



Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies

John C. Bertot, Paul T. Jaeger, Justin M. Grimes*

University of Maryland, College Park, MD, USA

ARTICLE INFO

Available online 27 April 2010

Keywords:

E-government
Transparency
Social media
ICT

ABSTRACT

In recent years, many governments have worked to increase openness and transparency in their actions. Information and communication technologies (ICTs) are seen by many as a cost-effective and convenient means to promote openness and transparency and to reduce corruption. E-government, in particular, has been used in many prominent, comprehensive transparency efforts in a number of nations. While some of these individual efforts have received considerable attention, the issue of whether these ICT-enabled efforts have the potential to create a substantive social change in attitudes toward transparency has not been widely considered. This paper explores the potential impacts of information and ICTs – especially e-government and social media – on cultural attitudes about transparency.

© 2010 Published by Elsevier Inc.

1. Transparency, Information, and Society

As an international issue, transparency came to prominence after World War I in the post-war negotiations (Braman, 2006). It took considerable time for many nations to pursue transparency. In the mid-1980s, only 11 nations had freedom of information laws, but by the end of 2004, 59 nations did (Reilly & Sabharwal, 2009; Roberts, 2006). Transparency and the right to access government information are now internationally regarded as essential to democratic participation, trust in government, prevention of corruption, informed decision-making, accuracy of government information, and provision of information to the public, companies, and journalists, among other essential functions in society (Cullier & Piotrowski, 2009; Mulgan, 2007; Quinn, 2003; Reylea, 2009a; Shuler, Jaeger, & Bertot, 2010).

Government transparency generally occurs through one of four primary channels (Piotrowski, 2007):

1. proactive dissemination by the government;
2. release of requested materials by the government;
3. public meetings; and
4. leaks from whistleblowers.

A 2006 study of 14 countries found that countries with dedicated transparency laws were three times more likely to respond to requests for information, with countries lacking transparency laws acknowledged less than half of the requests (Open Society Justice Initiative, 2006).

Countries that embrace transparency tend to produce more information than other governments and are more likely to share this

information (Lord, 2006). More than 30 countries have even established a national-level, centralized anti-corruption agency (Meagher, 2005). Transparency ultimately serves to keep government honest—"Good government must be seen to be done" (Kierkegaard, 2009, p. 26). In terms of international practices in transparency, the Internet has greatly reduced the cost of collecting, distributing, and accessing government information (Roberts, 2006). As a result of these capacities, recent years have seen trends toward using e-government for greater access to information and for promotion of transparency, accountability, and anti-corruption goals (Anderson, 2009; Cullier & Piotrowski, 2009; Fuchs, 2006; Shim & Eom, 2008). However, all efforts to promote openness and reduce corruption are heavily shaped by the cultural milieu of a nation, ranging from societal attitudes toward the value of information to level of identification by citizens with the government and from viability of an independent press to information policies enacted by the government (Brown & Cloke, 2004).

Traditionally, there are three types of anti-corruption approaches (Shim & Eom, 2009):

- 1) Administrative reform. Administrative reforms are the most commonly used approaches, primarily through the enhancement of the quality of government bureaucracies to ensure that a watchdog agency or structure exists to officially monitor government behavior (Johnson, 1998; Klitgaard, 1998; Rose-Ackerman, 1999). Another common element of administrative reform is the creation of merit-based hiring and promotion for government positions, which feature formalized rules of conduct, accountability, and responsibility, sometimes learned from corporate approaches (Goodnow, 1992; Kim, Halligan, Cho, Oh, & Eikenberry, 2005; Wilson, 1992).
- 2) Law enforcement. Law enforcement approaches often compliment administrative reforms to ensure that an appropriate system for

* Corresponding author.

punishing corruption is in place (Hamilton-Hart, 2001; Rose-Ackerman, 1999). While administrative reform lowers opportunities to take bribes, law enforcement greatly increases the potential costs and punishments for taking bribes. Prosecution of corruption cases makes an example to all government employees, while also helping to clarify and reinforce expected standards of behavior for government employees (Anechiarico & Jacob, 1994). The law enforcement approach has also been used without administrative reforms in some transitional nations where the persons in power have resisted transparency efforts (Hamilton-Hart, 2001; Quah, 2001).

- 3) Social change. The social change approach is based in the idea of reform through social empowerment of citizens by allowing them to participate in institutional reform movements and by cultivating a civil, law-based society as a long-term deterrent to corruption (Johnson, 1998). By changing cultural attitudes that have been accepting of corruption, citizens can ultimately protect themselves from corruption (Fukiyama, 2001; Johnson, 1998).

In each of these areas, the provision of information to citizens and the ability of citizens to monitor the activities of the government play an important role, both key areas in which e-government and other ICTs can be used to battle corruption. The influence of culture often makes social change the largest challenge in openness and anti-corruption initiatives.

However, many anti-corruption initiatives have not focused on information issues. Transparency as an anti-corruption measure instead has long been tied to economic incentives, controlling discretionary power of government officials through a system of rules of appropriate conduct (Brautigam, 1992). Many anti-corruption initiatives of the past two decades have been tied to economic development aid from sources such as the World Bank, the International Monetary Fund (IMF), the Inter-American Development Bank, and USAID (Brown & Cloke, 2005). Consider the emphasis of the anti-corruption statements of two leading international organizations. The World Bank (1997) suggests “economic reform should be a main pillar of an anticorruption strategy” and that “deregulation and the expansion of markets are powerful tools for fighting corruption” (p. 35). The USAID *Handbook on Fighting Corruption* (1999) asserts that “the more activities public officials control or regulate, the more opportunities exist for corruption” (p. 13).

The focus on corruption as an economic issue has been part of an overall rise in global interest in transparency. Internationally, corruption has received great attention since 1990 due to fears of increasing opportunities for illicit activity due to globalization (Brown & Cloke, 2005). For example, anti-corruption conventions were signed by the Organization of American States (OAS) in 1996 and the Organization for Economic Cooperation and Development (OECD) in 1997 to limit corruption in the Americas. Issues of culture and information, however, have hampered many of these efforts. Whether these measures have been externally driven by internal organizations or tied to economic aid, or whether they have been internally driven from within a particular government, transparency as a means to reduce corruption in Central America has been negatively impacted specifically by misapprehensions about cultural norms, lack of education about transparency activities, and failures to create equal access to information (Brown & Cloke, 2005; Husted, 2002; Kolstad & Wiig, 2009).

