Government
TRANSPARENCY

Six Strategies for More Open and Participatory Government

A WHITE PAPER BY JON GANT AND NICOL TURNER-LEE

Government Transparency:

Six Strategies for More Open and Participatory Government

A White Paper on the Government Transparency Recommendation
of the Knight Commission on the Information Needs of
Communities in a Democracy

written by
Jon Gant and Nicol Turner-Lee

THE ASPEN INSTITUTE
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The Aspen Institute and the John S. and James L. Knight Foundation invite you to join the public dialogue around the Knight Commission's recommendations at www.knightcomm.org or by using Twitter hashtag #knightcomm.

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From Report to Action

Implementing the Recommendations of the Knight Commission on the Information Needs of Communities in a Democracy

In October 2009, the Knight Commission on the Information Needs of Communities in a Democracy released its report *Informing Communities: Sustaining Democracy in the Digital Age* with 15 recommendations to better meet community information needs.

Immediately following the release of *Informing Communities*, the Aspen Institute Communications and Society Program and the John S. and James L. Knight Foundation partnered to explore ways to implement the Commission's recommendations.

As a result, the Aspen Institute commissioned a series of white papers with the purpose of moving the Knight Commission recommendations from report into action. The topics of the commissioned papers include the following:

- Universal Broadband
- Digital and Media Literacy
- Public Media
- Government Transparency
- Civic Engagement
- Online Hubs
- Local Journalism
- Assessing the Information Health of Communities

The following paper is one of these white papers.

This paper is written from the perspective of the individual authors. The ideas and proposals herein are those of the authors, and do not necessarily represent the views of the Aspen Institute, the John S. and James L. Knight Foundation, the members of the Knight Commission on the Information Needs of Communities in a Democracy, or any other institution. Unless attributed to a particular person, none of the comments or ideas contained in this report should be taken as embodying the views or carrying the endorsement of any person other than the authors.

Government Transparency: Six Strategies for More Open and Participatory Government

Executive Summary

Over the last several decades, local, state and federal government entities in the United States have steadily moved toward more openness and transparency. By definition, openness and transparency allow stakeholders to gather information that may be critical to their interests and offer channels of communication between stakeholders and elected officials. Aided by legislative mandates and public policy decisions, most government entities are now required to make a minimum amount of information available to citizens, operate in the "sunlight" and not behind closed doors, and actively engage citizens in the policy-making process.

These trends have been fundamentally enhanced by the emergence of an array of information and communication technologies (ICTs)—including broadband Internet access, smartphones, netbooks, and other devices capable of accessing data via the web—that make it much easier for citizens to access and consume government information. In addition, these tools are facilitating a revolution in how citizens interact with government generally and with government data specifically. As a growing number of entities and agencies at every level of government leverage the power and relative ubiquity of the Internet to engage citizens in a variety of functions, from informal rule-making proceedings to formal legislative initiatives, a number of innovative government entities are also tapping into the expertise and innovative spirit of the public by encouraging citizens to create new tools—many of which are enabled by broadband—that transform government data and information into practical tools for use by the general public.

On this point, the Knight Commission makes its Recommendation 4: "Require government at all levels to operate transparently, facilitate easy and low-cost access to public records, and make civic and social data available in standardized formats that support the productive public use of such data."

This paper examines how and why government at every level, particularly at the local level, should embrace emerging ICT technologies and Web 2.0 and 3.0 tools (e.g., social media and collaboration) to enhance their openness and engage citizens more fully. This paper offers several implementation strategies for Recommendation 4 that focus on enhancing government expertise and transparency, educating citizens regarding the availability and utility of government information and e-government tools, expanding efforts to support greater adoption of broadband Internet access services and devices, and forging public-private-citizen partnerships in order to enhance open government solutions. The purpose of these strategies is to provide a framework for facilitating these objectives and placing government entities on the proper pathway toward the full realization of the benefits of information transparency.

In the end, we offer six strategies for governments to best implement e-government and open-government technologies:

Strategy 1: Convene a national working group of chief information and technology officers to discuss and decide upon technical and operational procedures that mitigate changing environments and circumstances in the open government field. This strategy involves technology leaders from local governments collaborating with a larger association of government technology leaders to develop standards for design, operations, monitoring and performance, and procedures for information management in local governments.

Strategy 2: Create opportunities for developing public good applications that are sustainable through public-private partnerships or contests funded through philanthropic investments. This strategy involves partnerships between governments, citizens, foundations, and other stakeholders to develop applications that drive demand for government content and expand the talent pool available to government technology leaders.

Strategy 3: Establish flexible procurement procedures that allow for more off-the-shelf purchasing, easier contracting, and other application solutions for both computers and mobile devices to disseminate government information. This strategy involves the simplification of the current procurement processes for local government leaders, as well as the establishment of a more flexible checklist of products and services that support e-government innovations. This strategy also entails the increased allocation of spectrum to facilitate increased access to government content.

Strategy 4: Improve broadband access at community anchor institutions to ensure that citizens can tap into e-government resources. This strategy involves strengthening community institutions such as libraries, schools, community organizations and community colleges in order to provide Internet access, e-government accessibility and digital literacy training to underserved individuals. Government funding, including the reallocation of Universal Service Fund revenue, is a suggested approach in this strategy.

Strategy 5: Create government content that is relevant and accessible to all populations regardless of ability, language or literacy level. This strategy involves providing e-government data and services in a fashion that is accessible for all people. This includes providing text sizing, audio, language, multimedia options, and interactive tutorials to allow all citizens to use the content. These features should also be promoted by targeted campaigns and marketing activities.

Strategy 6: Promote public-private sector partnerships that enhance skill-building, technical expertise opportunities and forward-thinking processes. This strategy involves developing public-private sector partnerships to develop a national curriculum on Information Technology (IT) strategy for government, including research-based guidelines for developing open-government services and training on those guidelines, as well as direct government-private sector partnerships to create and disseminate consumer-oriented applications.

The strategies in this paper are all points that seek to improve the viability of our communities through greater democratic participation and civic engagement. As stewards of our democracy, government leaders must facilitate better access to and use of community information, as well as improve the means for interpretation to enhance the common good. Broadband Internet will continue to enhance these critical elements of our information democracy as more citizens become informed and equipped to participate more fully in the formation of public policy.

Government Transparency:
Six Strategies for More Open and Participatory Government

Jon Gant and Nicol Turner-Lee

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"Require government at all levels to operate transparently, facilitate easy and low-cost access to public records, and make civic and social data available in standardized formats that support the productive public use of such data."

— Recommendation 4, *Informing Communities: Sustaining Democracy in the Digital Age*

The Knight Commission Recommendation

A core pillar of democratic society is the interaction between government and the governed. An informed and engaged citizenry facilitates effective governance at every level by providing a valuable counterbalance against the esoteric and oftentimes secretive machinations of government bureaucracy. Governments that are transparent, open and solicitous of public input tend to operate more efficiently and produce laws and policies that more accurately reflect real world conditions. Ultimately, all citizens want the opportunity to communicate with government to ensure that their interests are represented and that their elected officials are contributing to the public interest. Thus, the open and free flow of information regarding government activity is essential for communities to remain vibrant and democratic. Such an assertion was outlined in the Knight Commission report on the future of the nation's information democracy and embedded in the above recommendation.

Over the last several decades, local, state and federal government entities in the United States have steadily moved toward more openness and transparency. By definition, openness and transparency allow stakeholders to gather information that may be critical to their interests and offer channels of communication between stakeholders and elected officials. Aided by legislative mandates and public policy decisions, most government entities are now required to make a minimum amount of information available to citizens, operate in the "sunlight" and not behind closed doors and actively engage citizens in the policymaking process. As a result, government has become much more accountable to the people that it serves.

