/ala/newspresscenter/news/pressreleases2009/february2009/orscosla.cfm

Batliner, N., & Taylor, D. (2006). *Government restrictions of information in the post 9/11 era.* Retrieved from http://www.ethicapublishing.com/4CH3.htm

Béllanger, F., & Carter, L. (2009). The impact of the digital divide on e-government use. *Communications of the ACM, 52*(1), 132–135.

Bertot, J. C. (2010). Community-based e-government: Libraries as partners and providers. In M. A. Wimmer, J. -L. Chappelet, M. Janssen, & H. J. Scholl (Eds.), *Proceedings of the 9th IFIP EGOV 2010 Conference* (pp. 121–131). London, UK: Springer.

Bertot, J. C. (2011). Public libraries and the Internet: A retrospective, challenges, and issues moving forward. In J. C. Bertot, P. T. Jaeger, & C. R. McClure (Eds.), *Public libraries and the Internet: Roles, perspectives, and implications* (pp. 15–35). Westport, CT: Libraries Unlimited.

Bertot, J. C., & Jaeger, P. T. (2006). User-centered e-government: Challenges and benefits for government Web sites. *Government Information Quarterly, 23*, 163–168.

Bertot, J. C., & Jaeger, P. T. (2008). The e-government paradox: Better customer service doesn't necessarily cost less. *Government Information Quarterly, 25*, 149–154.

Bertot, J. C., & Jaeger, P. T. (2012). Implementing and managing public library networks, connectivity, and partnerships to promote e-government access and education. In S. Aikins (Ed.), *Managing e-government projects: Concepts, issues and best practices* (pp. 183–199). Hershey, PA: IGI Global.

Bertot, J. C., Jaeger, P. T., Greene, N., Gorham-Oscilowski, U., Larson, E., & Lincoln, R. (2011). *Libraries and e-government partnerships: Summary findings and implications.* College Park, MD: Information Policy & Access Center. Retrieved from http://ipac.umd.edu

Bertot, J. C., Jaeger, P. T., & Hansen, D. (2012). The impact of polices on government social media usage: Issues, challenges, and recommendations. *Government Information Quarterly, 29*, 30–40.

Bertot, J. C., Jaeger, P. T., Langa, L. A., & McClure, C. R. (2006a). Drafted: I want you to deliver e-government. *Library Journal, 131*(14), 34–39.

Bertot, J. C., Jaeger, P. T., Langa, L. A., & McClure, C. R. (2006b). Public access computing and Internet access in public libraries: The role of public libraries in e-government and emergency situations. *First Monday, 11*(9). Retrieved from http://www.firstmonday.org/issues/issue11_9/bertot/index.html

Bertot, J. C., Jaeger, P. T., & McClure, C. R. (Eds.). (2011). *Public libraries and the Internet: Roles, perspectives, and implications.* Westport, CT: Libraries Unlimited.

Bertot, J. C., Jaeger, P. T., Munson, S., & Glaisyer, T. (2010). Engaging the public in open government: The policy and government application of social media technology for government transparency. *IEEE Computer*, *43*(11), 53–59.

Bertot, J. C., Jaeger, P. T., Wahl, E. E., & Sigler, K. I. (2011). Public libraries and the Internet: An evolutionary perspective. *Library Technology Reports*, *47*(6), 7–18.

Bertot, J. C., Langa, L. A., Grimes, J. M., Sigler, K. S., & Simmons, S. N. (2010). *Public library funding and technology access survey: Survey findings and results.* College Park, MD: Center for Library and Information Innovation. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/PLFTAS_Report_2009-10_Full.pdf

Bertot, J. C., McClure, C. R., & Jaeger, P. T. (2004). *Public libraries and the Internet 2004: Survey results and findings.* Tallahassee, FL: Information Use Management and Policy Institute. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/2004_plinternet.pdf

Bertot, J. C., McClure, C. R., & Jaeger, P. T. (2008). The impacts of free public Internet access on public library patrons and communities. *The Library Quarterly*, *78*, 285–301.