Internal resistance to transparency initiatives is not unusual. In the United States, which was founded with openness principles being a part of the government, there was still significant initial resistance in the executive branch to the implementation of transparency laws in the 1950s and 1960s (Reylea, 2009a,b). Research has identified a number of ways in which culture affects openness and anti-corruption efforts, types of leaders typically chosen, structure of government, level of political action and engagement by citizens, nature of social interactions and group formations, acceptance of legal change, and emphasis on

creating the cultural impression that corruption is unacceptable (Harrison, 2000; Husted, 1999, 2002; North, 1990; Zagaris & Ohri, 1999). Ultimately, “without a change in power and political will, externally imposed transparency codes and standards will forever be chasing an elusive target” (von Furstenberg, 2001, p. 115).

2. ICTs and Transparency Initiatives

ICTs offer countries a new approach to creating transparency and promoting anti-corruption. Many nations with transparency laws have directly tied the implementation of these laws to the implementation of ICT-based initiatives, often through e-government (Relly & Sabharwal, 2009). ICTs can reduce corruption by promoting good governance, strengthening reform-oriented initiatives, reducing potential for corrupt behaviors, enhancing relationships between government employees and citizens, allowing for citizen tracking of activities, and by monitoring and controlling behaviors of government employees (Shim & Eom, 2008). To successfully reduce corruption, however, ICT-enabled initiatives generally must move from increasing information access to ensuring rules are transparent and applied to building abilities to track the decisions and actions of government employees (Bhatnagar, 2003).

Many governments envision the use of ICTs as a means to promote efficiency and transparency at the same time (von Waldenberg, 2004). ICTs in general show promise as an effective means of reducing corruption, but social attitudes can decrease the effectiveness of ICTs as an anti-corruption tool (Shim & Eom, 2009). Case studies and statistical analyses indicate that ICTs hold a great deal of potential for – and are already demonstrating benefits in – anti-corruption, particularly by enhancing the effectiveness of internal and managerial control over corrupt behaviors and by promoting government accountability and transparency (Shim & Eom, 2008). By analyzing changes between 1996 and 2006 corruption data through ICT-enabled e-government initiatives, one study concluded that “implementing e-government significantly reduces corruption, even after controlling for any propensity for corrupt governments to be more or less aggressive in adopting e-government initiatives” (Anderson, 2009, p. 210).

Nations across the Americas, Asia, and Europe have all claimed successes in reducing corruption through e-government (Bhatnagar, 2003; Shim & Eom, 2008). Taxes and government contracts are areas where e-government has been seen as a clear and successful solution to corruption problems in many nations, including such examples as:

- In India, putting rural property records online has greatly increased the speed at which the records are accessed and updated, while simultaneously removing opportunities for local officials to accept bribes as had previously been rampant (Bhatnagar, 2003). The Bhoomi electronic land record system in Karnataka, India, was estimated to have saved 7 million farmers 1.32 million working days in waiting time and Rs. 806 million in bribes to local officials in its first several years. Before the system, the average land transfer required Rs. 100 in bribes, while the electronic system requires a fee of Rs. 2 (World Bank, 2004).
- In Pakistan, the entire tax system and department was restructured with the specific purpose of reducing direct contact between citizens and tax officials to reduce opportunities for requests for bribes (Anderson, 2009).
- The Philippines Department of Budget and Management established an e-procurement system of government agencies to use to allow public bidding on government contracts to both prevent price fixing and allow public accountability (Anderson, 2009).
- In Chile, the ChileCompra e-procurement system has been used to allow government officials and citizens to compare the costs of bids to and services purchased by the government. The prices of more than 500 outsourced services from over 6,000 providers are included in the system (Shim & Eom, 2008). The system saves approximately

\$150 million US annually by preventing price fixing or inflation by corrupt officials and contractors. In addition to reducing corruption, this system expanded the number of small businesses that could participate in the government bidding process (Heeks, 2005).

- The use of e-government to cut corruption in Fiji has resulted in positive changes in public perception of government corruption and an increase in the responsiveness of government officials to citizen needs (Pathak, Naz, Rahman, Smith, & Agarwai, 2009).
- The United States has creating sites that allow access to the data of government expenditures, for stimulus dollars (www.recovery.gov), general funds (www.usaspending.gov), and information technology funds (www.IT.usaspending.gov) sites, which are intended to promote public monitoring of government spending for faster identification and elimination of wasteful projects (White House, 2009). A number of state governments in the United States have similar sites for the public to monitor government spending for waste and fraud.
- Several U.S. government Web sites allow for the tracking of transactions so that it is possible to track the progress of one's requests, applications, and/or other government services/resources. For example, the U.S. Customs and Immigration Service (USCIS) allows immigrants to track their immigration applications, while the U.S. Department of State enables passport seekers to track the progress of their passport applications. These features enable a wide range of users (i.e., citizens, residents, immigrants) to check on the progress of their government services, ensure efficiency, and provide reasonable timeframes for processing of various documents, services, and resources.

And these are just examples of the numerous approaches to use of e-government to promote transparency and reduce corruption.

One of the most widely studied anti-corruption e-government initiatives is the Seoul Metropolitan Government's Online Procedures Enhancement for civil applications (OPEN) system, which was launched in 1999 with multiple distinct anti-corruption measures embedded into the functions of the system. The OPEN system was part of a widespread government and corporate initiative to transform Korean government (Lee, 2009). Prior to the launch of OPEN, the government of Seoul was renowned for its levels of corruption, with the government officials who processed applications and petitions able to decide the order in which they would process materials, forcing citizen to pay "express fees" to get their materials processed (Kim & Cho, 2005; Shim & Eom, 2008). As such, the premise of OPEN was to reduce the number of places that government officials and citizens interacted directly.

OPEN initially included the 54 government services where corruption had been deemed most likely to occur, with citizens able to look up the status of their materials and the relevant government officials online. The OPEN system itself continually checks for delays in processing, and government officials and departments must provide reasons for such delays. Studies have credited OPEN with reducing corruption and increasing transparency, especially in terms of the regulation of the activities of government employees (Kim, Kim & Lee, 2009). The success of the system has also dramatically changed perceptions of the residents of Seoul about corruption, with 68% crediting OPEN with noticeably reducing government corruption in its first five years of operation (Cho & Choi, 2004).