These trends have been fundamentally and positively enhanced by the emergence of an array of information and communication technologies (ICTs)—including broadband Internet access, smartphones, netbooks and other devices capable of accessing data via the web—that make it much easier for citizens to access and consume government information. In addition, these tools are facilitating a revolution in how citizens interact with government generally and with data

specifically. The terms *digital government, electronic government* (e-government), and *electronic governance* (e-governance) are widely used to refer to the use of ICT in public-sector organizations.

As a growing number of entities and agencies at every level of government leverage the power and relative ubiquity of the Internet to engage citizens in a variety of functions, from informal rulemaking proceedings to formal legislative initiatives, a number of innovative government entities are also tapping into the expertise and innovative spirit of the public by encouraging citizens to create new tools—many of which are enabled by broadband—that transform government data and information into practical tools for use by the general public.

Despite these many promising trends, the majority of government entities at the local, state and federal levels are still operating in a one-way world in which government simply pushes data to the public. According to a 2008 study by Darrell West of over 1,500 state and federal government websites, while 88 percent of government websites provided email addresses for visitors to contact a person in the particular department other than the webmaster, just under half included other methods (comment sections, message boards, surveys or chat rooms) to facilitate more democratic conversations with the public (West, 2008). This myopic view of transparency and simplistic implementation of e-government processes severely limits the potential for more robust citizen engagement in a myriad of government processes.

This paper examines how and why government at every level, but particularly at the local level, should embrace emerging ICT and Web 2.0 and 3.0 tools (e.g., social media and collaboration) to enhance their openness and engage citizens more fully. This paper offers several implementation strategies for Recommendation 4 that focus on enhancing government expertise and transparency, educating citizens regarding the availability and utility of government information and e-government tools, expanding efforts to support greater adoption of broadband Internet access services and devices, and forging public-private-citizen partnerships in order to enhance open government solutions. The purpose of these strategies is to provide a framework for facilitating these activities and placing government entities on the proper pathway toward the full realization of the benefits of information transparency.

Open Government and Transparency in the Broadband Age

Openness and transparency of government are key pillars of democracy that pre-date the Internet. Data produced and collected by the government are the basic ingredients for governments to provide services, make policy, and be held accountable for their performance (Heeks, 1999, OMB, 2000). Efficiently managing this information is essential to effective governance, especially since most citizen interactions with government generate information. Each tax payment, license renewal, land purchase and birth, marriage, or death registration generates data that is collected, processed, stored, and analyzed by governmental entities. As

a result of this deluge of data, many administrative reforms regarding transparency and openness have focused nearly exclusively on improving information management practices (e.g., processing and storing huge data sets). Since 2000, general access to publications and databases on government websites has improved (West, 2008). Table 1 offers data from West's 2008 study of government websites illustrating this progress.

Table 1. Percentage of Government Websites Offering Publications and Databases

Source: West, Darrell M. (2008). *State and Federal Electronic Government in the United States,*
2008. Washington, D.C.: Brookings Institution.

Yet to focus exclusively on the one-way push of information by government to the public is to miss the promise of innovative e-government techniques designed to transform this dynamic into a mutually beneficial, two-way collaboration. Transparency remains an important component of open government, but new technologies allow government to do far more than merely promote citizens' passive consumption of government data. Broadband Internet access and the relatively wide diffusion of powerful computing devices allow citizens to become more active consumers, analysts and users of data.

Evolving Policies for Government Transparency and Openness

Laws and policies regulating how local, state and federal governments make information available to the public vary considerably, both in terms of the types of data that must be made available to the public and in how that data should be presented. To date, many state and local entities have adapted federal policies by mirroring them entirely or using them as a benchmark. Overall, the traditional transparency paradigm has long been a struggle between government secrecy and the right of the public to know, and has fluctuated based on the political strategies of the administration in power (Roberts, 2006).

In the United States, the transparency debate dates back to the late 19th century, a time when many Western democracies practiced making the process of lawmaking (e.g., decisions about taxing and spending) open to the public, but when many accepted the fact that much of government bureaucracy worked in secrecy. The federal government's expansion via the New Deal began a decades-long shift in the

historical transparency paradigm. In 1946, Congress enacted the Administrative Procedure Act (APA), which, among many other things, created the Federal Register. The Federal Register represented one of the first affirmative attempts by the federal government to make certain types of information available to the public. Essentially, each federal department was required to publish basic information about "its organization, the rules it enforced, policy statements and procedures that guided its work, and its decisions" in the Federal Register. In 1994, the Federal Register was made available online, and its more modern look came in 2010.

In 1966, Congress enacted the Freedom of Information Act (FOIA), which gave the public access to the general records of federal agencies. In particular, FOIA provides citizens with the power to request that the government disclose a wide range of information to the public for any reason. However, the information and data covered by FOIA is incomplete, which means that access to the full universe of government information remains limited.

Subsequently, the federal government has passed several additional transparency laws. These include the following:

- The Paperwork Reduction Act of 1995, which sought to "maximize the utility of information created, collected, maintained, used, shared, and disseminated by the Federal Government" by requiring that certain types of data be posted online,

- The Electronic Freedom of Information Act of 1996 (EFOIA), which attempted to modernize FOIA at a time when the Internet was just beginning to emerge as a popular communications tool, and

- The E-Government Act of 2002, which attempted to improve the quality of federal rule making decisions by, among other things legislating the use of e-rulemaking in order to make agency rulemaking proceedings more inclusive.

All of these examples suggest that government transparency polices have evolved over three generations. The first generation encompassed a variety of *right-to-know policies*, which were designed to prevent arbitrary government action. The second generation provided more *targeted transparency policies*, including the APA, FOIA, and EFOIA. These laws, which have been adapted by state and local entities, mandate baseline levels of information disclosure by the government. Targeted transparency policies are purely one-way. And most recently, the federal government has enforced a series of *collaborative transparency policies* that include the E-Government Act as well as initiatives recently launched by the Obama administration. These policies build on right-to-know and targeted transparency policies by leveraging computer technology and the Internet to serve as a medium via which government may interact with stakeholders. This approach is two way and user-centered, with government playing a facilitating role to communicate information in real-time and in scalable formats (Fung et al, 2007, p. 25).

The Impact of New Technologies on Traditional Notions of Government Transparency

Using a variety of Web 2.0 and 3.0 tools, from social media to collaboration, government organizations are becoming more transparent and engaging the public in decision-making processes. On one level, transparency is being enhanced as governments utilize the web to integrate services across various agencies and departments, jurisdictions and levels of government. At another level, government entities are increasingly using readily available online tools, such as *IdeaScale* (http://www.ideascale.com/opengov/) to solicit public feedback and promote deliberation among citizens on discrete topics. This new multi-level form of transparency is often referred to as *open government*, a label that not only suggests transparency but also active collaboration with citizens in the policymaking process.

Lathrop and Ruma (2010) describe open government as:

> …government that co-innovates with everyone, especially citizens, shares resources that were previously closely guarded; harness[es] the power of mass collaboration, drives transparency throughout its operations, and behaves not as isolated department of jurisdiction, but as something new, a truly integrated and networked organization.

Here, the process of governing leverages new technologies to bring government practices out into the sunlight for closer public scrutiny. Unlike the pre-Internet days of transparency regulation, citizens can now easily act on the information they receive by actively contributing to a deliberative process by submitting comments to proposed rules or draft policy text.

This new approach rests on the premise that more information in the hands of the public will make government leaders more responsible and accountable. Participation also allows the public to contribute more of their ideas and expertise to public policies that in turn benefit their communities. This type of collaboration improves the effectiveness of government by encouraging partnerships and cooperation within the federal government, across levels of government, and between the government and private institutions. The Participatory Politics Foundation's *OpenCongress Blog* (http://www.opencongress.org) is an emerging example of this type of activity. The Participatory Politics Foundation's OpenCongress Blog (federal) and OpenGovernment website (state/local) are emerging examples of this type of activity. These sites track bills, votes, and elected representatives, and allow citizens to learn, share and comment on the activities and decisions of their elected officials. Other examples of websites that promote this type of transparency are included in the Appendix.

