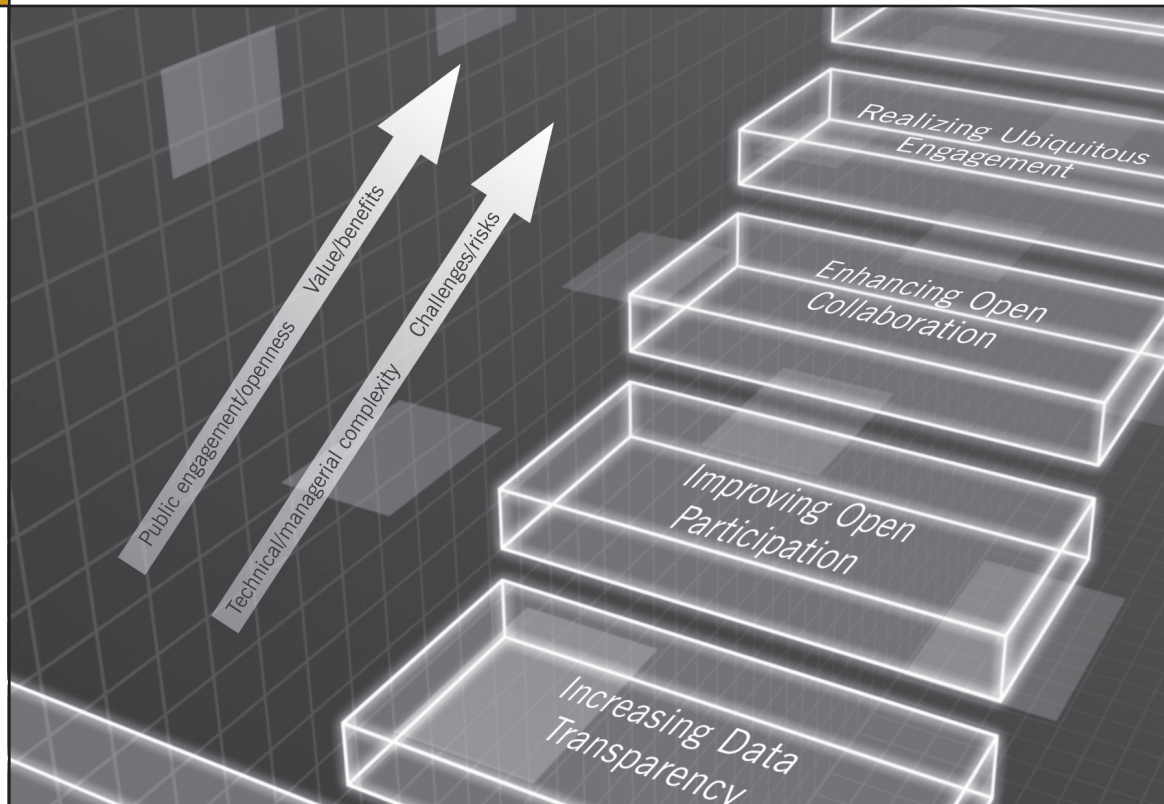


An Open Government Implementation Model: Moving to Increased Public Engagement



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FOREWORD

On behalf of the IBM Center for The Business of Government, we are pleased to present this report, *An Open Government Implementation Model: Moving to Increased Public Engagement*, by Gwanhoo Lee, The American University, and Young Hoon Kwak, The George Washington University.

The release of this report comes on the heels of the first anniversary of the Open Government Directive issued in December 2009. This Directive required all executive departments and agencies to take the following steps toward the goal of creating a more open government:

- Publish government information online
- Improve the quality of government information
- Create and institutionalize a culture of open government
- Create an enabling policy framework for open government

Professors Lee and Kwak present a road map — the Open Government Implementation Model — that agencies can follow in moving toward accomplishing the objectives of the Directive. The model set forth by Professors Lee and Kwak recommends that agencies should advance their open government initiatives in stages, moving from one stage to another as they mature their adoption of open government.

To illustrate their path toward implementing the goals of the Directive, Professors Lee and Kwak examine five cases of open government initiatives within the Department of Health and Human Services (HHS), including initiatives by the Centers for Medicare and Medicaid Services and the Food and Drug Administration. The case studies illustrate how federal agencies are making progress in moving to a more open and transparent government. The model can clearly be adapted by other agencies.

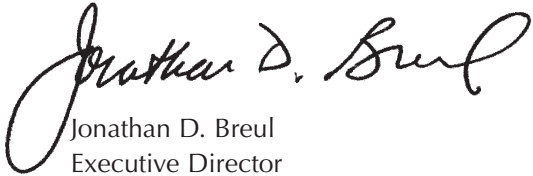


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We trust that this report, as well as previous IBM Center reports on social media and citizen engagement, will serve as useful and informative guides to government agencies as each responds to the challenges set forth in the Open Government Directive.



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EXECUTIVE SUMMARY

This report presents an Open Government Implementation Model (OGIM) for guiding government agencies towards open government. Our model defines four implementation stages and describes the focuses, deliverables, benefits, challenges, best practices, and metrics for each stage.

A key tenet of the Implementation Model is that government agencies should advance their open government initiatives incrementally, focusing on one implementation stage at a time. Starting from increasing data transparency (Stage One), the process moves on to improving open participation (Stage Two), enhancing open collaboration (Stage Three), and realizing ubiquitous engagement (Stage Four). We argue that by following this sequence, agencies can minimize risk and effectively harness the power of social media in order to engage the public.

Stage One: Increasing Data Transparency

Agencies at this stage focus on increasing transparency of government processes and performance by publishing relevant data online and sharing it with the public. The two most important tasks at this stage are:

- Identifying high-value, high-impact data for the public
- Improving and assuring data quality in terms of accuracy, consistency, and timeliness

Social media is not deployed at this stage because conventional Web applications provide adequate capabilities for increasing data transparency.

Stage Two: Improving Open Participation

Agencies at this stage focus on improving open participation of the public in government work and decision

making through various methods and tools. Open participation enhances policy decisions and government services by welcoming and utilizing the input of the public. In Stage Two, agencies use social media and Web 2.0 tools, including Web dialogues, blogs, microblogging, social networking, photo/video sharing, social bookmarking/tagging, and ideation tools, to create online public forums for engaging in anecdotes, stories, conversations, ideas, and comments.

Stage Three: Enhancing Open Collaboration

Agencies at this stage strive to collaborate not only with other agencies but also with the public and the private sector by sharing government data and public inputs and feedback. Open collaboration refers to public engagement in complex tasks or projects that aim to produce specific outputs and co-create value-added services.

Open collaboration applications include group writing and editing of documents, wiki applications development, open source software development, organizing events, policy/rule making, public response to national emergencies/natural disasters, and innovation of products and services. Collaboration relies on collaborative social media such as wikis, Google Docs, and Jive SBS.

Stage Four: Realizing Ubiquitous Engagement

Agencies at this stage take transparency, participation, and collaboration to the next level of public engagement. The agencies improve and fine-tune existing open government initiatives to maximize their benefits. Furthermore, they expand their portfolio of open government initiatives to further benefit the public. Agencies strive to achieve two important goals. First, ubiquitous mobile computing

devices facilitate public engagement. Second, various public engagement methods, tools, and services are seamlessly integrated within and across government agencies so that the public can easily engage in various activities without having to log in and out of different applications.

This report analyzes five open government initiatives. Through these cases we see current real-world open government initiatives from the Implementation Model's perspective and inductively identify key capabilities, deliverables, outcomes, opportunities, challenges, and issues for open government implementation.

The open government initiatives analyzed in this report include Centers for Medicare and Medicaid Services' Dashboard; the Food and Drug Administration's Transparency Initiative and the agency's program performance management system called FDA-TRACK; the open government portal of the Department of Health and Human Services; and the Community Health Data Initiative by the Department of Health and Human Services and Institute of Medicine.

Based on the select open government initiatives, relevant literature, and interviews with several agencies, we identify the following key challenges for open government implementation.

