

Virtual Networks



An Opportunity for Government

by Frank DiGiammarino
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The increasing power of computing is enabling a new generation of Web-based applications—Web 2.0—to harness collective intelligence in the public sector.

Today's government relies on a broad network that extends beyond other public-sector entities to include the private sector, nonprofit organizations, community groups, and individual citizens. Government entities need to work effectively across boundaries that impede the collaboration and information sharing required to innovate and change.

“Virtualizing” these networks gives government the opportunity to extend outside its institutions and employ the resources of nongovernmental organizations and the citizenry at large. It also provides government leaders with new ways to reach deeper into their own organizations to leverage the wealth of information and ideas that reside there, stifled by the natural hierarchy of government and the “operating silos” that hierarchy has created.

The key to understanding this new model lies in the increasing power of computing and the way this enables a new generation of Web-based applications—known as Web 2.0, or the interactive Web—to harness collective intelligence. The virtual network is replete with a new lexicon of tools like social bookmarking, wikis, blogs, really simple syndication (RSS) feeds, and the ability to “tag” keywords throughout a document. Yet the power of this phenomenon does not reside in the technology itself, but in its potential as a tool for leaders grappling with industrial-era hierarchies and looking to increase agility, extend reach, and maximize efficiency.

Meeting the Changing Needs of Citizens

The interactive Web is forcing some of government's time-worn institutions to rethink their relationship with their most important client: the public. A good illustration of this kind of reckoning can be found in our municipal library systems, which—in the age of Amazon.com and Barnes and Noble megastores—are under increasing pressure to stay relevant and engaged with the communities they serve.

“The younger generation today is wired differently than people in my generation,” said sixty-nine-year-old Harry Courtright, explaining to the *New York Times* last summer why the fifteen-branch library system he oversees in Arizona's Maricopa County jettisoned the once-sacred Dewey decimal system of classifying books in favor of one designed for the majority of users, who come to browse without a particular title in mind.

Courtright and his colleagues are facing fundamental questions of identity. What is a library in the twenty-first century? How does the role of librarian change in light of customer reviews and other peer-to-peer networking opportunities that online bookstores routinely provide? Will the one-third of Americans who count themselves among Generation Y ultimately expect public libraries to work more like Netflix? Will we eventually be a society of on-demand books?

The implications for government, which delivers a wide range of services to an ever more sophisticated public, are immense. Libraries provide just one example of the opportunity virtual networks offer public-sector leaders—faced with expanding mandates, increasingly constrained budgets, and unwieldy organizational structures—to rethink their service delivery model.

Emergence of the Virtual Network

The paradigms that define our current understanding of organizations can be traced back to the 1930s and early public administration scholars like Luther Gulick, who claimed that organizations should departmentalize work by purpose, process, clientele, or place and should not combine dissimilar activities in single agencies. Gulick argued that although most work contains all four elements, systems must organize around only one of these core principles, to the exclusion of the other three. Today's government institutions reflect this thinking, with agencies that provide services and information often managed in vertical silos.

Virtual networks, in contrast, place a premium on breaking down these silos and connecting various audiences across (and within) them for better delivery to the citizen. The “wiki” platform for virtual collaboration takes its name from the Hawaiian word for “fast” and features built-in functionality that allows quick content analysis—users can see the labels that have been applied to content, how content has been edited and reviewed, and the relationships that have formed between various pieces of data. This allows for nearly limitless access and searchability that is shifting the structure of thought from the hierarchical and vertical to the diffuse and horizontal. Particularly in light of Generation Y's increasing role in the federal workforce, government leaders have the responsibility to understand the nature of this evolution and embrace virtual networks as a way to be more efficient while remaining relevant.

“While the government is still buying Rolodexes, the younger generations have 600 friends on Facebook and 250 professional colleagues on LinkedIn,” said Steve Ressler, twenty-seven, a cofounder of Young Government Leaders, a professional organization of more than 1,000 younger federal employees from more than thirty departments and agencies. “It's very important for us to see Web 2.0 technologies in the workplace. We are used to working horizontal, are not afraid of authority, and want our ideas heard.”