Bertot, J. C., McClure, C. R., Thomas, S., Barton, K. M., & McGilvray, J. (2007). *Public libraries and the Internet 2007: Report to the American Library Association.* Tallahassee, FL: Information Institute. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/2007_plinternet.pdf

Bertot, J. C., McClure, C. R., Wright, C. B., Jensen, E., & Thomas, S. (2008). *Public libraries and the Internet 2008: Survey results and findings.* Tallahassee, FL: Information Institute. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/2008_plinternet.pdf

Bertot, J. C., McClure, C. R., Wright, C. B., Jensen, E., & Thomas, S. (2009). *Public libraries and the Internet 2009: Survey results and findings.* Tallahassee, FL: Information Institute and Center for Library Information and Innovation. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/2009_plinternet.pdf

Bertot, J. C., Sigler, K., DeCoster, E., McDermott, A., Katz, S. M., Langa, L. A., et al. (2011). *Public library funding and technology access survey: Survey findings and results.* College Park, MD: Information Policy and Access Center. Retrieved from http://www.plinternetsurvey.org/sites/default/reports/PLFTAS_Report2010-11.pdf

Bill & Melinda Gates Foundation (2011). *United States libraries.* Retrieved from http://www.gatesfoundation.org/libraries/Pages/united-states-libraries.aspx

Bishop, B. W. (2011). E-government service roles for public libraries. *Public Libraries Online*, *50*(30). Retrieved from http://www.publiclibrariesonline.org/magazines/featured-articles/e-government-service-roles-public-libraries

Blumenstein, L. (2009, July 22). Gainesville, FL, "The Library Partnership" merges branch, social services. *Library Journal.* Retrieved from http://www.libraryjournal.com/article/CA6672422.html

Bonson, E., Torres, L., Royo, S., & Flores, F. (2012). Local e-government 2.0: Social media and corporate transparency in municipalities. *Government Information Quarterly*, *29*(2), 123–132.

Computer Professionals for Social Responsibility (1993). *Serving the community: A public-interest vision of the National Information Infrastructure.* Retrieved from http://www.utexas.edu/lbj/21cp/CPSR_Document.html

Department of Commerce (1993). *The National Information Infrastructure: Agenda for action.* Washington, DC: Department of Commerce. Retrieved from http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED364215

Duvall, J. A. (2010). Searching for online government documents: One graduate student's experience. *Indiana Libraries*, *29*(1), 49–52.

Ebbers, W. E., Pieterson, W. J., & Noordman, H. N. (2008). Electronic government: Rethinking channel management strategies. *Government Information Quarterly*, *25*, 181–201.

Fairlie, R. W. (2005). *Are we really a nation online? Ethnic and racial disparities in access to technology and their consequences.* Santa Cruz, CA: University of California.

Federal Communications Commission (2010). The National Broadband Plan: Connecting America. Washington, DC: Federal Communications Commission. Retrieved from http://www.broadband.gov

Federal Communications Commission (2011). *Chairman Genachowski speech on public-private broadband adoption initiative.* Retrieved from http://www.fcc.gov/events/chairman-genachowski-speech-public-private-broadband-adoption-initiative

Fox, S. (2011a). *Americans living with disability and their technology profile.* Washington, DC: Pew Internet and American Life Project.

Fox, S. (2011b). *What people living with disability can teach us.* Washington, DC: Pew Internet and American Life Project.

Fox, S., & Livingston, G. (2007). *Latinos online: Hispanics with lower levels of education and English proficiency remain largely disconnected from the Internet.* Washington, DC: Pew Internet and American Life Project.

Gabel, D. (2007). Broadband and universal service. *Telecommunications Policy*, *31*, 347–358.

Ganapati, S., & Reddick, C. G. (2012). Open e-government in U.S. state governments: Survey evidence from Chief Information Officers. *Government Information Quarterly*, *29*(2), 115–122.