Organizational Challenges

- Challenge One: Federal budget cycle and lack of resources
- Challenge Two: Changing organizational culture
- Challenge Three: Ensuring the quality of data
- Challenge Four: Increasing public interest and engagement
- Challenge Five: Balancing autonomy and control
- Challenge Six: Ensuring accountability and responsibility in open collaboration

Technology Challenges

- Challenge Seven: Improving information technology infrastructure
- Challenge Eight: Enhancing privacy and information security
- Challenge Nine: Integrating open government tools and applications

Government-wide Challenges

- Challenge Ten: Updating federal policies and rules

The report presents the following recommendations that government agencies can use to effectively implement their open government initiatives.

Agency Recommendations: Implementing New Initiatives

- Recommendation One: Use a phased implementation approach
- Recommendation Two: Use a democratic, bottom-up approach
- Recommendation Three: Consider conducting pilot projects and/or establishing centers for excellence
- Recommendation Four: Secure necessary resources
- Recommendation Five: Prioritize the use of the 80/20 rule
- Recommendation Six: Align open government initiatives with the agency's goals
- Recommendation Seven: Establish governance mechanisms for data sharing
- Recommendation Eight: Expand the number of metrics over time
- Recommendation Nine: Address cultural barriers
- Recommendation Ten: Make public engagement an everyday routine
- Recommendation Eleven: Institutionalize incentives

Agency Recommendations: Using Technology

- Recommendation Twelve: Establish enterprise architecture early in the process
- Recommendation Thirteen: Integrate public engagement applications

Government-wide Recommendations

- Recommendation Fourteen: Develop communities of practice
- Recommendation Fifteen: Develop and communicate a government-wide strategy

Open Government Implementation Model (OGIM)

Introduction

Growth and Classification of Social Media

Use of social media has grown exponentially over the last several years (Li and Bernoff 2008). It has enabled people to connect with one another in unprecedented ways, sharing information, thoughts, pictures, videos, and music. It has also enabled new forms of collaboration, both with colleagues and people previously unacquainted with one another (Tapscott and Williams 2008). Many organizations in the public and private sectors are leveraging social media to transform the way they work, collaborate, and innovate (Chesbrough 2006; McAfee 2009; von Hippel 2005).

Social media can be classified into two different groups depending on its main purpose (Kotler, Kartajaya, and Setiawan 2010):

- **Expressive social media** enables people to express themselves by sharing with others text, picture, video, and music. Facebook, MySpace, Twitter, YouTube, and Flickr are examples of this type of social media.
- **Collaborative social media** enables people to work together to achieve common goals. Wikis and Google Docs are examples of this type of social media.

Open Government Initiatives

The advent of social media and other Web 2.0 tools has opened up tremendous new possibilities of engaging the public in government work in very different ways (Osimo 2008). Further, it is changing the public's expectations about the way government should work. For example, members of Generation Y, or the Millennial Generation, tend to expect gov-

ernment agencies to interact with them in the same way that commercial companies interact with them through various social media sites (Pew Research Center 2010; NASA 2008; Tapscott 2009).

On his first full day in office, January 21, 2009, President Obama issued a call for increased openness in government (The White House 2009). Subsequently, on December 8, 2009, the White House issued the federal government's Open Government Directive (OGD) that emphasized three principles of open government (Executive Office of the President 2009):

- Transparency
- Participation
- Collaboration

The Open Government Directive called upon each federal agency to formulate a plan for how it intended to increase openness and public engagement in its programs and operations. In response to the directive, each federal agency developed its own open government plan by April 2010.

Given the emergence of social media, the changes in the general public's expectation, and the new administration's open government directive, government agencies not only have a programmatic need to engage the public, but also a legal requirement to do so. As of July 2010, 22 out of 24 major federal agencies had a presence on Facebook, Twitter, and YouTube (U.S. Government Accountability Office 2010).

Challenges

Open government is an uncharted territory. Federal agencies generally lack experience and knowledge

about social media. Open government requires substantial commitment and investment on the part of agencies as they need to acquire new skills, train employees, purchase technologies, and upgrade network infrastructure. Therefore, huge stakes are involved in open government implementation. Federal agencies are under tremendous pressure and expected to implement three principles of open government (transparency, participation, and collaboration) in a short period of time with limited budgets and resources. As a result, agencies may be tempted to launch too many projects simultaneously which their current capabilities and resources cannot support.

There is a strong tendency for agencies to stretch themselves too thin, compromising the success of their efforts, and possibly undermining the performance of their open government initiatives. Failure of open government initiatives can have yet more serious consequences than monetary loss and damaged reputations. Therefore, agencies should carefully think through various aspects of leadership, technology, policy, governance, and culture before they launch multiple open government initiatives.

Open Government Implementation Model

To date, little research has been done to investigate critical issues associated with open government. As a result, a significant lack of knowledge exists concerning the implementation of open government. This report aims to fill that gap. The report proposes the Open Government Implementation Model for guiding government agencies through their journey

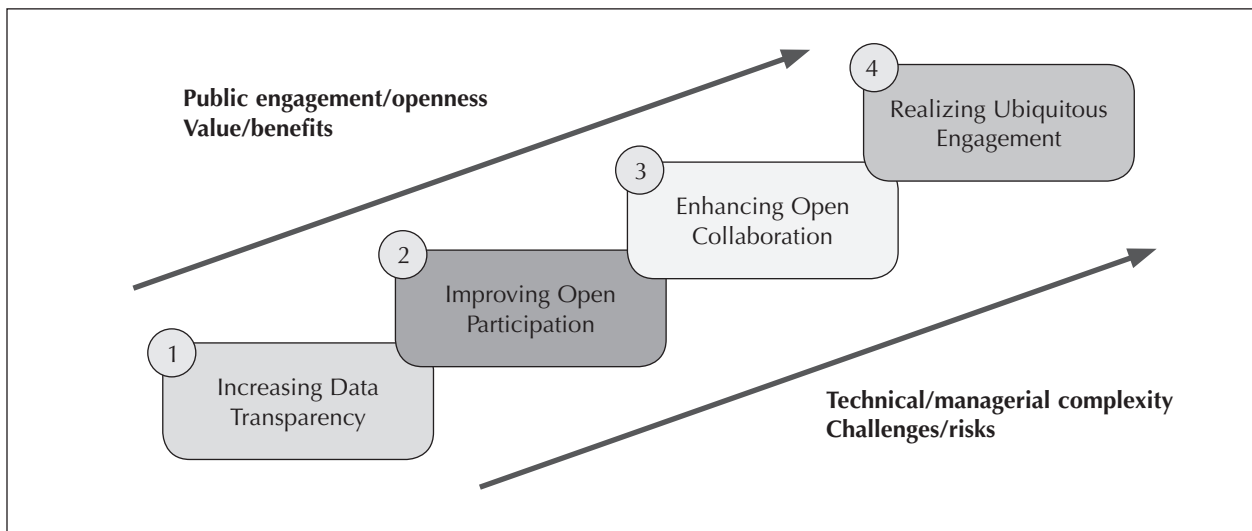
to open government. The report argues that there is a need for a logical sequence when advancing open government and that, by following this sequence, agencies can minimize risk and effectively harness the power of social media in order to engage the public.

The Implementation Model defines four stages of open government implementation. It describes the focuses, deliverables, benefits, challenges, best practices, and metrics for each of the implementation stages. A thesis of the Implementation Model states that government agencies should advance their open government initiatives in a progressive and orderly manner by focusing on one implementation stage at a time, starting from increasing data transparency, and then moving on to improving open participation, enhancing open collaboration, and realizing ubiquitous engagement.

Understanding the Open Government Implementation Model

Federal agencies can use the model outlined in this report as an effective guide for responding to open government requirement and implementing their open government initiatives. Although the model is developed primarily for federal agencies, it can be used by state, municipal, or local government agencies without major modifications. It provides agencies with a logical, sequential, and systematic approach that seeks to minimize risks while maximizing benefits. The model is depicted in Figure 1.

Figure 1: Open Government Implementation Model (OGIM)



It is crucial that government agencies follow the sequence of the Model's implementation stages instead of implementing all the stages at once or following a random sequence. We argue that increased data transparency (Stage One) is a necessary precondition and an enabler for implementing later stages. Similarly, agencies can enhance open collaboration (Stage Three) and realize ubiquitous engagement (Stage Four) more effectively if they have already improved open participation (Stage Two). Our observations of several federal agencies' open government initiatives suggest that the simultaneous implementation of multiple stages is likely to cause challenges concerning resources, budget, time, technology, cultural change, and adoption by the public. By focusing on one implementation stage at a time, agencies can effectively build infrastructure and capabilities for open government without overburdening government employees or overwhelming the public.