Technology and Leadership

The cause of deploying Web 2.0 in government continues to gain committed champions, and the mounting success stories can be attributed more to leadership than technology. In April 2006, the Office of the Director of National Intelligence (ODNI) created the classified “Intellipedia” wiki site to allow sixteen intelligence agencies to quickly and collaboratively share classified information. Without compromising security, the goal was to transcend traditional silos and gain the agility required to combat loosely connected networks of terrorists and similarly diffuse but urgent threats. The site

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allows frontline agents to post information on any aspect of intelligence along with other agencies in the intelligence community.

This powerful collaborative tool has been put to practical use on several occasions, including the 2006 crash of a small plane into a New York City high-rise. Within two hours, Intellipedia garnered more than eighty updates, enough to determine with confidence that the crash was not a terrorist act. Intellipedia has also been useful in providing up-to-date, peer-driven intelligence on North Korean missile tests, bomb-making by Iraqi insurgents, and instability in Nigeria. In testimony presented to Congress on September 10, 2007—six years after the terrorist attacks of September 11—Director of National Intelligence Admiral Michael McConnell lauded Intellipedia for enabling “experts from different disciplines to pool their knowledge, form virtual teams, and quickly make complete intelligence assessments. . . . The solution does not require special networks or equipment but has dramatically changed our capability to share information in a timely manner.”

“It’s not complicated technology; it’s not expensive,” says Assistant Secretary of Homeland Security for the Transportation Security Administration (TSA) Kip Hawley. “The biggest challenge, the biggest learning, is that somebody has to make the decision to just go ahead and do it.”

In addition to TSA’s classified involvement with Intellipedia, Hawley has overseen the launch of a new blog for the traveling public and an internal IdeaFactory, where TSA’s forty-three thousand frontline transportation security officers can confer collectively on job-related issues and ideas. The site empowers employees to share ideas on how to improve the organization across multiple lines; these ideas are available for every employee to see and evaluate. Employees vote for the ideas they like and offer constructive criticism. Within a week of its launch, TSA employees had submitted more than 150 ideas, offered more than 650 comments, and voted on ideas more than 800 times.

The Collaboration Project

Hawley recently discussed these initiatives at the first meeting of The Collaboration Project (see box), the National Academy of Public Administration’s newly launched leadership forum that uses research, best practices, and other resources to help apply the benefits of Web 2.0 and collaborative technology in government.

The Collaboration Project

The National Academy is taking the lead on Web 2.0 in government by launching The Collaboration Project—an independent leadership forum to jump-start the cause of collaborative technology to drive innovation and change in government. Designed for leaders looking to overcome the technical, organizational, and cultural barriers involved, the project convenes members in person and through a virtual collaboration space to share best practices, case studies, white papers, and leadership tools for implementation.

“This is a big idea that’s being introduced to a somewhat alien culture,” said National Academy president and chief executive officer Jenna L. Dorn, “but we are convinced that collaborative technology has the potential to transform government in America, to tap into the expertise of people outside the hierarchy of any single agency or department, to make government more transparent, and to open the door to a broader array of experts focused on solving a particular problem or to citizens who want to contribute to making government work better.”

The Collaboration Project kicked off operations with its first in-person meeting in February, drawing a diverse group of key decision makers, including congressional staff, chief information officers (CIOs), chief technology officers, chief financial officers, and other senior leaders from more than a dozen federal agencies, including the Environmental Protection Agency (EPA), Coast Guard, Government Accountability Office, Small Business Administration, and Departments of Homeland Security, Transportation, and Defense.

TSA’s Kip Hawley inspired meeting participants with his presentation on the successful Web 2.0 advances at his agency. “It’s self-policing,” Hawley told the audience, explaining how the various parties collaborate in responsible and inventive ways without the need for excessive oversight by forum monitors. “We’ve found that the lighter the touch on editing, the better the quality of ideas and the quality of the discussion.”