ICTs also offer new avenues for openness by providing access to social media—content and interactions that are created through the social interaction of users via highly accessible Web-based technologies. Social media can be used to refer to both the enabling tools and technology and to the content that is generated by them. Social media include but are not limited to blogs, wikis (e.g. Wikipedia), social networking sites (e.g. Facebook), micro-blogging services (e.g. Twitter), and multimedia sharing services (e.g. Flickr, YouTube). Social media are often associated such concepts as user-generated content, crowd sourcing, and Web 2.0.

In terms of anti-corruption, social media has four major potential strengths: collaboration, participation, empowerment, and time. Social media is collaborative and participatory by its very nature as it is defined by social interaction. It provides the ability for users to connect with each and form communities to socialize, share information, or to achieve a common goal or interest. Social media can be empowering to its users as it gives them a platform to speak. It allows anyone with access to the Internet the ability to inexpensively publish or broadcast information, effectively democratizing media. In terms of time, social media technologies allow users to immediately publish information in near real time.

Examples of popular applications of social media to anti-corruption efforts have been developed both by governments and by non-governmental organizations. Wikileaks (www.wikileaks.org) is a Web site that allows users to anonymously publish sensitive information. It is in essence an untraceable, uncensorable wiki for whistle blowing. To date, it houses over 1.2 million documents. Wikileaks is the quintessential example of how social media technologies can be used to fight corruption. Another recent example is a Web site created in 2009 by the National Democratic Institute to help users explore, analyze, and visualize the data associated with the 2009 Afghanistan presidential election (www.afghanistanelectiondata.org).

3. Potential Barriers to ICT-Enabled Transparency Efforts

ICT-enabled initiatives as transparency and anti-corruption tools do not guarantee widespread success in all nations that implement them, however. New ICTs have not always led to breakthroughs in transparency or anti-corruption. ICTs historically have sometimes been successful in identifying and removing corruption, but they have also created new means and opportunities for corrupt behaviors (Heeks, 1998). New ICTs can even reduce competition in corrupt behaviors, privileging government officials who know how to operate the ICTs (Wescott, 2001). Oftentimes, the same ICT can produce widely divergent results in different nations and cultures (Heeks, 1998). Specifically in terms of e-government, a strong social determinant of the success of e-government projects is the acceptance of the initiative by government officials (Jaeger & Matteson, 2009). In Cameroon, for example, attempts to use e-government to improve transparency and efficiency were undermined by the refusal of government employees to use the system (Heeks, 2005). The success of ICT-enabled initiatives as anti-corruption strategy will depend on issues of implementation, education, and culture, among others.

The success will also depend on the acceptance of ICTs among citizens. Though governments have a strong preference for delivering services via the Internet (or other technologies) as a means of boosting cost-efficiency, citizens in many places still show a strong preference for in person or phone-based interactions with government representatives when they have questions or are seeking services, though individuals with higher levels of education are typically more open to using online interactions with government (Ebbers, Pieterse, & Noordman, 2008; Streib & Navarro, 2006). In individual communities, social networks play a significant role in the acceptance of ICT-enabled services by citizens, with acceptance and usage increases being strongly tied to positive perceptions about e-government and ICTs by family, friends, and members of the local community (Axford & Huggins, 2003; Berra, 2003; Jaeger & Bertot, in press). Some studies have suggested that trust in e-government can be built through increased responsiveness to user needs and inquiries and through increased transparency, but such efforts are thus far limited (Gauld, Gray, & McComb, 2009; Hung, Tang, Chang, & Ke, 2009; Tolbert & Mossberger, 2006).

ICT-enabled services are often limited by problems with usability, searchability, language, government and technological literacy, sufficiency of technological infrastructure, trust of social institutions providing access, and availability of computers and Internet access for

many segments of the general population, among other issues (Bertot, 2003, 2009; Bertot & Jaeger, 2008; Jaeger & Bertot, *in press*; Jaeger & Thompson, 2003, 2004; Singh & Sahu, 2008). Further complications can arise from the fact that many civil servants are often ambivalent about direct citizen participation in the political process (Roberts, 2004). “If e-government is to be truly transformative of government in terms of citizen participation and engagement, then e-government must be citizen-centered in its development and implementation” (Jaeger & Bertot, *in press*, n.p.).

Certain issues with citizen acceptance and use of ICT-enabled services are specific to the government. Larger and wealthier governments are generally better equipped to pursue initiatives, often because they have greater financial, technical, or personnel capacities available for technology-enabled projects (Moon, 2002). In many smaller communities, support for e-government and ICT-enabled services implementation is countered by various forms of resistance to the idea of e-government and ICT-enabled initiatives (Ebbers & van Dijk, 2007). The success of government initiatives is dependent on managerial leadership and political support within the local government (Ho & Ni, 2004; Jaeger & Matteson, 2009; Mahler & Regan, 2002).

Though still early in terms of measuring the full impact of ICT-enabled initiatives in terms of transparency and anti-corruption, there are a number of indications that ICTs can promote transparency and battle corruption by (Bhatnagar, 2003):

- providing information on government rules and citizen rights;
- providing information about government decisions and actions;
- promoting monitoring of government actions and expenditures;
- disseminating information on government performance;
- opening government processes, like land records, applications for licenses, and status of tax payments;
- identifying elected officials and civil servants under investigation for corruption and fraudulent activities; and
- disclosing of assets and investments of elected officials and civil servants.

As of 2006, 91% of nations had email contacts to alert government officials to corruption, while 29% of nations commonly use functions online that facilitate monitoring of fraud and corruption (West, 2006).

4. Building a Culture of Transparency through ICTs

Based on experience and research thus far, it is not known if using ICTs to promote transparency can create a sustained culture of transparency. In terms of information access generally, results thus far are mixed. Filtering of Internet content by governments is an example in which the amount of information accessible has changed significantly in some countries with divergent reactions by members of the public.

More than three dozen nations, primarily concentrated in East Asia, North Africa, the Middle East, and central Africa, filter access to the Internet (Zittrain & Palfrey, 2008). Malaysia and Saudi Arabia began censoring Internet access in their countries as official government policy in 1999, with Saudi Arabia announcing the implementation of a strategy to screen, monitor, and censor the Internet usage within the country through the King Abdulaziz City for Science & Technology (KACST); in the same year, China began arresting citizens for writings they posted online (Klotz, 2004). In 2002, Turkey passed a law against “airing pessimism” online (Klotz, 2004). In the United States, public libraries and schools receiving federal funding have had to filter their Internet access since 2001, creating disparities in levels of access available between school and libraries that need government funds and the wealthier schools and libraries that can forgo such funds and their related filtering requirements (Jaeger & Yan, 2009). These nations filter for a range of social, political, and security reasons, blocking materials such as information related to free expression, health, human rights,

economic development, environmental issues, religious beliefs, other nations, among many others (Zittrain & Palfrey, 2008).