We developed the Implementation Model based on the insights derived from relevant literature and our field interviews. As shown in Figure 1, with each successive implementation stage, public engagement and openness of government work increases, thus producing greater value and benefits for both government and the public. However, the technical and managerial complexity of the open government initiatives also increases at each stage. As a result, agencies should expect to face greater challenges and risks in later implementation stages. Each implementation stage presents different focuses, deliverables, and expected benefits.

Stage One: Increasing Data Transparency

Increasing data transparency should be the first step towards open government. The use of social media to foster open government is limited at this stage because conventional Web applications often provide adequate capabilities required to increase data transparency. As the amount of data in the Information Economy explodes (The Economist 2010), agencies at Stage One focus on increasing transparency of government processes and performance by publishing relevant data online and sharing it with the public. The two most important tasks at this stage are:

- Identifying high-value, high-impact data for the public
- Improving and assuring data quality in terms of accuracy, consistency, and timeliness

Understanding the Initial Conditions before Open Government Implementation

Even before implementing the Obama Administration's Open Government initiatives, virtually all government agencies already had a presence on the Internet. However, until a few years ago only a few agencies used social media to engage the public. The agencies before the open government era focused primarily on "broadcasting" information to the public. They lacked the interactive communication capabilities enabled by social media and Web 2.0 tools and relied on one-way, static communication methods.

Prior to the introduction of the Open Government Directive, a typical agency had a website that provided the public with general information about the agency. However, the public did not engage with the agency in a meaningful way. The agency did not publish much data and only limited data was made available to the public. The agency probably used few or no metrics to assess its website performance or public engagement. Due to the static nature of the agency's online capabilities, the public did not return to the website frequently and took a passive role without much meaningful engagement. As a result, the websites of many agencies were viewed by the public as a black box prior to the era of open government.

Agencies at Stage One should not try to publish all the data they own, which is not only impractical, but also ineffective. As the Pareto Principle (i.e., the 80/20 Rule) suggests, agencies should focus on the top 20 percent of their data that would most benefit the public. To do so, agencies need to put in place an effective governance structure and process to formally identify relevant data, assure its quality, and publish it in a timely manner. Data quality is extremely critical as low quality data may misinform and mislead the public about government work and performance. Once unreliable data is published and shared, it is very difficult to recall the information without causing damage to the agencies' reputation and to the public's trust of the agencies. Therefore, the agencies should make sure that only valid and accurate data becomes available to the public.

Federal agencies' vast amounts of data are an important national resource which can be utilized to help the public better understand what the government does and how well it performs, and to hold it

Metrics for Measuring Agency Open Government (OG) Performance

For All Stages (One to Four)

- Public awareness of OG initiatives and services
- Public perception of government openness
- Public satisfaction with interactions with government
- Cultural change in government agencies towards openness

For Stage One (Increasing Data Transparency)

- Number of data sets published
- Number of data analysis tools posted
- Number of data downloads
- Number of total and unique visitors
- Percentage of repeat visitors
- Number of communication channels
- Time duration of Web page view
- Data accuracy and consistency
- Data timeliness
- Frequency of data updates
- Reduction in Freedom of Information Act (FOIA) requests, backlog, and response time

For Stage Two (Improving Open Participation)

- Number of visitors, fans, or followers for social media
- Number of messages posted by the public
- Number of ideas submitted by the public
- Ratio of posts to comments
- Frequency of voting and polling
- Trends of public participation

- Number of out-of-control incidents, such as cyber-bullying, cyber-stalking, and posting offensive comments
- Usefulness of public comments
- Innovativeness of ideas submitted

For Stage Three (Enhancing Open Collaboration)

- Number of interagency collaborations
- Number of public-private collaborations
- Number of citizen-government collaborations
- Number and diversity of external partners
- Number of value-added services created
- Time and cost savings
- Quality and innovativeness of collaboration outcomes

For Stage Four (Realizing Ubiquitous Engagement)

- Increase in the number of users, shared data sets, and channels
- Increase in public participation and collaborations and interagency and public-private collaborations
- Number of mobile users/platforms/applications/services
- Level of integration of OG processes and services
- Perceived usefulness of public engagement tools and applications
- Overall user experience
- Extent of public engagement throughout lifetime
- Net impact of OG initiatives on productivity and innovation

accountable for any wrongdoings. This data can also help to increase public awareness of government work and to generate insights into how to improve government performance. Therefore, increased data transparency provides the basis for the public to participate in and to collaborate on government work to spur action, create value-added services, and facilitate innovation.

Eventually, the public should be able to use government data to make better decisions and improve the quality of their lives. To foster the public's effective use of government data, the data needs to be easily accessible and usable. Agencies must seek feedback from the public on the usefulness and accessibility of their data for continuous improvement. At Stage One, the use of social media is very limited and

most online communications are done by conventional methods such as websites or e-mails.

As the public starts to engage in government work through accessing data, increased data transparency enables government agencies to begin to shift their organizational culture towards openness and sharing. Agencies at Stage One use process/quantity-centric metrics rather than outcome/impact-centric metrics to evaluate the performance of data transparency and public engagement. Whereas process/quantity-centric metrics focus on measuring quantitative performance of public engagement processes, outcome/impact-centric metrics focus on measuring the business value of public engagement both quantitatively and qualitatively. Some of the process/quantity-centric metrics at Stage One include number

of data sets published, number of data downloads, and number of visitors.

Increasing data transparency should take place at the first implementation stage towards open government as it is relatively easy and quick to achieve. Furthermore, transparent data satisfies the public's basic needs for information, and becomes a basis for open participation and collaboration of the public and other external constituents and stakeholders.

Stage Two: Improving Open Participation

Stage Two of the Implementation Model focuses on improving open participation of the public in government work and decision making through various methods and tools. Open participation enhances policy decisions and government services by welcoming and utilizing the input of the public. While Stage One "opens up" government data to the public, Stage Two "opens" the government itself to the public's ideas and knowledge.

Agencies at Stage Two strive to disseminate anecdotes, stories, conversations, ideas, and comments from the public. To do so, agencies turn to social media and Web 2.0 tools, including web dialogues, blogs, microblogging, social networking, photo/video sharing, social bookmarking/tagging, and ideation tools. Ideation tools refer to Web 2.0 applications that streamline and integrate the process of generating, screening, and selecting new ideas. An example is Transportation Security Administration's IdeaFactory that taps into new ideas of 43,000 front-line employees. These tools and technologies can be thought of as "expressive" social media in contrast to "collaborative" social media that is an important enabler for open collaboration at Stage Three (Kotler et al. 2010).

Contrary to the conventional feedback methods such as surveys and questionnaires, expressive social media allows the public to engage in informal, spontaneous, conversational interactions with government. Agencies at Stage Two strive to crowd-source the public's ideas, knowledge, expertise, and experience through voting, polling, contests, blogging, microblogging, ideation, etc. This collective intelligence, based on a large number of individuals from diverse backgrounds, helps government agencies to make informed, reliable decisions in real time (Bonabeau 2009). While there are many cur-

rent and emergent social media tools, agencies would do best to start with most widely used tools, such as Facebook, Twitter, YouTube, and Flickr.

For most agencies at Stage Two, the agency still lacks outcome/impact-centric metrics and relies mostly on process/quantity-centric metrics to measure the level of public participation. Some of the benefits from increased open participation include:

- Real-time, instant, diverse feedback
- Ongoing, community-based dialogues
- Reduced time and cost for innovation, leading to more innovation
- The public's increased sense of community with government agencies

Through informal, ongoing interactions with the public, agencies at Stage Two get momentum to nurture the open government culture and practice.

It is important for agencies at this stage to build the capability to respond to the public's feedback in a timely and consistent manner. This capability requires formal processes, coordination mechanisms, and government employees dedicated to responding to public comments.