Beyond Mere Transparency: How Broadband Technologies Impact Openness and E-Governance at the Local, State and Federal Levels

As government entities at every level—local, state and federal—increasingly support and embrace the use of ICTs and information platforms to move beyond analog era notions of transparency, innovators in the public and private sectors are seizing the opportunity to have a stake in the outcomes of once hidden government processes. This next section provides an overview of some of the most innovative approaches to inform future initiatives in this space.

The Open Government Directive

At the federal level, the Obama administration has developed the *Open Government Directive* to implement a bold vision for Internet technologies to both enhance transparency and move beyond it. This initiative has two principal parts: an *inward-facing* component meant to use technology to enhance the business of government and an *outward-facing* component that uses technology to more actively engage citizens. The latter began with an appeal for public input during the drafting of an open government plan. The open government team outlined a process whereby the public, through various stages of drafting and editing, could suggest ideas, concepts, and specific language for inclusion in the White House's official open government policy. In a progress report issued in December 2009, President Obama noted that this approach to openness was helping his administration "mov[e] forward with broad measures to translate the values of openness into lasting improvements in the way government makes decisions, solves problems, and addresses national challenges" (White House, 2009). Several other outward-facing initiatives have been launched since, including an *IT Dashboard* that allows the public to monitor technology expenditures and an *Innovations Gallery* that invites the public to submit innovative approaches that use new Internet technologies to enhance the openness of government (see Appendix for URLs).

The inward-facing component of the Open Government Directive requires executive agencies and departments to meet deadlines for publishing government information online, improving the quality of the information, creating a culture of open government and creating a policy framework to support open government (OMB, 2009). The results to date have been decidedly mixed. A study of 29 federal agencies' open government plans revealed that agencies with a strong public-facing mission (e.g., the U.S. Department of Housing and Urban Development and the Environmental Protection Agency) have created purposeful open government plans, while other agencies, including the Department of Justice and the Office of Management and Budget, are struggling to develop a suitable plan (OpenTheGovernment.org, 2010, & Vijayan, 2010).

The federal government also targets initiatives that facilitate richer public participation. NASA has numerous plans underway to permit the public to participate in the exploration of Mars and to develop new technologies. The U.S. Patent

and Trademark Office has a separate initiative, in collaboration with the New York Law School, to expand its Peer-to-Patent system, which has crowdsourced the patent-review process by allowing citizen experts to review specific types of patent applications, all in an effort to clear the massive backlog of un-reviewed submissions (Noveck, 2009). Finally, the Federal Communications Commission (FCC) embraced the concept of openness during the development of the National Broadband Plan. Over the course of about a year, the FCC connected with some 335,000 citizens through YouTube, Facebook and Twitter; simulcasts of workshops in Second Life; online participation in public workshops; and online public feedback forums (Cohen, 2010). The final report reflected not only the formal written input of tens of thousands of commentators, but also of the many thousands of other citizens who submitted comments to the FCC broadband blog, who edited portions of draft text via *IdeaScale* (http://broadband.ideascale.com) and submitted questions and comments during web-casted public hearings and workshops.

While the use of such collaborative tools can have implications on accessibility, privacy and cost, what we are seeing are new ways to promote information access, garner greater citizen participation and support collaboration. However, three concerns emerge in these efforts. First, federal agencies need to do a better job of making data available in formats that are easier to retrieve and search. Indeed, this is a key step in moving beyond transparency at the federal level. While the U.S. Department of the Census for example, has long been the standard bearer for publishing raw data sets, several other agencies have taken the Obama administration's open government challenge to heart. The FCC, for example, has begun to publish an array of new data sets and make existing data much more user-friendly. *The Spectrum Dashboard* (http://reboot.fcc.gov/reform/systems/spectrum-dashboard) is one such data set that allows the public to more easily identify who owns various portions of the airwaves and how those owners are using the spectrum (OBI, 2010). Of concern is the assurance that transparency does not result in the degradation in the quality of that information, for example, by rendering it too technical, out of date, inaccurate, or incompatible with other data sets. If government also ensures that the data is properly tagged with meaning and produced in raw, structured, machine-readable form, the data will be capable of being ported into a wide variety of current and future analytical tools (Berners-Lee, 2010).

The second concern is that next generation transparency in open government initiatives relies on the public being able to access structured data through readily available software programs. This permits the public to know and understand the data, its logic and code structure (Brito, 2009). In many cases, data is often too difficult to search, especially when content is embedded. Some private firms have become conduits through which esoteric or hard-to-use data are filtered and made more useful to the public. For example, sites such as *GovTrack* (http://www.govtrack.us) use methods to do screen-scrapes.[1] *GovTrack* reports how members of Congress voted and the sources of campaign contributions that they have received.

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1   For definitional purposes, "screen scraping is programming that translates between legacy application programs (written to communicate with now generally obsolete input/output devices and user interfaces) and new user interfaces so that the logic and data associated with the legacy programs can continue to be used. Screen scraping is sometimes called "*advanced terminal emulation*." See http://searchdatacenter.techtarget.com/sDefinition/0,,sid80_gci213654,00.html for more information on this process.

The data is available electronically, but not in structured formats that permit easy use by the public. Teams of programmers essentially copy the data from a website and reformat into XML, a data structure format. While the data can be used by anyone once in this format, the process itself is very labor and time intensive, and it does not guarantee complete capture of the data. As previously stated, spending the time to properly tag the data and produce it in a machine-readable form might be an easier solution to data transfer and interpretation.

Lastly, federal agencies must be creative in soliciting more feedback from citizens on the data that should be made available in the Open Government Directive. Assuming that citizens know how to identify the problems affecting them, open government initiatives should be a catalyst for civic engagement. At the federal level, citizens must not only be able to assess the productivity of government agencies but also make them more accountable. The public should also contribute ideas to enhance or resolve national issues such as the economy, the state of education or employment. This type of civic engagement and participation fosters a new level of transparency that promotes more involvement at the grassroots level. Federal agencies can also bridge their information needs with those of state and local governments to potentially drive traffic and interest in their content. *Recovery.gov*, the website whose mission is to track and publish activities from the American Recovery and Reinvestment Act of 2009, is an effort to avoid potential fraud, waste and abuse, promote contracting opportunities and jobs across the country, and connect federal efforts with state and local governments. While federal sites like *Recovery.gov* have links to popular social network sites such as Facebook and Twitter, the information is still pushed down to local citizens and does not encourage the public to offer suggestions and strategies for solving some of the nation's critical problems.

State and Local Government Efforts

Not surprisingly, citizens are more likely to be more engaged with government portals at the state and local levels. Local governments have made data available to the public via the Internet since the mid-1990s. For example, it has long been commonplace to get local tax information, crime statistics, economic development plans and traffic information from local and state government websites, much in the way that citizens could access basic federal data via the web several years ago. Today, more local governments are also broadcasting council meetings, distributing speeches and press releases, and sharing outcomes on legislation.
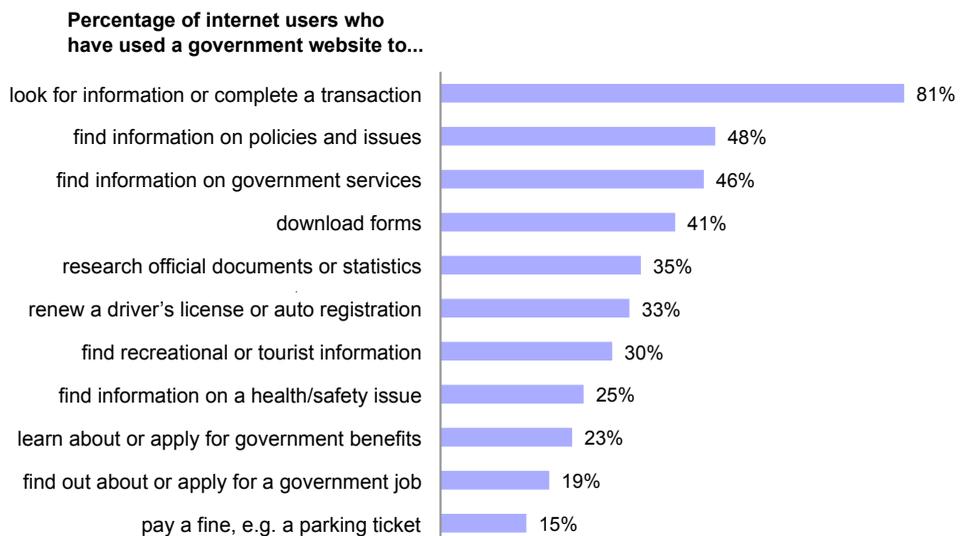
In his paper addressing the Knight Commission's recommendation to create online local hubs or community portals, Adam Thierer shares research from the Center for Digital Government (Center for Digital Government, 2010) that suggests that local governments should do even more to improve their digital records of

- Pending and enacted legislation
- Government projects and spending

- Video (live and archived) of all legislative activities and public meetings

- Court developments and records, as well as crime data

- Public health and safety information

- Information about other government benefits and services, licenses, registrations, forms, fines, events, activities, etc.