In some countries that implemented filters, citizens lost access to information they previously had, resulting in little public response in some nations and controversy in others. It may be telling that the laws mandating filtering on public access computers caused quite a controversy in the United States, a nation with an already-established robust tradition of openness (Jaeger, Bertot, & McClure, 2004). Similarly, in the European Union, new EU conventions that would limit access to government documents are being opposed by activists, scholars, and citizens organizations (Kierkegaard, 2009). In a society that generally lacks openness, however, responses to loss of information access are far more muted. China provides a strong example of this situation.

In 1999, China began arresting citizens for writings they posted on the Internet; in 2002, China closed all but 200 of the 2,400 Internet cafes in the country (Dann & Haddow, 2008; Klotz, 2004). Now, the Chinese government controls information flows and dictates the message provided by the media through “state repression and disciplinary technologies,” exemplified by the Great Firewall of China that radically limits both the news, political, environmental, and social information that Chinese citizens can access online, and the ability of those citizens to post their own materials and add their own voices online (Zhao, 2008, p. 25). In late 2009, the Chinese government ordered that access to information of various sorts be constrained by requiring that technological limits on access – via software known as “Green Dam” – be immediately built into computers sold in China (Jacobs, 2009a,b). None of these limitations on access has resulted in widespread outcry against the limitations of online information access.

5. ICTs as Change Agents

Traditionally, new ICTs have favored those already in power. By improving lines of communication, ICTs – like the telegraph and then telephones – were able to provide a tool of increased effectiveness in colonial administration and control, enhancing “the power of the rulers over the ruled” (Hanson, 2008, p. 19). The rise of radio and television led to the use of broadcasting to extend the power of the government. For example, during the 1940s and 1950s in the United States, more than 25 news and public affairs series that aired on the television networks consisted entirely of programming provided by the federal government, with the military providing hundreds of additional films for stations to broadcast (Bernhard, 1993). Such efforts expanded on the wave of government-run radio broadcast networks in dozens of nations that began in the 1920s and 1930s to spread propaganda and promote conquest (Wood, 1992, 2000; Puddington, 2000). The social media applications of the Internet, on the other hand, have the potential to enhance existing and foster new cultures of openness.

In the 2007 campaign for Prime Minister of Australia, the Australian media – much of which is owned by Rupert Murdoch – openly supported the Conservative party and its Prime Minister, going so far as to selectively report and distort the results of their own polls, particularly those of the major papers owned by Murdoch (Bruns, 2008). As a result, blogs and other online social networks played a large part by providing contrasting views to balance the media coverage. “Months of persistent efforts by bloggers and citizen journalists in Australia to neutralize and counteract news media industry spin in political reporting left leaders of the journalism industry in an uneasy jittery mood” (Bruns, 2008, p. 66). In this election, the mainstream media were pitted against diverse citizens online, with control of discourse about a national election at stake. Based on the outcome of that election, online community apparently made a stronger case.

Entire political movements now exist and sustain themselves through the capacities of the Internet to disseminate information. In

the aftermath of the Iranian election of 2009, for instance, some of the potential of an ICT like Twitter became clear. Even though a relatively small number of people in Iran used it to post small bits of information about protests in the streets of Tehran (whether through text, photographs, or short videos), Twitter still became one of the primary means through which the world outside of Iran learned about those protests. In this case, the apparent technical limitations of the tool – only 140 characters per post and the consequent focus of individual “Tweets” on minutia – and the fact that Twitter relies on decentralized distribution of messages combined to make it an ideal way for protesters to side-step Iranian efforts at censorship and make information about events in their world available around the globe (Cohen, 2009).

Social media show early promise as a tool for transparency and openness (Mäkinen & Kuira, 2008) despite attempts at censorship. Governments have so far struggled in adapting censorship strategies to social media, as current techniques for Internet filtering are less effective at limiting content on social media services than traditional Internet services. (Faris, Wang, & Palfrey, 2008; MacKinnon, 2009). However, it is still important to note that even with this social media services are by no means completely immune to government censorship or government sponsored censorship (MacKinnon, 2008; 2009).

Given these and other experiences with ICTs and openness, several key lessons can be drawn in relation to the use of ICTs to create a more permanent approach to transparency in a nation. Key factors that may influence the extent to which ICTs can create a permanent culture of transparency include:

- ICT access. The wider access to ICTs in a society, the greater connections between different parts of a society (Lin, 2001; Hampton & Wellman, 2001). More social interconnectedness means greater ability of members of the society to work together to promote social benefits like transparency.
- Trust. Research has shown that the provision of greater access to government information and increased transparency through the use of ICTs increases trust among citizens (Cho & Choi, 2004; Shim & Eom, 2008, 2009).
- Empowerment. As detailed above, using ICTs to increase citizen engagement makes the citizens empowered to participate in openness initiatives and to promote cultural support for transparency (Fukiyama, 2001; Johnson, 1998).
- Social capital. The social networks and affiliations within a society that can collaborate to promote social good – known as social capital – benefit from increased access to information through ICTs (Lin, 2001; Wellman, Hasse, Witte, & Hampton, 2001; Wellman, Salaf, Dimiitrova, Garton, Gulia, & Haythornthwaite, 1996).
- Bureaucratic acceptance of transparency. Any ICT-enabled transparency initiatives will be far more likely to have a broad cultural impact if they are embraced and actively used within the government bureaucracy (Ho & Ni, 2004; Jaeger & Matteson, 2009; Mahler & Regan, 2002). Further, this acceptance must be demonstrated to citizens.

In addition, as the examples above demonstrate, ICTs can be used to promote transparency in cultures that have a tradition of government openness and those that do not. However, more of the recent examples can be found in societies with a tradition of openness.

6. Challenges and Opportunities

The combination of e-government, social media, Web-enabled technologies, mobile technologies, transparency policy initiatives, and citizen desire for open and transparent government are fomenting a new age of opportunity that has the potential to create open, transparent, efficient, effective, and user-centered ICT-enabled services. Moreover, governments, development agencies and organizations, and

citizen groups are increasingly linking investment, governance, and support to the creation of more open and transparent government. It is rare that there is such an alignment of policy, technology, practice, and citizen demand exists—all of which bode well for the creation of technology-enabled government that instills the trust of citizens in government.