Other kickoff event highlights included the informal networking breaks and enthusiastic audience participation during a facilitated brainstorming session.

More information on The Collaboration Project, including audio highlights of Kip Hawley’s presentation, is available at www.CollaborationProject.org.

The National Academy seeks founding members with the inspiration, vision, and commitment to join us in moving this important initiative forward.

Virtual Networks

Although they hold much promise and become more widely used by the day, virtual networks are still in an early stage of development. Individuals are constantly finding new ways to connect with communities, jointly recast their thinking, and develop amazing solutions to complex problems. The National Academy has a few observations:

- The virtual network is not *going* to happen: it *is* happening—and it should not be stopped, but celebrated. It may be one of the best levers available to public administrators as they try to achieve the agility needed to deliver for citizens in these difficult times.
- The virtual network does not replace the physical, but it does have the potential to connect many points within numerous networks. A leader must understand all networks and how to best leverage the virtual network to solve a specific challenge. The various networks depicted by two professors at the University of Arizona, H. Brinton Milward and Keith G. Provan, reveal how a virtual network can tie multiple networks together.
- Virtual networks should be originated to solve a specific challenge. The reward of solving that challenge must exceed the effort of engaging in the virtual network. If not, people will not participate.
- The rules that apply to physical networks should be considered when looking at a virtual network. In this regard, leaders can apply the work of National Academy fellow Edward DeSeve, who suggests in a recent article, “Creating Managed Networks as a Response to Societal Challenges,” that leaders looking at networks consider the following:
 - » Commitment to achieving results
 - » Trust in the information and the efforts of those in the network
 - » Governance on rules, membership, and security
 - » Access to authority as well as financial, technical, and human resources
 - » Leadership to shape and provide guidance to the network
 - » Distributive accountability promoting shared responsibility for results
 - » Information sharing and privacy protection.

Another Collaboration Project participant, EPA assistant administrator for the Office of Environmental Information and CIO Molly O’Neill, points to a successful project incorporating a variety of information sources into an online “mashup” for a Puget Sound cleanup effort in the Pacific Northwest.

“After thirty-six hours, we actually had more than seventeen thousand page views on the wiki and we had 178 quality, unique contributions,” said O’Neill, citing submissions from individuals at the National Aeronautics and Space Administration, the Department of the Interior, environmental scientists, librarians, and a host of others with information and insights to add. “It was fascinating to see all the information that we were able to put together in a short amount of time, and to me, that was demonstrating success.”

EPA is a founding member of The Collaboration Project and shares its emphasis on the need to view technology solutions in the context of the business challenge at hand. Successful collaboration requires tight integration of information technology functions into the normal business of an organization, as it often requires fundamental changes in business processes and in culture.

Those responsible for technology must have a seat at the policy table, says Jennifer L. Dorn. “They must know all about your business—your business model and the problems you wrestle with every day—to be more proactive, because we are asking our technology experts to help us find solutions to problems we don’t even know we have.”

Although collaborative technologies are rarely expensive and comparatively easy to implement, *effective* deployment requires that they be evaluated, acquired, and set up with a deliberate eye toward the issues to be addressed in the virtual network (see box). Because collaborative technologies are a highly flexible medium—many wikis begin as nothing but a white space waiting to be populated by content—they tend to operate on the principle that form follows function. Those responsible for determining the form of collaborative solutions must have an intimate knowledge of the function they will serve.

Navigating the Stakeholder Network

Public administrators are breaking new ground to address the complexities of delivering services to citizens. For several years, the National Academy has been focused on the shift of the U.S. government to a multi-

sector workforce. With a federal workforce of 2 million civil servants managing a contractor workforce of nearly 10.5 million, we are already working in a network. The game has already changed, and public-sector leaders are now faced with the task of writing—or discovering—the new rules.