Stage Three: Enhancing Open Collaboration

Once government agencies increase data transparency and open participation, the next step is to foster open collaboration among government agencies, the public, and the private sector. Though some federal agencies use open participation and open collaboration interchangeably and do not clearly distinguish between them in their open government plans, we believe that it is helpful to differentiate between the two:

- **Open participation** refers to public engagement in relatively simple interactive communications such as blogging, microblogging, social networking, social bookmarking/tagging, photo/video sharing, and ideation. It relies primarily on expressive social media to connect people and help share their ideas.
- **Open collaboration** refers to public engagement in complex tasks or projects that aim to produce specific outputs. Such tasks include group writing and editing of documents, wiki application

development, open source software development, organizing events, etc. Collaboration relies on collaborative social media such as wikis, Google Docs, and Jive SBS. (Jive SBS [Social Business Software] is a commercial Web 2.0 collaboration tool produced by Jive Software. Jive SBS integrates the functionality of online communities, blogs, microblogging, social networking, discussion forums, and wikis under one unified user interface.)

When it comes to open collaboration, we found that some federal agencies focus mostly on interagency collaboration. However, we argue that, in order for agencies to fully realize the power of mass collaboration, open collaboration should go beyond interagency collaboration and include the public as well. Agencies at Stage Three collaborate with other agencies, the public, and the private sectors, by utilizing government data and public inputs and feedback and co-create value-added government services for the public and the private sector. Other applications of open collaboration include policy/rule making, public response to national emergencies/natural disasters, and innovation of products and services. The agencies implement and embed open collaboration mechanisms in their open government tools and processes so that anyone can engage in the collaboration process anywhere and at any time.

Process/quantity-centric metrics are still being used dominantly at Stage Three. As the public engages in complex government tasks and projects, openness will gain acceptance in government agencies. Open collaboration produces synergistic effects of multiple collaborating parties and results in time/cost savings, higher quality, and more innovation for government services and policy/rule making.

The Implementation Model proposes that government agencies should progress through different implementation stages in an orderly manner. The Pareto Principle or the 80/20 Rule applies not only to Stage One but also to Stages Two and Three. Agencies at Stages One to Three should not try to implement everything; they should only select high-value, high-impact initiatives and focus on strengthening what is working rather than worrying too much about what is not working.

Stage Four: Realizing Ubiquitous Engagement

Building upon Stages One to Three, agencies at Stage Four take transparency, participation, and collaboration to the next level of public engagement. The agencies improve and fine-tune existing open government initiatives to maximize their benefits. Furthermore, they expand their portfolio of open government initiatives to further benefit the public.

Agencies at Stage Four strive to achieve two important goals. First, public engagement becomes easier and more accessible through mobile and ubiquitous computing devices and applications. At Stage Four, the public accesses government data, and participates and collaborates using smartphones, tablets, laptops, desktop computers, and even gaming devices. Relevant government websites and applications are optimized for each of the various computing platforms. Second, various public engagement methods, tools, and services are seamlessly integrated within and across government agencies so that the public can easily navigate and engage in various activities without having to jump around different applications or keep logging in and out.

Agencies at Stage Four put an effective governance structure and process in place to enable continuous improvement and innovation of public engagement programs. Furthermore, the agencies, the public, the private sector, and other stakeholders form and nurture a sustainable ecosystem and a virtuous cycle for effective public engagement.

Agencies at this stage start to use outcome/impact-centric metrics in addition to process/quantity-centric metrics. Outcome/impact-centric metrics measure the tangible and intangible outcomes of open government initiatives. They measure not only financial performance but also non-financial performance such as innovation and learning. Openness becomes a norm both for government culture and public engagement. As a result, the vision and promises of the Open Government Directive are fully realized at Stage Four.

Table 1: Stages, Focuses, Deliverables, and Benefits of Open Government Implementation Model (OGIM)

Stages	Focuses	Deliverables	Benefits
<p>One: Increasing Data Transparency</p>	<ul style="list-style-type: none"> • Transparency of government processes and performance • Data quality 	<ul style="list-style-type: none"> • Government data is published and shared online • Government process and policy information is published and shared online • Focus on high-value, high-impact data such as cost and performance • Data quality improvement: accuracy, consistency, and timeliness • Feedback from the public on the usefulness and quality of data • Limited use of social media for keeping the public informed • Process/quantity-centric metrics are used 	<ul style="list-style-type: none"> • Increased public awareness and knowledge of government data, process, and policy • Increased government accountability • Improved data quality: accuracy, consistency, and timeliness • Reduction of Freedom of Information Act (FOIA) requests • Reduced processing time for FOIA requests • Foundation for performance improvement • Foundation for value-added online services • Cultural shift to openness begins • The public is engaged through data
<p>Two: Improving Open Participation</p>	<ul style="list-style-type: none"> • Public feedback, conversation, and ideation • Interactive communications • Crowdsourcing • Expressive social media 	<ul style="list-style-type: none"> • Pervasive use of social media for interactive, ongoing conversations, storytelling, and communications between the public and government • Voting, polling, feedback, ideation capabilities • Timely and consistent response to feedback • Crowdsourcing to tap into the experiences, ideas, and expertise of the public • User created content is posted and shared • Focus on mainstream social media channels such as Facebook, Twitter, and YouTube • Process/quantity-centric metrics are used 	<ul style="list-style-type: none"> • Real-time, instant, diverse feedback from the public • Ongoing, community-based conversation and discussion about the business of government • Reduced cost and time for innovation • More innovation • Increased sense of community centered around government • Cultural shift to openness gets momentum • The public is engaged through conversation
<p>Three: Enhancing Open Collaboration</p>	<ul style="list-style-type: none"> • Interagency collaboration • Open collaboration with the public • Co-creating value-added services • Collaborative social media 	<ul style="list-style-type: none"> • Interagency collaboration on complex projects and decision making • Open collaboration with the public to solve complex problems and issues • Collaboration between public and private sectors to create value-added services for the public • Open collaboration for policy-making and rule-making • Collaborative response to national emergencies and natural disasters • Use of collaborative social media such as Google Docs, wikis, and Jive SBS • Open collaboration process is embedded and implemented online • Process/quantity-centric metrics are used 	<ul style="list-style-type: none"> • Synergistic effect of interagency collaboration: time/cost savings and higher quality outputs • Time/cost savings and innovations through open innovation with the public • The public benefits from high quality, innovative services developed by the private sector • New policies and rules are made through open collaboration process • Effective and efficient responses to national emergencies and natural disasters • Openness is widely accepted in government • The public is engaged through projects/tasks

Stages	Focuses	Deliverables	Benefits
Four: Realizing Ubiquitous Engagement	<ul style="list-style-type: none"> • Increased transparency, participation, and collaboration • Ubiquitous and continuous public engagement • Integrated public engagement 	<ul style="list-style-type: none"> • Expanding the scope and depth of transparency, participation, and collaboration capabilities • Integrated and seamless deployment of multiple channels of social media within and across agencies • Use of mobile, ubiquitous computing platforms for continuous engagement • Integrated ecosystem for public engagement • Integrated governance structure and process for public engagement • Outcome/impact-centric metrics in addition to process/quantity-centric metrics 	<ul style="list-style-type: none"> • The public engages extensively through multiple channels of social media • The public engages continuously and seamlessly in various government activities and programs through ubiquitous computing platforms • Public engagement through entire lifetime • Virtuous cycles for sustaining and improving public engagement • Openness becomes a norm for government culture • Benefits of open government are fully realized

Case Studies of Open Government Initiatives

In this section, we analyze and discuss five open government initiatives within the Department of Health and Human Services (HHS). HHS has emerged as one of the leading federal agencies in implementing the Open Government Directive. The main objectives of presenting these cases are to analyze real-world open government initiatives from the Implementation Model perspective and to identify key capabilities, deliverables, outcomes, opportunities, challenges, and issues for open government implementation.

One case study focuses on the open government portal of the Department (www.hhs.gov/open). The other case studies examine four flagship initiatives within HHS operating divisions. The Centers for Medicare and Medicaid Services (CMS) and the Food and Drug Administration (FDA) have become the champions of open government initiatives within HHS and the federal government as a whole (U.S. Department of Health and Human Services 2010).