Gilroy, A. A. (2005). *E-Rate report: Telecommunications discounts for schools and libraries: The E-rate program and controversies.* Washington, DC: Congressional Research Service. Retrieved from http://www.ipmall.info/hosted_resources/crs/IB98040_050506.pdf

Government Productions Service Unit (2011). *Connect: Unemployment office closing.* Retrieved from http://kzootv.com/permalink/unemploymentoffice.html

Holt, L. E., & Holt, G. E. (2010). *Public library services for the poor: Doing all we can.* Chicago, IL: ALA Editions.

Horrigan, J. B. (2007). *A typology of information and communication technology users.* Washington, DC: Pew Internet and American Life Project.

Institute of Museum and Library Services (2010). *Public library visits, circulation spike while staff numbers stay the same: IMLS FY2008 public libraries survey report.* Retrieved from http://www.imls.gov/news/2010/063010.shtm

Institute of Museum and Library Services (2011). *Public libraries survey fiscal year 2009.* Retrieved from https://harvester.census.gov/imls/data/pls/index.asp

Jaeger, P. T. (2003). The endless wire: E-government as global phenomenon. *Government Information Quarterly*, *20*(4), 323–331.

Jaeger, P. T. (2007). Information policy, information access, and democratic participation: The national and international implications of the Bush administration's information politics. *Government Information Quarterly*, *24*, 840–859.

Jaeger, P. T. (2008). Building e-government into the library and information science curriculum: The future of government information and services. *Journal of Education for Library and Information Science*, *49*, 167–179.

Jaeger, P. T., Bertot, J. C., & Shilton, K. (2012). Information policy and social media: Framing government-citizen Web 2.0 interactions. In C. G. Reddick, & S. K. Aikins (Eds.), *Web 2.0 Technologies and Democratic Governance: Political, Policy and Management Implications.* London UK: Springer.

Jaeger, P. T., Shilton, K., & Bertot, J. C. (in press). The policy and politics of public information access and government use of social media. In J. Obar & S. Wildman (Eds.), *The governance of social media.* Cambridge, MA: MIT Press.

Jaeger, P. T., & Bertot, J. C. (2009). E-government education in public libraries: New service roles and expanding social responsibilities. *Journal of Education for Library and Information Science*, *50*, 40–50.

Jaeger, P. T., & Bertot, J. C. (2010). Designing, implementing, and evaluating user-centered and citizen-centered e-government. *International Journal of Electronic Government Research*, *6*(2), 1–17.

Jaeger, P. T., & Bertot, J. C. (2011a). Public libraries and e-government. In J. C. Bertot, P. T. Jaeger, & C. R. McClure (Eds.), *Public libraries and the Internet: Roles, perspectives, and implications* (pp. 39–57). Westport, CT: Libraries Unlimited.

Jaeger, P. T., & Bertot, J. C. (2011b). Responsibility rolls down: Public libraries and the social and policy obligations of ensuring access to e-government and government information. *Public Library Quarterly*, *30*, 1–25.

Jaeger, P. T., Bertot, J. C., & Fleischmann, K. R. (2011). Evolving relationships between information technology and public libraries. In J. C. Bertot, P. T. Jaeger, & C. R. McClure (Eds.), *Public libraries and the Internet: Roles, perspectives, and implications* (pp. 3–14). Westport, CT: Libraries Unlimited.

Jaeger, P. T., Bertot, J. C., & McClure, C. R. (2003). The impact of the USA Patriot Act on collection and analysis of personal information under the Foreign Intelligence Surveillance Act. *Government Information Quarterly*, *20*(3), 295–314.

Jaeger, P. T., Bertot, J. C., & McClure, C. R. (2004). The effects of the Children's Internet Protection Act (CIPA) in public libraries and its implications for research: A statistical, policy, and legal analysis. *Journal of the American Society for Information Science and Technology*, *55*, 1131–1139.

Jaeger, P. T., Bertot, J. C., & Shuler, J. A. (2010). The Federal Depository Library Program (FDLP), academic libraries, and access to government information. *The Journal of Academic Librarianship*, *36*(6), 469–478.