On the consumer side, Pew American and Internet Life Project's Government Online survey supports this view in its finding that 81 percent of Internet users have looked for this information or completed a transaction on a government website in the past year, as Exhibit I shows (Smith, 2010). And according to Pew, 51 percent of Internet users completed their intended transaction on a government web site. These data are illustrative examples of how government can facilitate key partnerships with its citizenry, especially when so many individuals look for information or complete transactions on a government web site.

Exhibit 1: Americans' Online Transactions with Government Entities

Percentage of internet users who have used a government website to...

look for information or complete a transaction	81%
find information on policies and issues	48%
find information on government services	46%
download forms	41%
research official documents or statistics	35%
renew a driver's license or auto registration	33%
find recreational or tourist information	30%
find information on a health/safety issue	25%
learn about or apply for government benefits	23%
find out about or apply for a government job	19%
pay a fine, e.g. a parking ticket	15%

Source: *Pew Internet and American Life Project*, Smith, 2010.

Whereas the early analog/Web 1.0 days of open government depended on one-way communications to the public, Web 2.0 and 3.0 versions of open government at the local and state levels parallel federal efforts. Increasingly, state and local governments are engaging the public as viable stakeholders and partners, opening the technological barriers to the data and services and making government a platform for change.

From coast to coast, there are examples in cities large and small where open data websites permit users ready access to a large and growing portfolio of data.

- The **Massachusetts Department of Transportation** (http://www.mass-dot.state.ma.us/Transit) and the **Chicago Transit Authority** (http://www.transitchicago.com) have made their transit data public in order to permit real-time sharing of data about arrival times of buses and trains. Both transit agencies are also crowdsourcing the development of web and smartphone applications to permit the public to get information about the arrival times, routes and other service information. Developers use the data feeds to mashup with Google Maps and develop additional applications for the public.

- **Capitol Hill Seattle** (http://www.capitolhillseattle.com), an online news source, connects to a public city data set on designated heritage trees ("the oldest, largest, or most unique tree of that species in the city or neighborhood in which it resides"), and has created a map of historically significant trees in the Capitol Hill neighborhood of Seattle, Washington (Durkin, J., Glaisyer, T. & Hadge, K., 2010).

On-the-ground partnerships are also being established at the local level. The organization Code for America (CFA) is an emerging example of collaboration between governments and the private sector. Piloting its program in five cities, CFA's mission is to "help city governments become more transparent, connected and efficient by connecting the talents of cutting-edge web developers with people who deliver city services and want to embrace the transformative power of the web to achieve more impact with less money" (http://codeforamerica.org/). Mirroring the service model of Teach for America, the organization matches city officials with web developers to create more robust city applications.

Citizen Application Contests

Among the most widely noted approaches for using new technologies for open government purposes at the local government level are application development contests. In New York, the city's **Big Apps Contest** has helped launch innovative government applications. Washington, D.C.'s **Apps for Democracy** contest has been at the forefront of this movement.

The Apps for Democracy Contest (http://www.appsfordemocracy.org) was launched in 2008 to invite residents from Washington, D.C., to design and build applications using government information from its open data feeds. The goal of the contest was "to engage the populace of Washington, D.C., to ask for their input into the problems and ideas they have that can be addressed with technology and then to build the best community platform for submitting urgent city service requests such as snow plowing, potholes, etc.." In its first year, the contest generated 47 web, iPhone, and Facebook applications.

When asked about the program, Vivek Kundra, the former Chief Technology Officer for Washington, D.C., said, "by making government data easy for everyone to access and use, the District hopes to foster citizen participation in government, drive private-sector technology innovation and growth, and build a new model for government-private sector collaboration that can help all governments address the technology challenges of today and tomorrow" (OCTO, 2008).

Submissions were built by leveraging data from the Washington, D.C. government data catalog (http://data.octo.dc.gov/) and mashing it up with new technologies and Internet tools. The D.C. Data Catalog currently offers 435 data sets from multiple agencies in open data formats. Users access the data through an Internet subscription to a live data feed in these formats. The data feeds provide content describing a range of services, including 311 service requests, crime data for youth and adults, current construction projects, and public space permits. The winning applications in the first year of the contest included: DC Historic Tour (http://www.appsfordemocracy.org/dc-historic-tours/), and iLive.at (http://www.appsfordemocracy.org/iliveat).

The following were the top three contest winners in the second round:

- **vacantDC** (http://www.vacantdc.com/), which mapped all vacant buildings in the city

- An **iPhone application** using DC 311 API to permit users to submit services to fix broken street lights, report abandoned vehicles and get more information about trash collections

- **SeeClickFix** (http://www.seeclickfix.com/citizens), an honorable-mention application that permits anyone to report and track non-emergency issues such as a pothole, graffiti and parking meters through the local government.

Peter Corbett, the head of iStrategy Labs, the organization that helped develop and administer Apps for Democracy, reported that the $50,000 contest in D.C. returned some $2,300,000 in value to the city.

But not all of these approaches are a panacea. While the applications created via Apps for Democracy initially generated a lot of buzz for getting the public engaged with local government, several concerns remain. First, some worry about the sustainability of these efforts, especially for small and mid-sized cities. What happens once the prize money is gone? Second, the usefulness of some of these applications has been questioned. What is cool or cutting-edge might not be of practical use to citizens. These concerns have forced Washington, D.C., to discontinue its Apps for Democracy contest and rethink its approach to engaging the expertise of the public (Nichols, 2010).

Barriers to Realizing the Full Value of Open Government

Despite these promising trends in transparency and e-government, several barriers remain to the full realization of true open government at the local, state and federal levels.

Design Flaws that Discourage Public Utilization and Engagement

Modern e-government and open government tools and services can only be useful if they are properly designed to (1) effectively engage the public and (2) produce outcomes that are beneficial to the relevant government agency. A key component of many current design problems is guaranteeing that an online tool or service fully leverages the collective power of the public and that the tools or service are ultimately useful to both citizens and government agencies. Indeed, public administrators have long struggled with designing and building analog and digital services that meet the needs and skills of the general public and that truly foster democratic participation.

Identification of the Key Customer Base

Clearly and accurately identifying whom to serve has been a huge roadblock for government leaders. Online transparency systems ultimately serve a broad customer base that includes citizens, businesses, visitors, other governments, civil society organizations, the donor community, stakeholders from across government and the media. Government leaders face numerous key questions and barriers when developing an online presence: *What are the typical behaviors of citizens online? Who is likely to go online to use government services? What types of barriers and obstacles turn people away from accessing services? What factors encourage users to feel comfortable within this environment? What drives an individual to return to the website? How will others be encouraged to use the site?* Answering these questions is exceedingly difficult for government administrators who are trained to work exclusively in the analog world. Online feedback loops that can offer insight into the customer base and their needs are often absent in government websites.