Thought leaders like William Eggers and Stephen Goldsmith, National Academy fellows and authors of the Brookings Institution book, *Governing by Network: The New Shape of the Public Sector*, examine incorporating the concept of networks into the public sphere, transitioning from centralized control over public programs to facilitating services through an array of nongovernmental entities. This new model is characterized by the web of relationships and partnerships that increasingly defines modern governance.

Milward and Provan have begun to write about three forms of network governance: self-governing networks, lead organization networks, and network administrative organizations. Each of these models has significant implications for government's ability to deliver for the citizen.

In an environment where agility increasingly defines successful mission delivery, leaders in government are looking to the virtual network to connect horizontally and vertically with people and information. The technology is widely accessible, economical, and easy to use, and leaders are discovering that these networks offer opportunities to collect and efficiently analyze unprecedented volumes of information, gain enhanced buy-in for organizational goals and policies, and engage new audiences to produce original solutions to complex problems.

Particularly in light of the insular culture that pervades segments of government, building consensus and buy-in for virtual networks is a critical task. Franz Johansson's book, *The Medici Effect*, emphasizes the importance of including multiple stakeholders from varying fields, disciplines, and cultures to create extraordinary ideas. With the complexity of our challenges and opportunities, government leaders have the responsibility to understand the value of this type of network and tap into it.

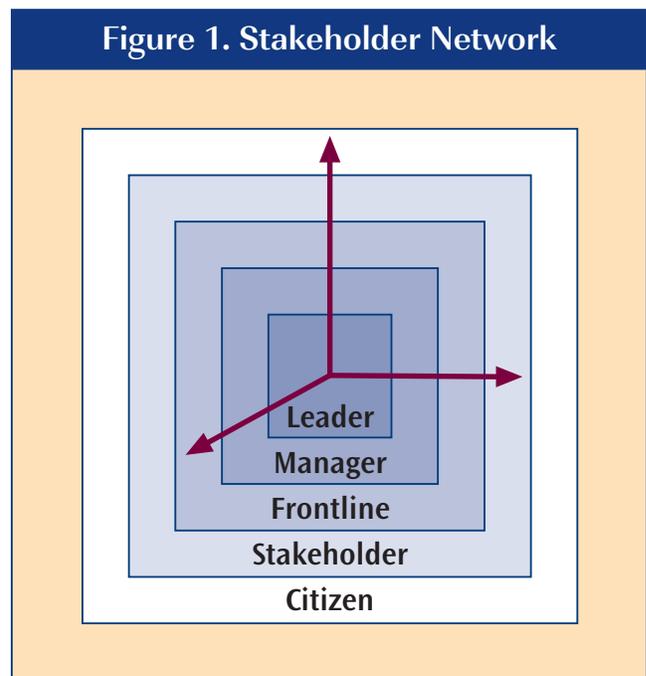
After looking at the volume of activity across the country in virtual networks, we have identified four models (Figure 1). The models are built around leaders who are looking to engage managers, frontline workers, outside stakeholder groups, and citizens to drive specific outcomes for their organizations.

Leader to Frontline Workforce

Leaders and managers are reaching down to the frontline of their organizations to connect with and gain insights from the staff on the ground that delivers for the citizen. Intellipedia and the TSA IdeaFactory are examples of agencies that are pushing connectivity to the frontline to drive innovation.

Leader to Stakeholders

Organizations outside government provide the resources and support needed to solve many of government's toughest challenges. Virtual collaboration enhances the ability of communities with shared missions to work together for a common purpose. For example, the Great Lakes wiki—a site that houses stories, information, and resources pertaining to the Great Lakes—relies on the experience and knowledge of a network of citizens, including scientists, hunters, U.S. and Canadian policymakers and agency officials, environmentalists, anglers, lakeside property owners, boaters, business operators, and others who care about the Great Lakes region. The site allows private and nonprofit organizations to collaborate online with government leaders on projects such as the Rouge River revitalization efforts, which led Scott Moore, the Mayor of Birmingham, Michigan, to support improved water quality measures for the Rouge River.