Jaeger, P. T., Bertot, J. C., Shuler, J. A., & McGilvray, J. (2012). A new frontier for LIS programs: E-government education, library/government partnerships, and the preparation of future information professionals. *Education for Information*, *29*(1), 39–52.

Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., & DeCoster, E. J. (2012). The intersection of public policy and public access: Digital divides, digital literacy, digital inclusion, and public libraries. *Public Library Quarterly*, *31*(1).

Jaeger, P. T., & Burnett, G. (2005). Information access and exchange among small worlds in a democratic society: The role of policy in redefining information behavior in the post-9/11 United States. *The Library Quarterly*, *75*(4), 464–495.

Jaeger, P. T., & Fleischmann, K. R. (2007). Public libraries, values, trust, and e-government. *Information Technology and Libraries*, *26*(4), 35–43.

Jaeger, P. T., Langa, L. A., McClure, C. R., & Bertot, J. C. (2007). The 2004 and 2005 Gulf Coast hurricanes: Evolving roles and lessons learned for public libraries in disaster preparedness and community services. *Public Library Quarterly*, *25*(3/4), 199–214.

Jaeger, P. T., McClure, C. R., Bertot, J. C., & Snead, J. T. (2004). The USA PATRIOT Act, the Foreign Intelligence Surveillance Act, and information policy research in libraries: Issues, impacts, and questions for library researchers. *The Library Quarterly*, *74*(2), 99–121.

Jaeger, P. T., Shneiderman, B., Fleischmann, K. R., Preece, J., Qu, Y., & Wu, F. P. (2007). Community response grids: E-government, social networks, and effective emergency response. *Telecommunications Policy*, *31*, 592–604.

Jaeger, P. T., & Thompson, K. M. (2003). E-government around the world: Lessons, challenges, and new directions. *Government Information Quarterly*, *20*(4), 389–394.

Jaeger, P. T., & Thompson, K. M. (2004). Social information behavior and the democratic process: Information poverty, normative behavior, and electronic government in the United States. *Library and Information Science Research*, *26*, 94–107.

Jaeger, P. T., & Yan, Z. (2009). One law with two outcomes: Comparing the implementation of the Children's Internet Protection Act in public libraries and public schools. *Information Technology and Libraries*, *28*(1), 8–16.

Jansen, J. (2010). *The better-off online.* Washington, DC: Pew Internet and American Life Project.

Jerrard, J., Bolt, N., & Strege, K. (2012). *Privatizing libraries.* Chicago, IL: American Library Association.

Kanayama, T. (2003). Leaving it all up to industry: People with disabilities and the Telecommunications Act of 1996. *The Information Society*, *19*, 185–194.

Kinney, B. (2010). The Internet, public libraries, and the digital divide. *Public Library Quarterly*, *29*(2), 104–161.

Linders, D., Wilson, S. C., & Bertot, J. C. (in press). Open government as a vehicle for government transformation. In V. Weerakkody & C. G. Reddick (Eds.), *Public sector transformation through e-government: Experiences from Europe and North America.* New York, NY: Routledge.

Lipowicz, A. (2009). *4 reasons why e-records are still a mess.* Federal Computer Week. Retrieved from http://www.fcw.com/Articles/2009/03/09/policy-email-records.aspx

Lipowicz, A. (2011). Budget cuts hit e-gov efforts hard. *Federal Computer Week*. Retrieved from http://fcw.com/articles/2011/05/25/egov-budget-cuts-fedspace-data.gov.aspx

Livingston, G. (2010). *The Latino digital divide: The native born versus the foreign born*. Washington, DC: Pew Internet and American Life Project.

Martin, C. (2006). *Library worklife*. Retrieved from http://ala-apa.org/newsletter/2006/05/18/plain-talk-about-the-medicare-part-d-deadline/

McClure, C. R., Jaeger, P. T., & Bertot, J. C. (2007). The looming infrastructure plateau?: Space, funding, connection speed, and the ability of public libraries to meet the demand for free Internet access. *First Monday*, *12*(12). Retrieved from http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2017/1907

McMenemy, D. (2009). *The public library*. London, UK: Facet.