Lack of Adequate Broadband Access and Adoption Among the Public

Recent research argues that the existence of a digital divide in e-government use is highly correlated with people's access to the Internet and a person's level of digital literacy. Several demographic groups, including African Americans, Latinos, senior citizens, people with disabilities, the urban poor and rural residents, have broadband adoption rates significantly below the national average, which was 65 percent at the beginning of 2010 (OBI, 2010). Exhibit 2 shows the disparities between these groups for broadband access and adoption.

Exhibit 2. Broadband Adoption by American Adults by Socio-Economic and Demographic Factors
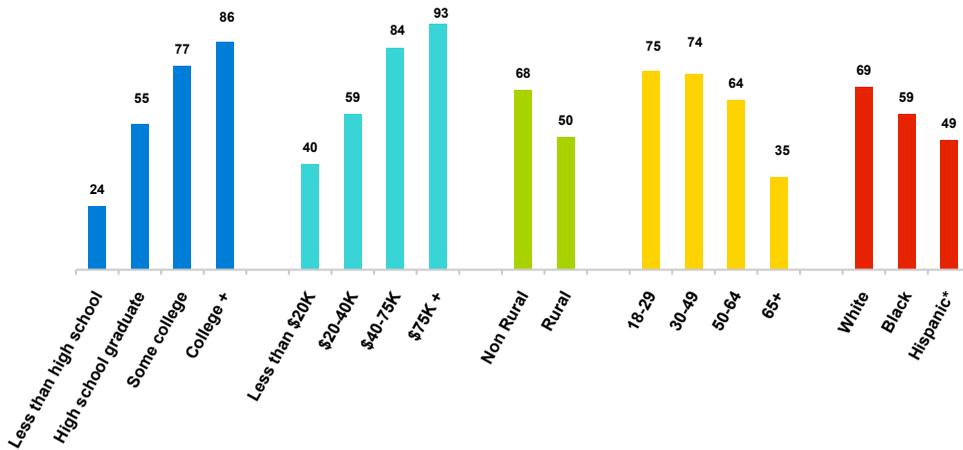
Source: John B. Horrigan. *Broadband Adoption and Use in America OBI Working Series Paper No. 1: 3*, Federal Communications Commission, Feb. 23, 2010, p. 13. Note: *Hispanics includes both English and Spanish-speaking Hispanics. Chart represents percentages of American adults.

A recent report by the Joint Center for Political and Economic Studies also found that among the millions of Americans who do not have broadband at home, there are significant demographic differences based on age, gender, education, level of Internet experience and income that potentially influence their acceptance and use of the Internet. While more African Americans and Hispanics are getting online, those that do use broadband tend to be more affluent and better educated than others in their demographic group (Gant et al, 2010). And unfortunately, those Americans who stand to gain the most from the Internet are unable to use it to break the trajectories of social isolation, poverty, and illiteracy. This segment of the American population—one that is wrought with economic and social hardship—is largely not reaping the benefits of digital access. While the Federal Communications Commission (FCC) has stated its commitment to bolstering broadband access and adoption among these under-adopting groups (OBI, 2010), it appears to be utilizing much of its resources on the regulatory paradigm rather than on adoption and use issues.

A refocusing on broadband adoption and use is critical from a public policy perspective. Since many of these user groups are significant consumers of government services, bringing them to broadband could be facilitated by education campaigns dedicated to raising awareness of how a computer and Internet connection can streamline how a senior interacts with Medicare or how a low-income user navigates Medicaid. The outcomes of open government will be the most relevant when they not only reduce the digital disparities that maintain a degraded quality

of life for many Americans, but also offer a road to opportunity for these vulnerable groups. In the end, cities can begin to see healthier, safer and more viable communities as a result of deeper engagement from all citizens.

Public Demand for these Services and Accessibility Constraints

Actors in the public and private sectors should avoid losing sight of the citizen in the pursuit of technological innovation, particularly in the face of digital divide issues. To date, technology has been viewed in a very deterministic fashion in the public space: build it and they will come. Deploying new technology before earnestly identifying what, if anything, the public needs or is demanding might limit full citizen participation. Indeed, several studies have found that, although participation in e-government and open government processes has increased over the years, participation is often tied to higher income and education levels. Thus, only a portion of the entire public appears to be represented in the majority of online interactions with government. Without representation of lower-income citizens and other key demographics, this could result in the creation of open government services that cater to a narrow set of needs or certain demographics. Moreover, designing websites that are not accessible to people with disabilities or non-English speaking populations stifles the full use of online government services and limits access to vital information.

Legal Constraints that Restrict Better User Experiences

A number of legal constraints limit the ability of innovators to create open government tools and services that are useful to the public. For example, limits on how some government entities can collect information about the user experience at government websites have impeded some progress. The federal Paperwork Reduction Act, for example, has curbed the ability of government agencies to capture data about the user experience of visitors. As reported in the National Broadband Plan, the Paperwork Reduction Act has been a barrier to implementing many best practices because it has precluded surveying web users to improve an agency's online presence (OBI, 2010). This is problematic because, as mentioned earlier, an online feedback loop enhances the user experience and contributes to the continuous improvement of government websites. On April 7, 2010, Cass Sunstein, Administrator of the Office of Information and Regulatory Affairs at the Office of Management and Budget, issued a memo updating the way the law applies to certain online and social media in order to remove that barrier going forward.

To address these barriers, a key goal for open government initiatives is to consider the value to both governments and citizens. From the supply side, governments need to share information with the public that increases trust, improves efficiency and raises the standard of accountability. On the demand side, citizens need to be privy to the plethora of information that enhances their ability to make informed choices about the state of their nation. If the design of online services is biased towards the function and bureaucracy of government, it will therefore fail

to meet the values, desires, and abilities of individuals. And citizens who are ill advised on what their government has to offer and can make available to them do not bolster a more participatory democracy that potentially improves the quality of future policy decisions.

Call to Governments: Six Strategies for Enhancing Transparency and Community Information

How then can governments design websites that meet the information needs of communities? What can be learned from federal transparency efforts in the creation and promotion of local government websites? This section offers six strategies to facilitate the realization of Knight Commission Recommendation 4.

Strategy 1: Convene a national working group of chief information and technology officers to discuss and decide upon technical and operational procedures that mitigate changing environments and circumstances in the open government field.

Chief information and technology leaders face the trying task of developing the right strategic approaches for organizing and assembling tangible resources, such as computers and networks, and managing intangible resources that include employee skill, knowledge and organizational processes.

Uncertain or unorganized technological environments also constrain their choices and resources to support building and operating e-government services. This problem can be exacerbated rather than aided when the government wades into the marketplace and attempts to pick a format or technology to support. Governments must focus on the characteristics of the solutions they seek from the market rather than the particular technologies that market actors must employ. To be effective, governments must be equipped with the knowledge and subsequent capabilities to respond to the technical challenges associated with deploying new transparency and e-government-related tools, while at the same time having the ability and resources to deal with ongoing issues in the environment.

Organizations such as the National Association of State Chief Information Officers (NASCIO), whose mission is to foster government excellence through quality business practices, information management and technology policy, can play a vital role in solutions around suitable IT infrastructure, data standards, privacy processes and long-term open government investments.

Having this conversation through groups like NASCIO can also help technology leaders become conversant in how to provide data in normalized data formats and as metadata and enhance the data search process through portals or clearinghouses. These leaders can also advise upon the types of information that should be available to the general public. Finally, technology leaders should discuss issues related to cost based upon the time it takes to produce useful data feeds for the public, privacy issues that are raised by certain data sets and formats for public consumption of the data.

When problems arise among these stakeholders, an entity such as the World Wide Web Consortium (W3C) could be called upon to mediate gridlocks. Ultimately, the partnership of national CIOs and CTOs could result in more realistic and feasible standards of design, operation, monitoring and performance to assist in the public technology sector.

This specific strategy calls for action within a formidable existing structure, and therefore requires very little investment. Sponsorship of conference participation for smaller cities and states or the development of a more formal working group within NASCIO can take on the task of developing operational standards.