The challenges, however, are also real. But the challenges are less technological, as the examples detailed above demonstrate. A wide range of nations with varying technology infrastructure have created numerous procurement, tracking, anti-corruption, and other systems that assisted national and state governments engage in transparent government activities. Moreover, the systems opened government to citizen scrutiny, thereby reducing corruption.

Rather than technology development being the barrier, technology access and literacy may be a concern in the near term. In the U.S., for example, nearly 40% of households still do not have Internet access (U.S. Census Bureau, 2009). This ranges quite differently for nations, with South Korea having Internet penetration of over 94.2%, Iceland with 83.2%, Denmark with 74.1%, down to Italy with 30.8%, Greece with 22.5%, Mexico with 9.8%, and Turkey with 1.7% (OECD, 2008). Substantial growth, however, has occurred in the adoption of mobile technologies, including nations that have low landline and Internet penetration (Central Intelligence Agency, 2008), thus supporting the emerging nature of mobile e-government (or m-government) as holding great promise for deployment of transparency initiatives. Indeed for Central and South America and the Caribbean, mobile technology adoption is high and has largely outpaced computer/Internet adoption (OECD, 2008; Central Intelligence Agency, 2008).

Coinciding with technology access is the need for users to be able to understand and use the technologies through which transparency tools are available. The digital divide is long documented (Bertot, 2003; Barzilay-Nahon, 2006; National Telecommunications and Information Administration, 1995, 2004) and broadly defined as the gap between those who have access to technologies and those who do not. However, there are in fact multiple divides that can exist, of which access to the ICTs is but one. Embedded within the divide are such issues as:

- Technology literacy—the ability to understand and use technologies;
- Usability—the design of technologies in such ways that are intuitive and allow users to engage in the content embedded within the technology;
- Accessibility—the ability of persons with disabilities to be able to access the content through adaptive technologies (in fact, some mobile technologies such as the iPhone are completely inaccessible to persons with visual impairments due to the touch screen design which lacks a tactile keyboard); and
- Functionality—the design of the technologies to include features (e.g., search, e-government service tracking; accountability measures, etc.) that users desire.

Thus, it is important to both use technologies that are widely deployed to provide a broad base of technology access, but there is also often a substantial need to provide training, and engage in usability, functionality, and accessibility testing to ensure the broadest ability to participate in e-government services and resources.

The use of social media as a core part of transparency initiatives also can create both new opportunities and new challenges. For example, the use of social media in combination with open government data has been promoted as a new way of enabling and facilitating transparency (Brito, 2008; Robinson, Yu, Zeller, & Felten, 2008). This approach is typified by the nascent and ambitious plan by the Obama administration to make vast amounts of government data available through the www.data.gov site (White House, 2010). These types of transparency initiatives are directed toward the more technically inclined citizen: researchers, technologists, and civic-minded geeks. While everyone can benefit from the data and the by-products

and analyses that the more technically inclined citizens would produce, to truly “democratize the data” would ultimately require a better, more conscious effort to make this initiative more inclusive and participatory to all citizens.

Another type of opportunity for social media in openness and anti-corruption is through the increased opportunities for citizen journalism. Through social media, citizen journalism can report when the traditional media fails, when the media are strongly influenced or controlled by the state or those in power, or when the media provide insufficient coverage of a story. Two events discussed above – the Australian election and the Iranian protests – demonstrate the potential of social media to facilitate citizen journalism that promotes transparency.

Looking beyond technological issues, the research on transparent and open government points to two critical success factors: 1) a culture of transparency embedded within the governance system and 2) a transparency “readiness” factor—that is, factors on the ground such as technology penetration, technology capabilities and access of government agencies, and social and technology readiness of the populace (Brown & Cloke, 2005; Kolstad & Wiig, 2009; Kolstad, Wiig, & Williams, 2009; Mehlum, Moene, & Torvik, 2006; Robinson, Torvik, & Verdier, 2006). These two factors are essentially two sides of a coin—one needs the culture of openness to permeate governance structures and operations while simultaneously needing the technical and social capabilities to truly implement e-government transparency initiatives. Without the two factors operating in tandem, it is highly unlikely that the essential trust between government and those governed will develop and thus truly create an open and transparent environment.

7. Conclusions and Recommendations

Though the social and ICT technologies can be disruptive, promote transparency, and create significant change, the cultural, social, and technology access factors likely require incremental and demonstrated successful change. There are, however, several short-term actions that are possible which can lead to long-term success in terms of transparent and open government that reduces corruption that can be considered:

1. Develop measures of transparency. In conducting this research, it is clear that the term transparency is used with great liberty—but with little evaluation criteria, measures, or methods for determining the extensiveness and success of transparency efforts. To be sure, there are a range of descriptive case studies that document transparency initiatives, but with little external, verifiable assessment.
2. Develop transparency “readiness” criteria. As the above discussion identified, not all nations or states within nations are able to engage in e-government initiatives for a range of reasons. It is therefore important to develop readiness criteria for transparency initiatives – and metrics against which to gauge counties along those criteria – in order to promote initiatives, pilot programs, and other strategies. The strategy of working with the leading edge to uncover development and implementation issues can lead to more successful investments and longer term projects across a broader range of countries. It may be the case that different nations group along the criteria developed and that different strategies are more or less successful within those groupings. This is an area that requires additional research and exploration.
3. Evaluate existing systems for portability and expansion. Successful ICT-enabled transparency systems exist and can be further studied. The ChileCompra procurement system, noted above, could be assessed in terms of both its technology infrastructure and implementation strategy for portability and expansion. It may be the case that ChileCompra is scalable and portable, thus enabling other countries to modify and implement a similar system without large-scale investments.
4. Reuse rather than reinvent. In line with the above recommendation, it is likely the case that other existing transparency and anti-corruption systems are reusable in various ways. The presence of such systems in e-government allows for easy access and study by other nations. For example, case tracking systems (USCIS, U.S. Department of State), budget reporting systems (USAspending), procurement (ChileCompra), filing (Boomi, OPEN), etc., are proven systems that work for their specified purposes. Underlying these tailored systems is a range of core government functions that transcend nations and governance structures.
5. Create and invest in collaborative pilot projects. Targeting initiatives, projects, technologies, and countries to serve as pilots for overarching transparency initiatives can serve as fertile test beds. The strategies of many international organizations indeed include large-scale transparency goals and objectives. Supranational and regional organizations can consider cross-national pilot projects and sharing of best practices. In addition, collaboratively testing technologies, approaches, and projects on a smaller scale will enable nations to work in tandem to develop solutions that can be scaled and implemented to meet strategic objectives.