Mooney, C. (2005). *The Republican war on science*. New York, NY: Basic.

Nam, T. (2012). Suggesting frameworks of citizen-sourcing via government 2.0. *Government Information Quarterly*, *29*, 12–20.

National Archives and Records Administration (2011). *Toolkit for managing electronic records: NARA tools by date*. Retrieved from http://www.archives.gov/records-mgmt/toolkit/pdf/all-nara-tools-by-date.pdf

National Council on Disability (2009). *National disability policy: A progress report*. Washington, DC: National Council on Disability.

Niehaves, B. (2011). Iceberg ahead: On electronic government research and societal aging. *Government Information Quarterly*, *28*, 310–319.

O'Beirne, R. (2010). *From lending to learning: The development and extension of public libraries*. Oxford, UK: Chandos.

Obama, B. (2009). Memorandum for Heads of Executive Departments and Agencies: Freedom of Information Act. Retrieved from http://www.whitehouse.gov/the_press_office/FreedomofInformationAct/

Olalere, A., & Lazar, J. (2011). Accessibility of U.S. federal government home pages: Section 508 compliance and site accessibility statements. *Government Information Quarterly*, *28*, 303–309.

Powell, A., Byrne, A., & Dailey, D. (2010). The essential Internet: Digital exclusion in low-income American communities. *Policy and Internet*, *2*(2) (article 7).

Public Agenda (2006). *Long overdue: A fresh look at public and leadership attitudes about libraries in the 21st century*. Retrieved from http://www.publicagenda.org/files/pdf/Long_Overdue.pdf

Rainie, L. (2010). *Internet, broadband, and cell phone statistics*. Retrieved from http://pewinternet.org/Reports/2010/Internet-broadband-and-cell-phone-statistics/Report.aspx

Red Cross (2010). *Bringing help, bringing hope: The American Red Cross response to hurricanes Katrina, Rita and Wilma*. Retrieved from http://www.redcross.org/www-files/Documents/pdf/corppubs/Katrina5Year.pdf

Richtel, M. (2012, May 29). *Wasting time is new divide in digital era*. New York Times. Retrieved from http://www.nytimes.com/2012/05/30/us/new-digital-divide-seen-in-wasting-time-online.html

Sandoval-Almazan, R., & Gil-Garcia, J. R. (2012). Are government internet portals evolving towards more interaction, participation, and collaboration? Revisiting rhetoric of e-government among municipalities. *Government Information Quarterly*, *29*, S72–S81.

Shuler, J. A., Jaeger, P. T., & Bertot, J. C. (2010). Implications of harmonizing e-government principles and the Federal Depository Library Program (FDLP). *Government Information Quarterly*, *27*, 9–16.

Sielaff, M. (2010). Government information challenges to service in the 21st century. *Colorado Libraries*, *35*(2). Retrieved from http://coloradolibrariesjournal.org/?q=node/5

Sigler, K. I., Jaeger, P. T., Bertot, J. C., DeCoster, E. J., McDermott, A. J., & Langa, L. A. (2011). Public libraries, the Internet, and economic uncertainty. In A. Woodsworth (Ed.), *Advances in librarianship. Librarianship in times of crisis, Vol. 34*. (pp. 19–35). London, UK: Emerald Publishing.

Simply Hired (2011). *Kalamazoo jobs (MI)*. Retrieved from http://www.simplyhired.com/a/local-jobs/city/l-Kalamazoo,+MI

Smith, A. (2010). *Government online*. Washington, DC: Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org/Reports/2010/Government-Online.aspx

Spooner, T., Rainie, L., & Meredith, P. (2001). *Asian-Americans and the Internet: The young and the connected*. Washington, DC: Pew Internet and American Life Project. Retrieved from http://www.pewinternet.org/Reports/2001/AsianAmericans-and-the-Internet.aspx

Steib, G., & Navarro, I. (2006). Citizen demand for interactive e-government: The case of Georgia consumer services. *American Review of Public Administration*, *36*, 288–300.