Strategy 2: Create opportunities for developing public good applications that are sustainable through public-private partnerships or contests funded through philanthropic investments.

As discussed in the paper, governments can be slow in developing customer-facing applications that attempt to enhance their interactions with the public. While the citizen apps contests proved to be innovative ways to engage the public, the model is dependent on developers maintaining the application beyond the parameters of the contest. And developers often do not have an incentive to keep the sites up-to-date with no direct financial incentive after the award (Nichols, 2010). One interesting model for sustainable investment has been the Knight Foundation's *News Challenge Contest* that awards as much as $5 million per year for innovative ideas that develop platforms, tools and services to inform and transform community news, conversations and information distribution and visualization. One thought is to deploy a similar model to seed and sustain contests for public good applications, such as employment, educational, community development, environment and health care applications, through philanthropic investments, and perhaps public-private partnerships. Additional philanthropic investments in organizations like Code for America that regularly recruit and place web development professionals with city governments can facilitate their growth and bring more talent to local governments desiring to become more responsive to community information needs.

National and community foundations are natural philanthropic partners. Private corporations can also be a source of additional revenue for these types of projects, especially if they have a vested interest in the city, state or region. One can imagine a public-private partnership that develops an application to address environmental, telecommunications, retail, and other concerns that affect where these industries are based, and their employees live. Finally, local citizens—especially those that are using nominal resources to solve community problems, can be a part of the solution. From the block clubs that report public safety issues to

the resident leader that regularly calls public works to report potholes, public-private-citizen partnerships can generate ideas for meaningful public purpose applications that can improve the quality of life within communities. Directing some investments to local residents rather than web developers and engineers can produce solutions that have a greater chance of having an impact because they are generated from within.

Strategy 3: Establish flexible procurement procedures that allow for more off-the-shelf purchasing, easier contracting, and other application solutions for both computers and mobile devices to disseminate government information.

There is an urgent need to update procurement laws and procedures around local technology spending. In the Washington, D.C. Apps for Democracy program, the funded apps were developed outside of the normal procurement process, and the contest was aimed at developers creating applications that mashup data and software. The developers were not working for the government; rather they were using the data that government made available to the public. Easing the burden of endless paperwork and bureaucratic approvals can strengthen innovation for local governments interested in improving their transparency and availability of community information. Moreover, local governments must be able to share data over both wired and wireless platforms. With the proliferation of mobile devices, especially cell and smartphones, governments can gain easy and immediate access to consumers, especially those that do not own a computer, and widen their distribution of significant data.

And current constraints on devices should not limit the explosion of applications in the e-government space. Opportunities exist for the re-engineering of mobile devices with larger screens for the visually impaired or embedded two-way radios for connection to emergency response vehicles to accommodate the evolution of government applications.

Increased allocation of spectrum, especially in unserved and underserved broadband communities, can also facilitate improved linkages to government information and ensure more ubiquitous access for citizens. The ability to leverage text messaging services, along with scheduled email reminders about important matters such as parking tickets, meter readings and health updates, can yield positive results for local governments desiring to increase transparency.

Consideration to redistribute the line items within local technology budgets should be a priority for state and city governments. Governments might also explore industry partnerships, philanthropy or government grants to help fund and implement new mobile, e-government applications, or perhaps integrate a nominal cost into local transactions (e.g., property tax, drivers license renewal) to support mobile feeds and applications.

Strategy 4: Improve broadband access at community anchor institutions to ensure that citizens can tap into e-government resources.

There is great need to let the public know what is available from the government, and address issues of digital literacy so that more people will use and benefit from these services. ICT and "broadband-centric" open government solutions create opportunities to reduce the costs of providing information and services to the public. The obvious return on investment is when citizens actively use open government tools to conduct their lives and engage in robust conversations with their elected and appointed officials. While maximizing public demand for these tools reduces the average cost per online transaction, access to these services has to be increased. While residential broadband is an ideal condition, government leaders must actively market and promote their content to citizens at public access locations, especially in libraries, schools, community-based organizations, community colleges and other community anchor institutions.

These community anchor institutions can solve one of the major barriers to e-government adoption—access to the Internet. This is one of the stated goals of the National Broadband Plan where access to high-speed broadband is believed to *"increase civic engagement by making government more open and transparent, creating a robust public media ecosystem, and modernizing the democratic process"*(OBI, 2010). Currently, seniors, the poor, less educated, low-income and digitally illiterate are heavily dependent upon these public access institutions to access the web. Finding ways to strengthen the institutional base and promote open government as the norm in these locations will be critical to building consumer demand for local governments. And positioning government websites as home pages at these locations can also promote available resources and information. Where possible, patrons should also be connected to digital literacy training programs at these locations to help them use these assets more effectively.

One way to drive this level of e-government adoption is through the existing Broadband Technology Opportunity Program (BTOP) managed by the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA). A portion of BTOP's $7 billion in American Recovery and Reinvestment Act (ARRA) funding is committed to community anchor institutions. Local governments should ensure that funded projects that meet these criteria integrate e-government resources into their projects and promote transparency about the effectiveness of their projects. The same strategy should also be undertaken by the U.S. Department of Agriculture where the Rural Utility Service (RUS) is charged with distributing grants and loans to under-served rural communities.

Current efforts to reform the Universal Service Fund (USF) to subsidize or discount broadband services will address affordability issues for anchor institutions and have a positive impact on the use of government services. In his paper on universal broadband for the Knight Commission, Blair Levin (2010) suggests the following steps to accelerate access to anchor institutions:

- Remove barriers to government funding of broadband networks.

- Facilitate demand aggregation for public sector broadband facilities, including health care facilities.

- Facilitate partnerships to enable more effective purchasing and design of complex connectivity needs.

In his paper, Levin suggests that USF reforms that touch these issues will not only drive demand, but also lay the groundwork for further upgrades in the mass market.

As mentioned, programs such as the Broadband Technology Opportunities Program (BTOP), Rural Utility Service (RUS) and Universal Service Fund (USF) are relatively easy opportunities to spur broadband adoption and use among disconnected populations. Bridging these funding mechanisms with the needs of local governments can be a crucial step in driving the demand and use of e-government services.

Strategy 5: Create government content that is relevant and accessible to all populations regardless of ability, language and literacy level.

Government content can become the killer application for constituents, especially if it enables two-way communication between citizens and their elected and appointed officials or promotes resources that enhance quality of life—educational, employment, health care—for citizens via the web or mobile devices. The key here is to remove the distance between governments and citizens through immediate online feedback, webcasting, podcasting, and other new media tools.

Government content must also be accessible and available on platforms that engage the visually and physically impaired. People with disabilities and seniors have a great need to be connected to government resources. Standards should be in place to ensure that online public information—whether data sets or services—are available with text sizing, audio and multimedia options, as well as interactive tutorials. These efforts must be promoted through targeted campaigns and perhaps segmented marketing activities, such as fairs and targeted workshops for these populations.

Content must also be multilingual and disseminated at an appropriate literacy level. One of the key findings from West's 2008 study was that "64 percent of government websites are written at the 12th grade reading level or higher, which is much higher than that of the average American" (West, 2008). Local governments can follow the lead of One Economy Corporation, a global nonprofit that has directed programs to accelerate broadband access for the poor.

One Economy's Beehive web site (http://www.thebeehive.org) is an example of an intermediary site that has aggregated government resources into a multilingual web portal that is written at a sixth grade reading level. With over 15 million

visitors since its inception in 2001, the Beehive web portal has launched in cities across the country and essentially aggregated information about education, health care, transportation, housing, employment, and family supports. One Economy markets the Beehive via its *Make It Easy* campaign that lets consumers feel more comfortable interfacing, finding and connecting to online resources.

Marketing efforts must also go beyond just announcing what types of services are available. Government-backed marketing efforts should include building campaigns that include community anchor institutions to educate the public about how to use specific services and make requests of government for public data.

Strategy 6: Promote public-private sector partnerships that enhance skill-building, technical expertise opportunities and forward thinking processes.