Overview of the Agencies Featured in the Case Studies

Centers for Medicare and Medicaid Services (CMS)

The Centers for Medicare and Medicaid Services (CMS) is an agency within the U.S. Department of Health and Human Services. The Agency's key lines of business include: Medicare health plans, Medicare financial management, Medicare fee-for-service operations, Medicaid and children's health, survey & certification, and quality improvement. CMS, previously known as the Health Care Financing Administration, reorganized in February 2007 moving from a geography-based structure to a consortia structure. The intent of the new structure is to improve performance through uniform issue management, consistent communication and leadership focused on achieving the agency's strategic action plan.

Food and Drug Administration (FDA)

The Food and Drug Administration (FDA) is an agency within the U.S. Department of Health and Human Services. FDA is responsible for (1) protecting public health by assuring the safety, effectiveness, and security of human and veterinary drugs, vaccines and other biological products, medical devices, our nation's food supply, cosmetics, dietary supplements, and products that give off radiation, (2) regulating tobacco products, (3) advancing public health by helping to speed product innovations, and (4) helping the public get the accurate, science-based information they need to use medicines and foods to improve their health.

U.S. Department of Health and Human Services (HHS)

The Department of Health and Human Services (HHS) is the federal department responsible for protecting the health of all Americans and providing essential human services, especially for those who are least able to help themselves. The Department's programs are administered by several operating divisions, including Administration for Children and Families (ACF), Centers for Disease Control and Prevention (CDC), Centers for Medicare and Medicaid Services (CMS), Food and Drug Administration (FDA), and National Institutes of Health (NIH).

Institute of Medicine (IOM)

The Institute of Medicine (IOM) is an independent, nonprofit organization that works outside of government to provide unbiased and authoritative advice to decision makers and the public. Established in 1970, the IOM is the health arm of the National Academy of Sciences, which was chartered under President Abraham Lincoln in 1863.

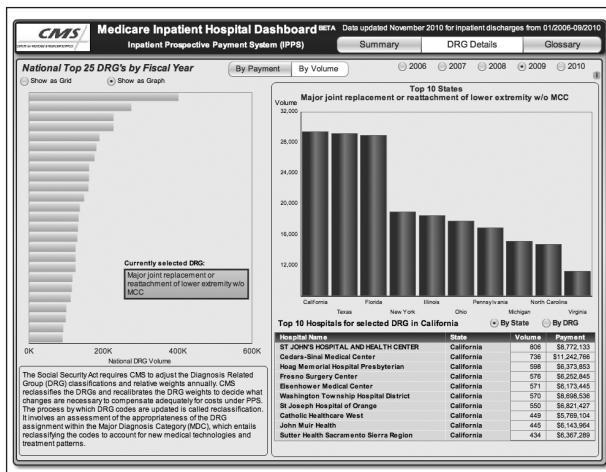
Centers for Medicare and Medicaid Services Dashboard (Stage One)

The Centers for Medicare and Medicaid (CMS) manage extensive data associated with Medicare services. In the past, much of this data was available to the public in the form of scattered hard copy and electronic publications. Analysis of the data required retrieving it from disparate sources as well as advanced technical expertise. Further, the publication time lag of the data was up to 18 months. Due to the inconvenience of data retrieval and the long time lag of data availability, Medicare data traditionally has not been highly utilized by the public.

To eliminate such barriers to accessing Medicare data, the CMS Dashboard (www.cms.gov/Dashboard/) on CMS's website was launched in April 2010. The main objective of the Dashboard is to allow the public to visualize and analyze Medicare spending with ease and transparency. Therefore, this initiative is placed at the Stage One of the Implementation Model. Currently, the Dashboard shows only inpatient hospital spending, but it plans to add outpatient spending data in the near future and will evolve and grow on an ongoing basis.

The current Dashboard allows the public to track Medicare inpatient hospital spending from 2006 to the present, organized by state, by the top 25 diagnosis-related groups, by Payment, and by the top 10 hospitals for each state and diagnosis-related group (Figure 2). Furthermore, the public can see how much Medicare is spending to support important public policy goals, such as the provision of medical education and

Figure 2: A Screenshot from the CMS Dashboard



Source: www.cms.gov/Dashboard/

CMS Dashboard (CMS.gov/Dashboard) Stage One

Capabilities/Deliverables

- Visualizing Medicare spending
- Comparing Medicare inpatient spending by state, by diagnosis-related groups (DRG), by hospitals, and by public policy goals
- Data is published within three months
- No end-user customization capabilities

Outcomes/Opportunities

- Increased visibility, transparency
- Positive feedback and compliments from the public
- The public makes more informed decisions
- Shifting agency culture toward openness

Challenges/Issues

- Budgeting issues
- Data accuracy
- Timely update of data
- Obtaining dedicated staffing
- Lack of flexibility in data format
- Lack of data about Medicare quality

additional payments to rural hospitals. Data is presented in both table and graph forms. The data publication time lag has been reduced to less than 3 months, a major improvement compared to the previous 18-month time lag. The Dashboard provides citizens, researchers, policymakers, and health care providers with important information about Medicare services, which will generate useful insights for improving the health care system.

Food and Drug Administration Transparency Initiative (Stage One)

In the past, stakeholders, including the public and regulated industry, have complained about the Food and Drug Administration's (FDA) lack of transparency for their activities and decision making and referred to the agency as a black box. In response to this issue, FDA launched its Transparency Initiative in June 2009. The main objective of the FDA Transparency Initiative is to make the agency more open to the public. This initiative falls into the Stage One of the Implementation Model.

FDA strives to improve data transparency in the following areas:

- Emerging safety issues regarding FDA-regulated products
- Information about product applications that are abandoned or withdrawn
- Decisions about pending product applications
- Relevant information for regulated industry

To that end, the agency is implementing the Transparency Initiative in three phases:

- **Phase One: FDA Basics (January 2010 to April 2010).** In January 2010, FDA launched a Web-based resource called FDA Basics (www.fda.gov/FDABasics). This resource includes questions and answers about FDA and the products that the agency regulates, videos that explain agency activities, and conversations with agency officials about the work of their offices (Figure 3). This initial content was based on questions and comments the agency frequently receives from the public. Users can rate the helpfulness of the information provided and suggest additional information for inclusion. Feedback provided by the public is used to update the resource.

Figure 3: A Screenshot from FDA Basics



Source: www.fda.gov/FDABasics

FDA Transparency Initiative (FDA.gov/FDABasics) Stage One

Capabilities/Deliverables

- “Broadcasting” basic information (so-called FDA Basics) with very limited feedback capabilities
- Really Simple Syndication (RSS) and e-mail updates
- Proactive disclosure of information
- Providing industry with real-time answers to their daily challenges
- Webinar series
- Video clips on important issues

Outcomes/Opportunities

- Increased public awareness and knowledge
- Public is better educated about what FDA does and how the work gets done
- Increased transparency to regulated industry

Challenges/Issues

- Accidental disclosure of confidential, private information
- Deciding what information to share or disclose
- Data quality
- Lack of resources for maintaining and expanding services

- **Phase Two: Public Disclosure (May 2010 to Winter 2010).** This phase relates to FDA’s proactive disclosure of information the agency has in its possession, and how to make information about agency activities and decision making more transparent, useful, and understandable to the public. The information that FDA considers proactively disclosing to the public include:
 - Detailed explanation about the rationale when the agency declines to approve medical products, and
 - Summary data on safety and effectiveness from medical product applications.
- **Phase Three: Transparency to Regulated Industry (Winter 2010-2011).** This phase will enhance the agency’s transparency to regulated industry. Increased transparency is expected to foster a more effective and efficient regulatory process

because it allows the members of the regulated industry to reduce misconceptions and misunderstandings of the regulatory process and the agency's decision and to learn from detailed data.

FDA-TRACK (Stage One)

FDA-TRACK is the new agency-wide program performance management system. It monitors over 100 program offices through key monthly performance measures. Each of the program offices is responsible for collecting and presenting data in preparation for reporting performance via the FDA-TRACK dashboards (Figure 4). The dashboards are presented to senior leadership through quarterly briefings and then posted to the FDA-TRACK website (www.fda.gov/FDATrack) for public access. Currently, over 40 dashboards are published online. This initiative falls into the Stage One of the Implementation Model.