These approaches offer the possibility of short-term gains with longer-term strategic objective attainment.

As this paper demonstrates, the social technologies available today are transformative in general and with regard to transparency and anti-corruption in particular. Though there are challenges and barriers to implementation, the specific applications discussed in this paper demonstrate that it is possible to overcome these challenges through a combination of political will and technology. The extent to which ICTs can create a culture of transparency and openness is unclear; however, initial indications are that ICTs can in fact create an atmosphere of openness that identifies and stems corrupt behavior.

References

- Anderson, T. B. (2009). E-government as an anti-corruption strategy. *Information Economics and Policy*, 21, 201–210.
- Anechiarico, F., & Jacob, J. (1994). Vision of corruption control and the evolution of American public administration. *Public Administration Review*, 54(5), 463–473.
- Axford, B., & Huggins, R. (2003). Towards a political sociology of the Internet and local governance. *Telematics and Informatics*, 20, 185–192.
- Barzilai-Nahon, K. (2006). Gaps and bits: Conceptualizing measurements for digital divide/s. *The Information Society*, 22(5), 269–278.
- Bernhard, N. E. (1993). Ready, willing, able: Network television news and the federal government, 1948–1953. In W. S. Solomon & R. W. McChesney (Eds.), *Ruthless criticism: New perspectives in U.S. communication history* (pp. 291–312). Minneapolis: University of Minnesota Press.
- Berra, M. (2003). Information communications technology and local development. *Telematics and Informatics*, 20, 215–234.
- Bertot, J. C. (2003). The multiple dimensions of the digital divide: More than the technology ‘haves’ and ‘have nots’. *Government Information Quarterly*, 20(2), 185–191.
- Bertot, J. C. (2009). Public access technologies in public libraries: Impacts and implications. *Information Technology & Libraries*, 28(2), 84–95.
- 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.
- Bhatnagar, S. (2003). E-government and access to information. *Global Corruption Report 2003*. Washington DC: Transparency International.
- Braman, S. (2006). Change of state: Information, policy, and power. Cambridge, MA: Massachusetts Institute of Technology Press.
- Brautigam, D. (1992). Governance, economy, and foreign aid. *Studies in Comparative International Development*, 27(3), 3–23.
- Brito, J. (2008). Hack, mash, & peer: Crowdsourcing government transparency. *Columbia Science and Technology Law Review*, 9, 119–157.
- Brown, E., & Cloke, J. (2004). Neoliberal reform, governance, and corruption in the South: Assessing the international anti-corruption crusade. *Antipode*, 36(2), 272–294.
- Brown, E., & Cloke, J. (2005). Neoliberal reform, governance and corruption in Central America: Exploring the Nicaraguan case. *Political Geography*, 24, 601–630.
- Bruns, A. (2008). Life beyond the public sphere: Towards a networked model for political deliberation. *Information Policy*, 13, 65–79.
- Central Intelligence Agency. (2008). World Fact Book Last accessed December 26, 2009 at <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2151-rank.html>.
- Cho, Y. H., & Choi, B.-D. (2004). E-government to combat corruption: The case of Seoul metropolitan government. *International Journal of Public Administration*, 27, 719–735.
- Cohen, N. (2009, June 12). Twitter on the barricades: Six lessons learned. *New York Times, Week in Review*, 4.