In this last strategy, government organizations should develop educational opportunities to train their leaders about approaches to manage IT-enabled services in this environment where data does matter. The move to the web brings difficulty to many government leaders in understanding how traditional brick-and-mortar services translate to the online environment. Developing partnerships among leading professional organizations for government leaders, schools of public administration and information, as well as private sector and advocacy organizations can facilitate the creation of a national curriculum on IT strategy for government. The curriculum could include content about a new customer service strategy in an online environment that understands the user experience and the fundamentals of transparency in government. The partners in the collaboration could co-develop the curriculum and deliver the content through various offline and online learning platforms. An institutional fund could be established through a foundation or university to vet and support research proposals and evaluate activities.

Unlike the technical working group, this partnership can develop research-based guidelines for designing open government services. As part of an interdisciplinary collaborative effort, a collection of resources from the technology and social science fields can be gathered to promote best practices for designing online services for the public. Information might include the aggregation and interpretation of community data sets, methods for engaging the diverse universe of consumers—from citizens to journalists, and market data highlighting strategies for involving underserved populations. As an example, the U.S. Department of Health and Human Services and General Services Administration sponsored the publication of "Research-Based Web Design & Usability" (http://usability.gov/guidelines/guidelines_book.pdf). This handbook offers specific guidelines that "help move us in [this] direction by providing practical, yet authoritative, guidance on a broad range of web design and communication issues. Having access to the best available research helps to ensure we make the right decisions the first time around and

reduces the possibility of errors and costly mistakes" (HHS, 2009). A similar publication can be developed that specifically targets the needs of local governments and helps them understand the user experience.

Finally, government organizations can partner with the private sector to learn how to create and disseminate consumer-oriented applications. Partnerships with companies that focus on applications, telecommunications infrastructure and devices can be helpful to technology leaders who are often trying to keep archaic systems and process current instead of thinking about the power of next generation technology to usher their city or state into the digital age. Partnerships that grow intellectual expertise, process improvements and create robust applications can be promising opportunities for government leaders.

Who Should Do What

The Executive Branch

The executive branch can continue to set the tone for federal open government initiatives and increase their influence on the implementation of these platforms and standards with state and city governments. The Office of Science and Technology Policy (OSTP), whose mission is to advise the President and others within the administration on domestic and international science and technology issues, can drive these efforts. As structured by Congress, OSTP also has the ability to lead federal interagency efforts that advance science and technology policies, budgets and strategic partnerships. With the current Open Government Directive housed within OSTP, their role is vital in promoting both an ecosystem and echo chamber where open government platforms become more of the norm for how citizens, irrespective of where they live, interact with public information. One suggestion is that OSTP develop the Local Open Government Initiative that extends their reach to smaller localities, especially in sharing best practices and potential pitfalls in this area. OSTP can also provide an international perspective to this debate and offer insight into how other countries are addressing information transparency needs and how they are addressing privacy, accessibility and costs associated with open government applications. OSTP might lead the interdisciplinary collaboration that drafts guidelines for developing and managing open government platforms and work with the Federal Communications Commission on the allocation of spectrum to locations and projects that advance public good.

Congress

Since much of the federal legislation around information transparency has not been updated to reflect the growth of the Internet and the Web 2.0 and 3.0 computing environments, Congress can revisit and update existing transparency laws.

Recommendations can be made to extend the type of data being made available to the general public and the forms in which it can be accessed. Updates to the Paperwork Reduction Law and the Freedom of Information Act can make data collection and compilation less prohibitive and improve the ability of governments, especially federal agencies, to gather feedback from consumers about their user experience. Congress can also earmark support for local governments to migrate their vital services online. As cities like Chicago and New York can afford to deploy e-government platforms, federal grants from OSTP's Open Government Directive or tiered support from federal agencies can ensure that localities with limited resources are not disadvantaged in serving community information needs.

The Federal Communications Commission

Many of the points around disparities in broadband access fall under the leadership and jurisdiction of the Federal Communications Commission (FCC). The FCC needs to play an active role in reforming the Universal Service Fund, and targeting resources to underserved and unserved communities. The FCC can lead the charge on developing digital literacy standards that can be promoted at community anchor institutions. It can also work to establish guidelines for content accessibility by literacy, language or physical abilities. The FCC can work in tandem with the U.S. Department of Commerce and the Rural Utility Service to ensure that funded programs direct people to government websites and other citizen-focused tools. Finally, the FCC can work with OSTP who is administering the President's executive order to release unused and unlicensed spectrum to guarantee some provision to national purposes. The ability of government to make applications and communications available in the largest city and the smallest rural town will drive demand for these platforms. The FCC can play a significant role, as outlined in the National Broadband Plan, to ensure that engagement with government is not restricted to individuals with adequate access to a PC and broadband connection.

State and Local Governments

Through their chief information and technology leaders, state and city government leaders can help define the agenda for the current and future state of open government platforms. Chief information and technology leaders can work with their purchasing agents to simplify the procurement processes and develop a more flexible checklist for the types of products and services that support e-government services and platforms. Moreover, state and local governments can be more actively engaged in the national dialogue around spectrum allocation to guarantee their communities are prepared for the future expansion of mobile content.

Local governments can partner with national and community foundations to support citizen application contests and other types of innovative partnerships. Colleges and universities, including small and mid-size public colleges, com-

munity colleges and historically black colleges and universities (HBCUs), can also be engaged by local governments to generate new content and implement partnerships similar to Code for America. Local students, for example, can gather feedback from community residents on the type of social problems affecting their quality of life, assist in application development and implement widespread communications strategies to market and promote the collaboration. Or they can work within local agencies or non-profits to engineer the next public purpose application that improves how local people find jobs, health care and family and educational supports.

State and local governments can also establish multi-agency task forces that coordinate the expertise of leaders that interface with people with disabilities and seniors. A Chief Technology Accessibility Officer (CTA) can be added to the roster of technical specialists to ensure that standards around language, literacy and accessibility are integrated into all platform designs.

Community Anchor Institutions and Nonprofits

Schools, libraries, community colleges, and other community-based organizations play a significant role in offering high-speed Internet access and digital literacy training. These organizations drive demand for online government content and resources simply because they make the Internet accessible to people. Whereas many individuals are limited in their use of online government resources due to their lack of computer and Internet training, community anchor institutions, along with nonprofits, can accelerate individuals' understanding of what is available, provide some rules of the road on what they have access to, and serve as a conduit to local governments on what other types of data need to be made available to the public. Community anchor institutions can also play a role in helping citizens learn how to develop public purpose applications that advance community interests through "citizen idea incubators" and other workshops that increase civic participation.

Universities

Universities play a vital role in aggregating thought leaders in this area to engineer new processes and tools for open government platforms. Through the design of research-based standards or in the pooling of resources to build the next killer application, university partnerships can provide the research and development needed to move both technical systems, especially legacy systems, and content development into its next evolution. Universities can also encourage citizens to get more engaged in content creation and sponsor apps contests like the ones described in this paper.

The Private Sector

The private sector plays a critical role in the success of open government platforms. The private sector continues to innovate applications and resources in this space, even when governments trail behind.

Moving forward, the private sector can be helpful to government entities by sharing their own best practices, creating strategic networks and partnerships and being agnostic to technical formats that limit data imports and exports.

Local Citizens

People are the major consumers of government content and platforms. From local journalists to average citizens, the need for community information is even more critical to their quality of life. As stated in the Knight Commission report, "local information systems should support widespread knowledge of and participation in the community's day-to-day life by all segments of the community." This statement rings true when government is open and transparent, and people are actively participating in this democracy—one that is not only shaped by the opinions at the top, but also the experiences of people that strive for better communities. Local citizens are vital to driving open government platforms because it will be their approaches to solving community problems that advance robust applications for civic engagement.