FDA-TRACK publicly reports performance indicators in the following four categories (U.S. Department of Health and Human Services 2010):

- **FDA-wide common measures** such as the total number of employees who have completed the

FDA-TRACK (FDA.gov/FDATrack) Stage One

Capabilities/Deliverables

- Agency-wide program performance management
- Monitoring 100+ FDA program offices through key monthly performance measures
- About 40 online dashboards
- Allowing users to submit comments

Outcomes/Opportunities

- Increased agency accountability and transparency
- Improved performance over time
- Knowledge-sharing among offices
- Identifying common issues and interdependencies across program offices

Challenges/Issues

- Accuracy and timeliness of performance data
- Too much focus on numbers
- Integrated governance on program performance
- Lack of public participation mechanisms

Figure 4: A Screenshot from FDA-TRACK Dashboard

Program Measures													
Office of Planning and Informatics (OPI)													
I. Sponsor Drug Application Submissions Measures													
A. Sponsor Application Submissions Routed to Drug Review in the month													
Measure	Target	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010	May 2010	Jun 2010	Jul 2010	Aug 2010	Sep 2010
1. Total Submissions routed to Drug review	N/A	14,751	13,987	14,763	11,926	13,365	15,542	15,478	14,465	15,795	TBD		
2. Total New Drug Application (NDA) related submissions	N/A	1,848	1,889	1,979	1,519	1,718	1,932	1,889	1,971	2,005	TBD		
3. Total Abbreviated New Drug Application (ANDA) related submissions	N/A	3,082	2,797	3,015	2,705	2,877	3,522	3,313	2,769	3,417	TBD		
4. Total Investigational New Drug (IND) related submissions	N/A	7,967	7,555	7,763	6,104	6,854	8,031	7,848	7,618	7,979	TBD		
5. Other	N/A	1,854	1,746	2,006	1,598	1,916	2,057	2,428	2,107	2,394	TBD		
B. Increase Percent of New Drug Application (NDA) related submissions received in Electronic Common Technical Document (eCTD) format													
Measure	Target	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010	May 2010	Jun 2010	Jul 2010	Aug 2010	Sep 2010
1. Total number of NDA related submissions in the month	N/A	1,848	1,889	1,979	1,519	1,718	1,932	1,889	1,971	2,005	TBD		
2. Percent of NDA related submissions in eCTD format in the	N/A	60%	59%	58%	62%	59%	61%	64%	66%	64%	TBD		

Source: www.fda.gov/FDATrack

Incident Command System (ICS) training in the month, which helps the agency respond to emergencies

- **Center-specific measures** such as the percentage of employees who receive training each month, which enables the Center for Devices and Radiological Health to ensure it is providing high value training opportunities to its employees
- **Program-specific measures** such as the percentage of 510(k) decisions made on time during the month
- **Project-specific measures** such as the development of a new risk-based approach for evaluating safety, effectiveness, and quality of new animal drugs

The FDA-TRACK initiative strives to enhance accountability and transparency through the accurate and timely sharing of performance data online. One caveat is that FDA-TRACK may lead to too much focus on quantitative performance measures and thereby lose insights on the qualitative dimensions of the agency's performance.

HHS Open Government Portal (Stage Two)

HHS launched its open government portal (www.hhs.gov/open) in February 2010. The website provides links to nearly all of the important HHS open government resources (Figure 5). These resources include open-format and interactive data sets, tools, and online discussion forums, among others.

The open-format data sets can be downloaded in generic file formats, such as csv or xml, which allow the data to be utilized by researchers. The interactive data sets can be manipulated on the website by users.

The portal provides two types of tools: widgets and RSS. Widgets are code-bearing graphic elements that allow users to add HHS content or functionality to users' Web product. RSS are syndication feeds that allow users to automatically import HHS content into users' Web product.

HHS Open Government (OG) Portal (HHS.gov/Open) Stage Two

Capabilities/Deliverables

- A portal to all HHS open government applications, capabilities, and data
- Blogs by department chief technology officer
- Widgets and RSS tools
- Sharing the HHS OG Plan and getting public feedback and comments
- Publishing record management procedures and policy
- Hyperlinks to HHS' Facebook, Twitter, YouTube, Blogs, and Flickr sites

Outcomes/Opportunities

- One-stop portal service
- Increased public awareness and engagement
- Increased visibility, transparency
- Feedback from the public on the HHS OG plan and CTO blogs
- Limited interactions between the public and HHS

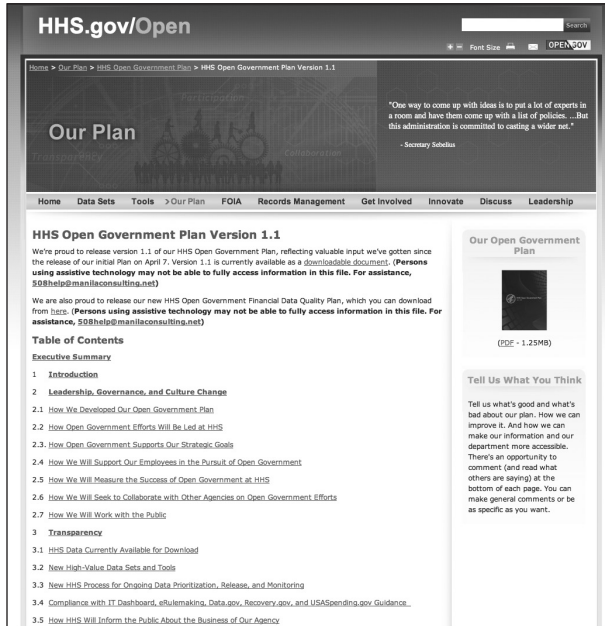
Challenges/Issues

- Creating and sustaining public interest and participation
- Timely and consistent responses to public comments
- Striking a balance between control and autonomy
- Level of time commitment from top executives to posting blogs and responding to public comments

There are also several discussion forums. One forum allows the public to submit their comments and suggestions on the HHS Open Government Plan and rate the content on a five-star scale. Another forum, the Open HHS blog hosted by the agency's chief technology officer (CTO), enables public engagement in ongoing conversations with the CTO.

Since the portal strives to actively engage the public in feedback, comment, and discussion, it falls under Stage Two of the Implementation Model. However, real-time interaction between the public and the agency is not yet possible as public comments go through the agency's review before they are posted.

Figure 5: A Screenshot from HHS Open Government Portal Website



Source: www.HHS.gov/Open

Community Health Data Initiative by HHS and IOM (Stage Three)

HHS and the Institute of Medicine (IOM) have launched a national initiative to help consumers and communities derive more value out of their extensive stores of health-related data. This initiative, named the Community Health Data Initiative, is a major public-private effort that aims to help the public understand health and health care performance in their communities and to facilitate action to improve performance. The initiative will create a network of health data suppliers and “data appliers” so that the data can be used to create applications to raise awareness of community health performance, as well as increase pressure on decision makers and facilitate action to improve performance (U.S Department of Health and Human Services 2010).

HHS will provide a Community Health Data Set harvested from across the Department, free of charge and without any intellectual property constraint. This data set will consist of thousands of measures of health care quality, cost, and access. Then, working with a diverse group of stakeholders including technology companies, researchers, health

Community Health Data Initiative Stage Three

Capabilities/Deliverables

- A public-private effort that aims to help Americans understand health and health care performance in their communities and to help spark and facilitate action to improve performance
- Interactive health maps, social networking applications, idea contests, online games for public education, etc.

Outcomes/Opportunities

- Creating a network of health data suppliers and “data appliers” so that the data could be used to create applications to:
 - Raise awareness of community health performance
 - Increase pressure on decision makers to improve performance
 - Facilitate action to improve performance
- Sharing best practices

Challenges/Issues

- Creating and sustaining public interests and engagement
- Attracting a critical mass of data/applications suppliers and consumers
- Creating effective public-private working relations

and consumer advocates, and health care providers, HHS will seek to identify uses of this data that will best raise awareness of health performance, and motivate the public to improve care. Some of the potential applications include:

- Interactive health maps that help the public compare health performance in their geographic area with other areas
- Social networking applications that allow health improvement leaders to connect with each other, compare performance, share best practices, and challenge each other
- Online games that help to educate people about community health
- Integration of community health-related data into new value-added services, such as real estate websites

As the Community Health Data Initiative is working to leverage the power of transparency, participation, and collaboration to improve community health, it falls under Stage 3 of the Implementation Model. Although this initiative was officially launched in June 2010, its full implementation will likely require several years.