- Cullier, D., & Piotrowski, S. J. (2009). Internet information-seeking and its relation to support for access to government records. *Government Information Quarterly*, 26, 441–449.
- Dann, G. E., & Haddow, N. (2008). Just doing business, or doing just business: Google, Microsoft, Yahoo!, and the business of censoring China's Internet. *Journal of Business Ethics*, 79, 219–234.
- Ebbers, W. E., Pieterse, W. J., & Noordman, H. N. (2008). Electronic government: Rethinking channel management strategies. *Government Information Quarterly*, 25, 181–201.
- Ebbers, W. E., & van Dijk, J. A. G. M. (2007). Resistance and support to electronic government, building a model of innovation. *Government Information Quarterly*, 24, 554–575.
- Faris, R., Wang, S., & Palfrey, J. (2008). Censorship 2.0. *Innovations: Technology, Governance, Globalization*, 3, 165–167.
- Fuchs, M. (2006). Judging secrets: The role courts should play in preventing unnecessary secrecy. *Administrative Law Review*, 58, 131–176.
- Fukuyama, F. (2001). Social capital, civil society, and development. *Third World Quarterly*, 22(1), 7–20.
- Gauld, R., Gray, A., & McComb, S. (2009). How responsive is e-government?: Evidence from Australia and New Zealand. *Government Information Quarterly*, 26, 69–74.
- Goodnow, F. J. (1992). Politics and administration. In J. M. Sharfrit & A. C. Hyde (Eds.), *Classics of public administration* (pp. 25–28), 3rd ed. Belmont, CA: Brooks/Cole.
- Hamilton-Hart, N. (2001). Anti-corruption strategies in Indonesia. *Bulletin of Indonesian Economic Studies*, 37(1), 65–82.
- Hampton, K., & Wellman, B. (2001). Long distance community in the network society: Contact and support beyond Netville. *American Behavioral Scientist*, 45(3), 476–495.
- Hanson, E. C. (2008). The information revolution and world politics. Lanham, MD: Rowman & Littlefield.
- Harrison, L. E. (2000). Culture matters. *The National Interest*, 60, 55–65.
- Heeks, R. (1998). Information technology and public sector corruption. Manchester, UK: Institute for Development Policy and Management.
- Heeks, R. (2005). E-government as a carrier of context. *Journal of Public Policy*, 25, 51–74.
- Ho, A. T.-K., & Ni, A. Y. (2004). Explaining the adoption of e-government features: A case study of Iowa County Treasurers' offices. *American Review of Public Administration*, 34, 164–180.
- Hung, S. -Y., Tang, K. -Z., Chang, C. -M., & Ke, C. -D. (2009). User acceptance of intergovernmental services: An example of electronic document management system. *Government Information Quarterly*, 26, 387–397.
- Husted, B. W. (1999). Wealth, culture, and corruption. *Journal of International Business Studies*, 30, 339–360.
- Husted, B. W. (2002). Culture and international anti-corruption agreements in Latin America. *Journal of Business Ethics*, 37, 413–422.
- Jacobs, A. (2009, February 5). Chinese learn limits of online freedom as the filter tightens. *New York Times*, A8 (Available: http://www.nytimes.com/2009/02/05/world/asia/05beijing.html?_r=1).
- Jacobs, A. (2009, June 11). China faces criticism over new software censor. *New York Times*, A12 (Available: http://www.nytimes.com/2009/06/11/world/asia/11censor.html?_r=1&scp=1&sq=China%20software%20filters&st=cse).
- Jaeger, P. T., & Bertot, J. C. (in press). Designing, implementing, and evaluating user-centered and citizen-centered e-government. *International Journal of Electronic Government Research*.
- 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(13), 1131–1139.
- Jaeger, P. T., & Matteson, M. (2009). E-government and technology acceptance: The implementation of Section 508 guidelines for e-government websites. *Electronic Journal of E-Government*, 7(1), 87–98 (Available: <http://www.ejeg.com/volume-7/vol7-iss1/v7-i1-art8.htm>).
- 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 & Information Science Research*, 26(1), 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.
- Johnson, M. (1998). Fighting systematic corruption: Social foundations of institutional reform. *European Journal of Development Research*, 10(1), 85–104.
- Kierkegaard, S. (2009). Open access to public documents—More secrecy, less transparency! *Computer Law & Security Review*, 25, 3–27.
- Kim, S., & Cho, K. (2005). Achieving administrative transparency through information systems: A case study in the Seoul Metropolitan Government. *Electronic Government: 4th International Conference, EGOV 2005*.
- Kim, P. S., Halligan, J., Cho, N., Oh, C. H., & Eikenberry, A. M. (2005). Toward participatory and transparent governance: Report on the sixth Global Forum on Reinventing Government. *Public Administration Review*, 65(6), 646–654.
- Kim, S., Kim, H. J., & Lee, H. (2009). An institutional analysis of an e-government system for anti-corruption: The case of OPEN. *Government Information Quarterly*, 26, 42–50.
- Klitgaard, R. (1998). Controlling corruption. Berkeley: University of California Press.
- Klotz, R. J. (2004). The politics of Internet communication. Lanham, MD: Rowman & Littlefield.
- Kolstad, I., & Wiig, A. (2009). Is transparency the key to reducing corruption in resource-rich countries? *World Development*, 37, 521–532.
- Kolstad, I., Wiig, A., & Williams, A. (2009). Mission improbable: Does petroleum-related aid address the resource curse? *Energy Policy*, 37, 954–965.
- Lee, K. -S. (2009). A final flowering of the development state: The IT policy experiment of the Korean Information Infrastructure, 1995–2005. *Government Information Quarterly*, 26, 567–583.
- Lin, N. (2001). Social capital: A theory of social structure and action. Cambridge: Cambridge University Press.
- Lord, K. M. (2006). The perils and promise of global transparency. Albany, NY: State University Press of New York.
- MacKinnon, R. (2008). Flatter world and thicker walls? Blogs, censorship and civic discourse in China. *Public Choice*, 134, 31–46.
- MacKinnon, R. (2009). China's censorship 2.0: How companies censor bloggers. *First Monday*, 14(2) (Available: <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/2378/2089>).
- Mahler, J., & Regan, P. M. (2002). Learning to govern online: Federal agency Internet use. *American Review of Public Administration*, 32, 326–349.
- Mäkinen, M., & Kuira, M. W. (2008). Social media and post-election crisis in Kenya. *The International Journal of Press/Politics*, 13, 328–335.
- Meagher, P. (2005). Anti-corruption agencies: Rhetoric versus reality. *Journal of Policy Reform*, 8, 69–103.
- Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *The Economic Journal*, 116, 1–20.
- Moon, M. J. (2002). The evolution of e-government among municipalities: Rhetoric or reality? *Public Administration Review*, 62, 424–433.
- Mulgan, R. (2007). Truth in government and the politicization of public service advice. *Public Administration*, 85, 569–586.
- National Telecommunications and Information Administration. (1995). Falling through the Net: A survey of the "haves" and the "have nots" in rural and urban America. Washington, DC: National Telecommunications and Information Administration Last accessed December 15, 2009 at <http://www.ntia.doc.gov/ntiahome/fallingthru.html>.
- National Telecommunications and Information Administration. (2004). A nation online: Entering the broadband age. Washington, DC: National Telecommunications and Information Administration Last accessed December 15, 2009 at <http://www.ntia.doc.gov/reports/anol/index.html>.
- North, D. C. (1990). Institutions, institutional change, and economic performance. Cambridge: Cambridge University Press.
- Open Society Justice Initiative. (2006). Transparency and silence. Open Society Institute Available: http://www.justiceinitiative.org/db/resource2?res_id=103818.
- Organization for Economic Cooperation and Development. (1997). Convention on combating bribery of foreign public officials in international business transactions and related documents Available: <http://www.oecd.org/daf/cm/ib/20-nov23.htm>.
- Organization for Economic Cooperation and Development. (2008). OECD broadband statistics: Households with broadband access, 2008 Available: <http://www.oecd.org/sti/ict/broadband>.
- Organization of American States. (1996). Inter-American convention against corruption Available: <http://www.oas.org/EN/PINFO/CONVEN/corrupt.htm>.
- Pathak, R. D., Naz, R., Rahman, M. H., Smith, R. F. I., & Agarwai, K. N. (2009). E-governance to cut corruption in public service delivery: A case study of Fiji. *International Journal of Public Administration*, 32, 415–437.
- Piotrowski, S. J. (2007). Governmental transparency in the path of administrative reform. New York: SUNY Press.
- Puddington, A. (2000). Broadcasting freedom: The Cold War through triumph of Radio Free Europe and Radio Liberty. Lexington, KY: University of Kentucky Press.
- Quah, J. S. T. (2001). Corruption in Asian countries: Can it be minimized? *Journal of Contingencies and Crisis Management*, 9(1), 29–35.
- Quinn, A. C. (2003). Keeping the citizenry informed: Early congressional printing and 21st century information policy. *Government Information Quarterly*, 20, 281–293.
- Relly, J. E., & Sabharwal, M. (2009). Perceptions of transparency of government policymaking: A cross-national study. *Government Information Quarterly*, 26, 148–157.
- Reylea, H. C. (2009). Federal freedom of information policy: Highlights of recent developments. *Government Information Quarterly*, 26, 314–320.
- Reylea, H. C. (2009). Congress and freedom of information: A retrospective and a look at a current issue. *Government Information Quarterly*, 26, 437–440.
- Robinson, D., Yu, H., Zeller, W. P., & Felten, E. W. (2008). Government data and the invisible hand. *Yale Journal of Law and Technology*, 11, 160–175.
- Roberts, A. (2006). Blacked out: Government secrecy in the information age. New York: Cambridge University Press.
- Roberts, N. (2004). Public deliberation in an age of direct citizen participation. *American Review of Public Administration*, 34, 315–353.
- Robinson, J. A., Torvik, R., & Verdier, T. (2006). Political foundations of the resource curse. *Journal of Development Economics*, 79, 447–468.
- Rose-Ackerman, S. (1999). Corruption and government: Causes, consequences, and reform. Cambridge: Cambridge University Press.
- Shim, D. C., & Eom, T. H. (2008). E-government and anti-corruption: Empirical analysis of international data. *International Journal of Public Administration*, 31, 298–316.
- Shim, D. C., & Eom, T. H. (2009). Anticorruption effects of information and communication technology (ICT) and social capital. *International Review of Administrative Sciences*, 75, 99–116.
- 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.
- Singh, A. K., & Sahu, R. (2008). Integrating Internet, telephones, and call centers for delivering better quality e-governance to all citizens. *Government Information Quarterly*, 25, 477–490.