Conclusion

The Knight Commission report makes some forceful recommendations about the need for informed communities, especially as the Internet and mobile applications transform how people receive and react to life-changing information. As stated in the report, *"public information belongs to the public."* And, *"the public's business should be done in public."* Relevant, timely, and accurate information is a critical element of this movement and essential to a well-functioning democracy. The strategies in this paper are all points that seek to improve the viability of our communities through greater democratic participation and civic engagement. As stewards of our democracy, government leaders must facilitate better access and use of community information and the means for interpretation to enhance the common good. As suggested in this paper, open government initiatives offer an exciting step forward to making it easier for the public to know what governments are doing, participate in the decision-making process and fully engage in the civic life of their communities. ICT and broadband Internet will continue to enhance these critical elements of our information democracy as more citizens become informed and equipped to participate more fully in the formation of public policy.

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APPENDIX

Websites Promoting Government Transparency

Federal Government Sponsored Sites

Federal Communications Commission – Spectrum Dashboard	http://reboot.fcc.gov/reform/systems/spectrum-dashboard
IT Dashboard	http://it.usaspending.gov
Library of Congress – THOMAS	http://thomas.loc.gov
Recovery.gov	http://www.recovery.gov
Regulations.gov	http://www.regulations.gov
United States Courts – Public Access to Court Electronic Records	http://www.pacer.gov
U.S. Securities and Exchange Commission – EDGAR	http://www.sec.gov/edgar.shtml
USA Spending	http://www.usaspending.gov
The White House – Innovations Gallery	http://www.whitehouse.gov/open/innovations

Private Sector and Nonprofit Sites

Center for Responsive Politics – Open Secrets	http://www.opensecrets.org
GovTrack	http://www.govtrack.us
MAPLight	http://www.maplight.org
OMB Watch – Fed Spending	http://www.fedspending.org
Open Congress	http://www.opencongress.org
Open Regs	http://www.openregs.com
Open the Government	http://www.openthegovernment.org
OpenGovernment - state and local	http://opengovernment.org
RECAP	http://www.recapthelaw.org
Stimulus Watch	http://www.stimuluswatch.org
Sunlight Foundation – Real Time Congress	http://www.realtimecongress.org
Sunlight Foundation – Transparency Data	http://www.transparencydata.com
Washington Watch	http://www.washingtonwatch.com

State and Local Government Sites

Chicago Transit Authority	http://www.transitchicago.com
City of Chandler, Arizona	http://www.chandleraz.gov
City of Fort Wayne, Indiana	http://www.cityoffortwayne.org
City of Manor, Texas	http://cityofmanor.org
City of Richmond, Virginia	http://www.richmondgov.com
City of Sunnyvale, California	http://www.sunnyvale.ca.gov
City of Winston-Salem, North Carolina	http://www.cityofws.org
District of Columbia – Data Catalog	http://data.octo.dc.gov
Massachusetts Department of Transportation	http://www.massdot.state.ma.us
New York State Senate	http://www.nysenate.gov
State of California – Data.CA.Gov	http://data.ca.gov
State of Utah	http://www.utah.gov

About the Authors

Jon P. Gant, Ph.D.

Jon P. Gant is a fellow of the Joint Center for Political and Economic Studies, Media and Technology, and is an associate professor at the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign. He is a leading scholar in the field of information systems and public administration and policy and examines their social and economic impact on people, communities, organizations and society. His research examines IT strategy and how people, communities, organizations and governments build resources and capabilities to use and accept information systems for human development and service delivery. This includes expertise in e-government, economic evaluation of e-government security systems, e-government strategies in local government, IT and organizational performance, and the acceptance and use of IT for online services.

Dr. Gant is also an expert in geographic information systems with over 20 years of experience. Jon's recent publications include approaches for building geographic information systems to enhance citizen participation in the U.S. and developing countries, and advising local governments and school districts to develop GIS systems.

Dr. Gant graduated from Carnegie Mellon University in 1998 with a Ph.D. in Public Policy and Information Systems. He was previously a professor at the Maxwell School of Syracuse University and the School of Public and Environmental Affairs at Indiana University. He has been recognized for his teaching excellence. Through his courses, Dr. Gant has supervised over 50 information system related service-learning projects where his undergraduate and graduate students have assisted community-based organization, non-profits, and local governments and federal government agencies. His research is supported through the National Science Foundation, the United Nation's International Telecommunication Union, Organization for Economic Co-operation and Development, IBM, Syracuse City School District, Central Bank of Haiti and the University of Illinois' Community Informatics Initiative.

Nicol Turner-Lee, Ph.D.

Dr. Nicol Turner-Lee is vice president and the first director of the Media and Technology Institute for the Joint Center for Political and Economic Studies, a 40-year-old public policy institute focused on issues of concerns to African Americans and other people of color. The Media and Technology Institute was established in 2008 to study how broadband, the media industry and emerging communications technologies can become avenues of advancement for vulnerable groups. In this role, Dr. Turner-Lee created the first National Minority Broadband Adoption Study, a longitudinal research project exploring the Internet profiles and behaviors of people of color. She also engages hundreds of city, state and federal legislators on issues related to telecommunications, the Internet, open government and emerging technology innovation sectors.

Prior to joining the Joint Center, Dr. Turner-Lee was a senior executive at One Economy, a global non-profit that uses the power of technology and information to expand opportunities for low-income people. Most recently, she served as senior vice president for External Affairs in charge of public relations, national strategic partnerships and business development. While at One Economy over the course of eight years, Dr. Turner-Lee played key roles in all aspects of its core business, including residential and community broadband access, online public purpose media and youth technology training.

Dr. Turner-Lee serves on the board of the Center for Economic Progress, most recently as its chairperson. She is a member of the board for the Community Renewal Society, TPRC and a former member of the Chicago Wireless Task Force. In 2007, *Broadband Properties* magazine named her to its list of the "Top 10 National Broadband Promoters." She is a former research fellow with Northwestern University's Asset-Based Community Development Institute, a Ford Foundation Rockwood Leadership Fellow and has served as adjunct faculty at Northwestern and North Park Universities. She has published countless articles on broadband adoption in minority communities and regularly keynotes national conferences focused on these issues. Dr. Turner-Lee graduated with honors from Colgate University, has a doctorate in sociology from Northwestern University and a Certificate in Nonprofit Management from the University of Illinois-Chicago.

The Aspen Institute
Communications and Society Program

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The Communications and Society Program is an active venue for global leaders and experts to exchange new insights on the societal impact of digital technology and network communications. The Program also creates a multi-disciplinary space in the communications policy-making world where veteran and emerging decision-makers can explore new concepts, find personal growth, and develop new networks for the betterment of society.

The Program's projects fall into one or more of three categories: communications and media policy, digital technologies and democratic values, and network technology and social change. Ongoing activities of the Communications and Society Program include annual roundtables on journalism and society (e.g., journalism and national security), communications policy in a converged world (e.g., the future of international digital economy), the impact of advances in information technology (e.g., "when push comes to pull"), and serving the information needs of communities. For the past three years, the Program has taken a deeper look at community information needs through the work of the Knight Commission on the Information Needs of Communities in a Democracy, a project of the Aspen Institute and the John S. and James L. Knight Foundation. The Program also convenes the Aspen Institute Forum on Communications and Society, in which chief executive-level leaders of business, government and the non-profit sector examine issues relating to the changing media and technology environment.

Most conferences utilize the signature Aspen Institute seminar format: approximately 25 leaders from a variety of disciplines and perspectives engaged in roundtable dialogue, moderated with the objective of driving the agenda to specific conclusions and recommendations.

Conference reports and other materials are distributed to key policymakers and opinion leaders within the United States and around the world. They are also available to the public at large through the World Wide Web, www.aspeninstitute.org/c&s.

The Program's executive director is Charles M. Firestone, who has served in that capacity since 1989, and has also served as executive vice president of the Aspen Institute for three years. He is a communications attorney and law professor, formerly director of the UCLA Communications Law Program, first president of the Los Angeles Board of Telecommunications Commissioners, and an appellate attorney for the U.S. Federal Communications Commission.