Challenges for Implementing Open Government Initiatives

By the end of 2010, nearly all federal agencies had developed their strategic plans for open government initiatives. During 2010, many agencies launched pilot projects and some have begun the full scale implementation of their initiatives. As they go forward, it is critical for agencies to understand organizational and technical challenges associated with open government. Based on our review of the relevant literature, the case studies presented in this report, as well as field interviews with agencies including the Department of Health and Human Services (HHS), Federal Aviation Administration (FAA), and Federal Communications Commission (FCC), we identified ten key challenges for open government implementation.

An International Data Corporation (IDC) study found that the top challenges government agencies face in deploying social media and Web 2.0 include security, HR constraints, technical expertise, and budgetary constraints (International Data Corporation Government Insights 2009). Our research confirms and expands on this finding. We group various challenges into several categories and discuss them.

Organizational Challenges

Challenge One: Federal Budget Cycle and Lack of Resources

The current government budgeting cycle is about 18 months, too long to timely fund open government initiatives that require quick decisions and actions. As a result, government agencies often lack the financial and human resources required to implement the initiatives, as well as the ability to make long-term decisions.

Though many assume that open government implementation won't require many resources, our research shows that it requires significant investment of funds, as well as a time commitment from government employees. Without sufficient funding and dedicated personnel, government agencies will find it challenging to develop and sustain new public engagement tools and programs.

Challenge Two: Changing Organizational Culture

The organizational culture of government agencies is a critical challenge for all implementation stages. Although much has changed recently, the typical government culture can still be characterized as hierarchical, top-down, command-and-control, and siloed. Without shifting the organizational culture towards more openness and transparency, successful implementation of open government initiatives will prove elusive. Agencies need to design effective incentives to persuade employees to change their mindset and behavior.

Challenge Three: Ensuring the Quality of Data

The challenges of data quality are especially salient at Stage One of the Implementation Model.

Government agencies must ensure the accuracy, consistency, timeliness, usability, and usefulness of the data that they publish online and share with the public. To do so, agencies need to put formal processes in place to govern the lifecycle of identifying, collecting, and sharing of data.

Taking advantage of a wide range of emergent social media tools, agencies are likely to publish and share data with the public via multiple online channels. While providing options for the public is desirable,

ensuring data consistency and integrity across multiple channels requires effective management processes and governance structures.

Challenge Four: Increasing Public Interest and Engagement

As government agencies start to engage the public, an important challenge will be to create and sustain public interest and engagement. As numerous social media websites and Web 2.0 tools strive to gain people's attention (Davenport and Beck 2002), agencies should not assume that the public will automatically come and participate if they build venues for public engagement. Further, the public will lose interest in government initiatives if agencies fail to respond to the public's input in timely fashion. Successful government-public interaction requires not only public participation, but also government employees' commitment and support.

To make public engagement sustainable in the long run, agencies should create a virtuous cycle of continuous feedback and improvement. Creating and nurturing a self-sustaining ecosystem for public engagement is an important touchstone of open government efforts.

Challenge Five: Balancing Autonomy and Control

Public engagement in online discussion forums can at times be off-topic, inappropriate, or even offensive, thereby negatively impacting agencies. Therefore, agencies need to monitor public input and take effective measures to mitigate risk. However, if agencies try to control public comments too tightly, public participation will likely decline over time. Therefore, keeping the right balance between control and autonomy in public engagement is an important challenge.

Challenge Six: Ensuring Accountability and Responsibility in Open Collaboration

Open collaboration pursued at Stage Three is likely to raise issues around accountability and responsibility as many people unknown to one another collaborate on an ad-hoc basis. Few people may collaborate from the beginning to the end of a project, as people come and go throughout the project's duration. In addition, the increased complexity that comes with the involvement of a wide range of

Policies and Rules Incompatible with Use of Social Media

A report issued by several leaders of the Federal Web Managers Council discusses these policy issues in detail and proposes potential solutions (Godwin, B., Campbell, S., Levy, J., and Bounds, J. 2008). Further, a more recent report issued by the U.S. Government Accountability Office recognizes similar policy issues (U.S. Government Accountability Office 2010). Some of the notable policy-related issues are summarized below:

- The Administrative Procedure Act (APA) sets rules for how agencies can communicate with the public during rulemaking. The Act is unclear, however, concerning the proper means for incorporating social media during the rulemaking process.
- The Privacy Act of 1974 provides certain protections to personally identifiable information. Federal agencies face the challenge of determining how the Privacy Act applies to information exchanged in the use of social media: how to appropriately limit collection and use of personal information, and how and when to extend privacy protections to information collected and used by third-party providers of social media services.
- Many social media services require account owners to agree to terms of service that federal agencies can't agree to in terms of indemnification/defense and applicable law/court jurisdiction.
- Many social media sites place ads. This practice can raise concerns when government content appears near inappropriate ads such as those that are pornographic, religious, political, etc. It can give the public an impression that the federal agency endorses the ads.
- Federal agencies are normally banned from using persistent cookies on their websites to save user preferences or settings. As a result, agencies cannot take advantage of third party tools and services that require persistent cookies.
- According to Section 508 of the Rehabilitation Act, all information provided to the public must be equally accessible to people with and without disabilities. Some multimedia sites do not currently provide the opportunity to include transcripts or captioning.
- There are rules governing when agencies are allowed to use free services, such as social media websites. Federal agencies should not arbitrarily choose a social media service without formal bidding and competition.

collaborators means that agencies need to identify effective coordination mechanisms and processes for collaborative projects. Integrating such collaboration processes with the agency's internal business processes is another important challenge to address.

Technology Challenges

Challenge Seven: Improving Information Technology Infrastructure

Another critical challenge is inadequate IT infrastructure in many government agencies. For example, some agencies are not ready to deploy social media applications that require accessing and posting video files mainly because their network infrastructure cannot support the required formats. As a result, even if a pilot project proves successful, its scalability vis-à-vis the public is questionable. In addition, the lack of network connectivity or insufficient bandwidth in agencies can be a roadblock to digital public-government engagement.

Challenge Eight: Enhancing Privacy and Information Security

One of the obstacles in building trust between the public and government is concerns about privacy and information security. The open and autonomous nature of social media and Web 2.0 technologies has led to public and governmental apprehension concerning:

- Risks of accidentally disclosing confidential information such as personally identifiable information
- Vulnerability of systems to acts of hacking, Denial of Services (DoS) attacks, and intrusion of malware and spyware

Information security and privacy issues can be major issues for certain applications and initiatives because risks can be perceived to outweigh potential benefits.

Challenge Nine: Integrating Open Government Tools and Applications

As agencies expand their portfolios of public engagement tools, gearing them towards increasingly ubiquitous mobile devices, the seamless integration of these applications is critical for the user's

engagement experience. Without effective integration, users will be frustrated when navigating disparate engagement interfaces.

Government-wide Challenges

Challenge Ten: Updating Federal Policies and Rules

Successful social media-based public engagement requires government agencies to resolve legal, contractual, procurement, and policy issues associated with the use of social media. But, unfortunately, some of the practices and requirements of third-party social media tools, such as Facebook, Twitter, YouTube, and wikis, are inconsistent or incompatible with existing government policies and rules.

Recognizing the above issues, Section 4 of the Open Government Directive instructs the Administrator of the Office of Information and Regulatory Affairs (OIRA) to "review existing OMB policies, such as Paperwork Reduction Act guidance and privacy guidance, to identify impediments to open government and to the use of new technologies and, where necessary, issue clarifying guidance and/or propose revisions to such policies." Removing policy-related impediments to open government will be an important challenge for federal agencies in the coming years.

Recommendations for Implementing Open Government Initiatives

Based on our assessment of five open government initiatives, we set forth the following 15 recommendations.

Agency Recommendations: Implementing New Initiatives

Recommendation One: Use a Phased Implementation Approach

As the Implementation Model suggests, agencies should use a phased approach and focus on completing one implementation stage at a time. Trying to simultaneously implement multiple stages will likely result in a slower pace, lack of resources, and waning public interest. It may also lead to employee burnout and maintenance problems. Although a majority of federal agencies plan to implement their initiatives incrementally through multiple phases, we believe that their plans are occasionally overly aggressive. If agencies try to implement all three stages at once, for instance, social media-based public engagement may become a short-term fad.