Leader to Citizen

Collaborative technology offers the promise of directly connecting citizens to their government—almost a nostalgic return to the public square and front porches of America. Rather than pushing citizens out of government, collaborative technologies allow us to invite them in.

Utah's Politicopia has joined a small but growing number of state and local wikis that emphasize improving people's ability to understand and control their government through citizen engagement in the political process. These Web sites improve citizen access to information by presenting open-source and wiki-based forums for the compilation and presentation of information on bills pending before the legislature, a brief summary of the issue and the bill's status, an invitation for arguments and comments, and links to relevant sources. Similar efforts are beginning in Indiana, Montana, Connecticut, Kentucky, and Pennsylvania. Two municipal examples are Birmingham's Bhamwiki in Alabama and Rochester's RocWiki in New York.

Through a pilot project with the New York Law School, the U.S. Patent and Trademark Office (USPTO) is also finding innovative ways to apply a leader-to-citizen virtual network. Born from the thousand-case backlog and high percentage of patent approvals (85 percent) with limited review time (an average of eighteen hours per case), the "Peer-To-Patent" project allows for third-party comments and "voting" to expedite the review and approval process. By tapping expertise that lies beyond the walls of USPTO—resources that would have formerly been inaccessible—these leaders are improving the timeliness and quality of patents issued.

Peer to Peer

Across government, communities of practice are establishing wiki sites, blogs, and discussion boards to promote information sharing within their respective fields. One leader in the federal government recently mentioned that she belongs to thirty-two of these virtual communities at last count.

Technology is a crucial lever, but the challenge is ultimately one of governance and management.

One example is the interagency Semantic Interoperability Community of Practice (SICoP), which works, via a wiki site, toward the interoperability of software packages within the federal government and provides findings and recommendations to the Best Practices Committee of the federal CIO Council.

Another peer-to-peer application comes from the CIO Council's Architecture and Infrastructure Committee, which uses a wiki to revise its Federal Enterprise Architecture Data Reference Model. The wiki format allows participants to post and cross-index documents, as well as have online discussions. Since the wiki requires very little formal training, participation is easy and working-level documents are not difficult to create. The result is that it compresses what was a cumbersome interagency process down to a quick 180 days.

One of the more dramatic examples of a citizen-driven network emerged from the tsunami that hit the coasts of south and east Asia in 2004. Virtual collaboration tools such as blogs, wiki sites, and discussion boards served as effective vehicles for response efforts, providing news agencies covering the disaster with a critical resource and helping to organize citizen-led aid efforts. This virtual community allowed citizens to create an organic, self-organized network that provided critical information to—and contact with—the mainstream media and government-led responses.

This model, in particular, emphasizes the interconnectivity and complexity of the networks. The key to success is recognizing that being in control is less important than having linkages to the ideas and data that will help get the job done.

Meeting Challenges with Agility

As ODNI learned with Intellipedia, virtual networks can bring new levels of flexibility and responsiveness to achieve mission-critical priorities. But technology simply brings the latest answer to a centuries-old challenge: how can government remain as agile as the threat (particularly in times of war)?

The United States has been at both ends of the question. During the Revolutionary War, well-armed, brightly outfitted British forces marching in lockstep were confounded by American fighters whose strength lay in their ability to blend into the environment and improvise formations on the battlefield. In World War II, the Allied forces had smart soldiers on the ground with specific objectives that didn't require constant command updates. Meanwhile, especially toward the end of the war, the Germans' reliance on a calcified and nonresponsive command-and-control structure proved fatal. Today, our government is grappling with the uncomfortable reality that, when it comes to agility in facing an opponent, we are at a disadvantage.

Fortunately, leaders across government are stepping up to meet this challenge. Technology is a crucial lever, but the challenge is ultimately one of governance and management. The virtual network is an opportunity for

government managers—who are asked to do more with less every day—to best serve the citizens of our country.

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