Telecommunications Act of 1996, Pub. LA. No. 104–104, 110 Stat. 56 (1996).

Tennessee Government (2011). *Help for Tennessee families*. Retrieved from http://www.tn.gov/helpforfamilies/

U.S. Citizenship and Immigration Services (2007). *Welcome to the United States: A guide for new immigrants*. Retrieved from http://www.uscis.gov/files/nativedocuments/M-618.pdf

U.S. Congress, Office of Technology Assessment (1993). Making government work: Electronic delivery of federal services (OTA-TCT-578). Retrieved from http://www.fas.org/ota/reports/9333.pdf

Usherwood, B. (2007). *Equity and excellence in the public library: Why ignorance is not our heritage*. Aldershot, UK: Ashgate.

van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2009). Improving digital skills for the use of online public information and services. *Government Information Quarterly*, *26*, 333–340.

White House (2009). *Open government: A progress report to the America people*. Retrieved from http://www.whitehouse.gov/sites/default/files/microsites/ogi-progress-report-american-people.pdf

Zickuhr, K., & Smith, A. (2012). *Digital differences*. Washington DC: Pew Internet and the American Life Project. Retrieved from http://pewinternet.org/Reports/2012/Digital-differences.aspx

John Carlo Bertot is a professor and co-director of the Information Policy & Access Center atthe University of Maryland College of Information Studies. He also serves as director of themaster's of library science degree program. His research spans information andtelecommunications policy, e-government, government agency technology planning and evaluation, and library planning and evaluation. He is president-elect of the Digital Government Society of North America, serves as chair of the International Standards Organization's (ISO) Library Performance Indicator (ISO 11620) Working Group, and serves as a member of the ISO Library Statistics (ISO 2789) Working Group. He has previously served as Chair of theAmerican Library Association's (ALA) Library Research Round Table, and currently serves on the ALA E-government Services Subcommittee. He currently has funding from the Institute ofMuseum and Library Services to explore partnerships between government agencies and libraries to provide e-government services, as well as to develop and implement an educational program for librarians to serve as providers of e-government services. He is the editor of *Government Information Quarterly*, and co-editor of *Library Quarterly*.

Natalie Greene is a candidate for the master of library science with concentrations in school library media and e-government at the University of Maryland's College of Information Studies. Following graduation she plans to pursue a doctorate in Information Studies, examining policy issues related to 21st century economics and learning, as well as how government information relates to education. She is a graduate research associate at the College's Information Policy & Access Center at the University of Maryland, where she is working on an Institute of Museum and Library Services grant studying potential partnerships between public libraries and government agencies.

Paul T. Jaeger is co-director of the Information Policy and Access Center and assistant professor in the College of Information Studies at the University of Maryland. His research focuses on the ways in which law and public policy shape information behavior, particularly for underserved populations. He is the author of more than 100 journal articles and book chapters,along with 7 books, most recently *Information Worlds: Social Context, Technology, & Information Behavior in the Age of the Internet* (Routledge, 2010) with Gary Burnett; *Public Libraries and the Internet: Roles, Perspectives, and Implications* (Libraries Unlimited, 2011) with John Carlo Bertot and Charles R. McClure; and *Disability and the Internet: Confronting a Digital Divide* (Lynne Reiner, 2011). His research has been funded by the Institute of Museumand Library Services, the National Science Foundation, the American Library Association, the Smithsonian Institute, and the Bill & Melinda Gates Foundation, among others. He is is co-editor of *Library Quarterly* and of the *Information Policy Book Series* from MIT Press.

Natalie Perkins served as a graduate research associate with the Information Policy & Access Center in the University of Maryland College of Information Studies. She earned her master's degree in library science, with concentrations in e-government and information and diverse populations, from the College of Information Studies in 2011.

Emily Wahl served as a graduate research associate with the Information Policy & Access Center University of Maryland College of Information Studies. She received her master's degree in library science, with a concentration in information and diverse populations, from the College in 2011.