- Streib, G., & Navarro, I. (2006). Citizen demand for interactive e-government: The case of Georgia consumer services. *American Review of Public Administration*, 36, 288–300.
- Tolbert, C. J., & Mossberger, K. (2006). The effects of e-government on trust and confidence in government. *Public Administration Review*, 66(3), 354–369.
- USAID (1999). Handbook on fighting corruption. Washington DC: Author.
- U.S. Census Bureau (2009). Available: <http://www.census.gov>.
- von Furstenberg, G. M. (2001). Hopes and delusions of transparency. *North American Journal of Economics and Finance*, 12, 105–120.
- von Waldenberg, W. (2004). Electronic government and development. *European Journal of Development Research*, 16, 417–432.
- Wellman, B., Hasse, A. Q., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? *American Behavioral Scientist*, 45(3), 436–455.
- Wellman, B., Salaf, J., Dimiintrova, D., Garton, L., Gulia, M., & Haythornthwaite, C. (1996). Computer networks as social networks: Collaborative work, telework, and virtual community. *Annual Review of Sociology*, 22, 213–238.
- Wescott, C. (2001). E-government in the Asia Pacific Region. *Asia Journal of Political Science*, 9, 1–24.
- West, D. (2006). Global e-government 2006 Available: <http://insidepolitics.org/egovt06int.pdf>.
- White House. (2009). Open government: A progress report to the America people Available: www.whitehouse.gov.
- White House. (2010). First open gov deadline brings online treasure trove of information Available: www.whitehouse.gov.
- Wilson, W. (1992). Study of public administration. In J. M. Sharfrit & A. C. Hyde (Eds.), *Classics of public administration* (pp. 11–24), 3rd ed. Belmont, CA: Brooks/Cole.
- Wood, J. (1992). *History of international broadcasting*. London: Peregrinus.
- Wood, J. (2000). *History of international broadcasting volume 2*. London: Institute of Electrical Engineers.
- World Bank (1997). Helping countries combat corruption: the role of the World Bank Report of the Corruption Action Plan Working Group. Washington DC: Author.
- World Bank (2004). Making services work for the poor: World Development Report. Washington DC: Author.
- Zagaris, B., & Ohri, S. L. (1999). The emergence of an international enforcement regime on transnational corruption in the Americas. *Law & Policy in International Business*, 30, 53–93.
- Zhao, Y. (2008). Neoliberal strategies, socialist legacies: Communication and state transformation in China. In P. Chakravartty, & Y. Zhao (Eds.), *Global communications: Toward a transcultural political economy* (pp. 51–74). Lanham, MD: Rowman & Littlefield.
- Zittrain, J., & Palfrey, J. (2008). Internet filtering: The politics and mechanisms of control. In R. Deibert, J. Palfrey, R. Rohozinski, & J. Zittrain (Eds.), *Access denied: The practice and policy of global Internet filtering* (pp. 29–56). Cambridge, MA: Massachusetts Institute of Technology Press.

John Carlo Bertot, Ph.D., is a Professor, Director of the Center for Library and Information Innovation, and Associate Director of the Center for Information Policy and Electronic Government in the College of Information Studies at the University of Maryland. Bertot is the editor of *Government Information Quarterly* and of *Library Quarterly*. He has extensive research and grant management experience, having received grant funding from the Government Accountability Office, U.S. Institute of Museum and Library Services, the Bill & Melinda Gates Foundation, the American Library Association, and the Florida State Library and Archives, among others. Bertot conducts research in the areas of e-government and information policy as well as public library management, technology planning, and program evaluation. His most recent book is *Public Libraries and the Internet: Roles, Perspectives, and Implications* (Libraries Unlimited, 2010) with Paul T. Jaeger and Charles R. McClure. Bertot currently serves as president-elect of the Digital Government Society of North America, Chair of the International Standards Organization (ISO) 11620 standard working group for Library Performance Indicators, and member of the American Library Association's E-government taskforce.

Paul T. Jaeger, Ph.D., J.D., is Assistant Professor, Director of Center for Information Policy and Electronic Government, and Associate Director of the Center for Library & Information Innovation in the College of Information Studies at the University of Maryland. He is the associate editor of *Library Quarterly*. Dr. Jaeger's research focuses on the ways in which law and policy shape information behavior. He is the author of more than eighty journal articles and book chapters, along with six books. His most recent books are *Information Worlds: Social Context, Technology, & Information Behavior in the Age of the Internet* (Routledge, 2010) with Gary Burnett and Public Libraries and the *Internet: Roles, Perspectives, and Implications* (Libraries Unlimited, 2010) with John Carlo Bertot and Charles R. McClure. His research has been funded by the Institute of Museum & Library Services, the National Science Foundation, the American Library Association, and the Bill & Melinda Gates Foundation.

Justin M. Grimes is a PhD student in the College of Information Studies at the University of Maryland and a research associate at the Center for Information Policy and E-Government. His research interests include e-government, information policy, open government data, and government 2.0.