Recommendation Two: Use a Democratic, Bottom-Up Approach

In the spirit of the open government vision, agencies should take democratic, consensus-based approach, as opposed to a top-down or command-and-control approach. They should engage government employees and the public from the very beginning of the process by soliciting their inputs. A purely top-down approach is not effective for implementing social media-based applications that require voluntary efforts on the part of government employees as well as the public.

Recommendation Three: Consider Conducting Pilot Projects and/or Establishing Centers for Excellence

To minimize the risk of failure, conducting a pilot project to demonstrate the concept's merit may prove helpful. For example, in summer 2010, the Federal Aviation Administration (FAA) launched a well-designed pilot project to test public-employee engagement tools based on IBM Lotus Connections.

We recommend that, when implementing Stage One of the Model, agencies should try to experiment with a small-scale pilot initiative for Stage Two. Similarly, when implementing Stage Two, agencies should try to experiment with a small-scale pilot initiative for Stage Three. By doing so, the transition from one stage to the next stage can be smooth.

To facilitate open government implementation, agencies should also consider establishing centers for excellence focusing on social media and public engagement. For example, the Federal Communications Commission (FCC) created the New Media Group whose responsibilities were reviewing and responding to content posted in blogs, its ideation forum, and other social media channels. Centers for excellence can help train government employees to develop skills and knowledge necessary for enabling open government.

Recommendation Four: Secure Necessary Resources

Although many social media services and open source tools are free of charge and widely available, social media-based public engagement initiatives nonetheless require substantial investment in terms of human resources, time commitment, and network

infrastructure. Allocating dedicated personnel to specific initiatives is necessary to ensure continuous monitoring and maintenance. Agencies should not take resource constraints lightly and must clearly state a way to secure necessary resources in their open government plans.

Recommendation Five: Prioritize the Use of the 80/20 Rule

Government agencies should start with high-value, high-impact data, tools, and applications and focus on strengthening what is working rather than spending an inordinate amount of time and energy on what is not working. It is important that government agencies not try to publish all the data, tools, and applications at once. Instead, they should adhere to the 80/20 rule, especially in early stages of open government implementation. Since social media-based public engagement is a radical innovation in terms of technological novelty as well as cultural gaps, agencies should not overburden and/or distract their employees by launching projects delivering marginal business value.

Recommendation Six: Align Open Government Initiatives with the Agency's Goals

Government agencies should not pursue open government initiatives for the sake of implementing new technologies or just because of the Open Government Directive. They should think through and align the objectives of their open government initiatives with the agency's broader goals and priorities. Open government initiatives that do not contribute to the agency's mission are unlikely to be sustainable.

Recommendation Seven: Establish Governance Mechanisms for Data Sharing

Government agencies should establish effective governance mechanisms for data sharing. HHS Data Council, HHS CIO Council, and Data.Gov Working Groups are some of the examples of governing bodies that advise senior leadership on data transparency strategies, policies and processes (U.S. Department of Health and Human Services 2010). Principles for data sharing also need to be put in place. For example, data should be primary, structured, timely, usable, and complete. Further, agencies should develop a formal process for the

identification, prioritization, publication, and monitoring of data release as well as handling of public feedback. For example, the FDA-TRACK team monitors website hits and feedback on a daily basis, and comments are considered a part of the continuous improvement efforts. Given the importance of information privacy issues, agencies need to consult with privacy experts before posting new data.

Recommendation Eight: Expand the Number of Metrics over Time

We have not yet come across federal agencies that are satisfied with their metrics for evaluating open government and public engagement performance. Metrics are essential for pursuing open government initiatives. However, many existing metrics tend to measure processes or quantity rather than outcomes or impact.

In the early stages of open government implementation, we recommend that agencies start with metrics that objectively measure process performance such as number of data sets posted, number of ideas submitted, etc. In later stages, agencies should measure outcome and impact such as time and cost savings, innovation, etc. Finally, agencies need to incorporate qualitative metrics to measure intangible outcomes such as strategic impact and public-employee satisfaction.

Recommendation Nine: Address Cultural Barriers

Cultural barriers to open government need to be addressed. To shift the siloed, command-and-control government culture towards transparent, open, participatory culture, government agencies need to actively communicate with and educate their employees. For example, HHS uses its intranet for this purpose.

Showcasing success stories is another effective way of changing organizational culture. However, organizational culture will not change completely until the new paradigm of openness is embedded in internal business processes and performance management systems. Therefore, relevant policies, decision making processes, training programs, and governance mechanisms need to be revised so that they are compatible with the open government vision.

Recommendation Ten: Make Public Engagement an Everyday Routine

Government agencies should integrate open government data, tools, applications, and processes into existing business processes and routines. Only then can open government principles be truly integrated into the governing process and culture. Conversely, when government employees see public engagement as non-routine, and as requiring extra work, other everyday routines and work will siphon their attention away from public engagement activities.

Recommendation Eleven: Institutionalize Incentives

Agencies should institutionalize incentive systems for government employees to engage the public. Although OMB emphasizes the importance of prizes, awards, and incentives to increase public engagement, most agencies are still in early stages in terms of putting formal incentive systems in place. Senior leaders of agencies should devise and implement systematic and aggressive incentives to drive employees' behavior. Senior leaders should recognize, celebrate, and advertise success stories of public engagement to facilitate cultural change towards openness, transparency, sharing, and collaboration.

Agency Recommendations: Using Technology

Recommendation Twelve: Establish Enterprise Architecture Early in the Process

As an increasing number of open government initiatives are launched over time, the complexity of managing all those initiatives increases significantly. If not managed well, this complexity could become the major obstacle to sustaining open government initiatives. Agencies need to develop high-level enterprise architecture in the early stages of their open government implementation and standardize, simplify, and integrate data, tools, systems, and processes wherever possible.

Recommendation Thirteen: Integrate Public Engagement Applications

Agencies should integrate their engagement tools and applications seamlessly so that users can easily navigate various services and do not have to keep

logging in and out. Further, agencies need to find a way to engage the public in their governing process throughout their lifetime, though individual needs and wants will shift over time.

Government-wide Recommendations

Recommendation Fourteen: Develop Communities of Practice

Public engagement using social media is new not only for government employees but also for the public. Therefore, both government agencies and the public will inevitably go through a steep learning curve as open government initiatives progress. It is critical to develop and nurture communities of practice for knowledge sharing and learning.

Learning should take place not only within an agency but also across agencies. Informal or formal communities of practice and interagency work groups or committees facilitate such mutual learning and sharing. For example, HHS has established its Community of Practice (CoP) at the HHS University (www.learning.hhs.gov). In addition to the lateral learning, vertical learning should be encouraged as well among federal government, state government, and local government. For example, FDA-TRACK is a federal-level adaptation of a successful state/local government performance management program.

Recommendation Fifteen: Develop and Communicate a Government-wide Strategy

The Office of Management and Budget and the General Services Administration should develop and communicate a government-wide strategy and guidelines to address and resolve common issues, problems, and conflicts that individual agencies face. These issues include incompatible terms of services for social media sites, advertising and endorsement, use of free services, persistent cookies, compliance with the Privacy Act of 1974, compliance with Section 508 of the Rehabilitation Act, and compliance with the Administrative Procedure Act. For example, OMB has issued memorandums to clarify how certain rules and policies apply to federal agencies' use of social media (Executive Office of the President 2010). Furthermore, GSA issued documents related to the use of social media for federal agencies and announced that it had negotiated terms-of-services agreements with several

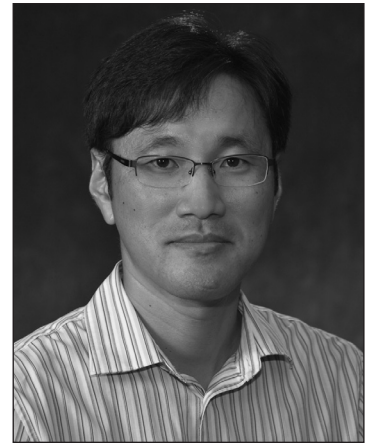
social networking providers. A centralized and concerted approach seems to be efficient and effective for clarifying issues, resolving conflicts, and removing obstructions.

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