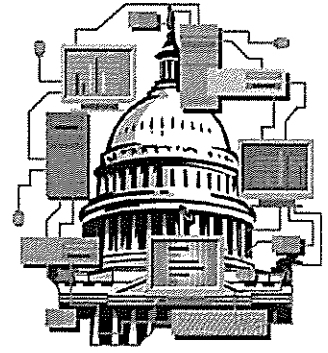


Transforming Government through Collaborative Innovation



Government agencies can play four different roles in network-based problem solving.

by Satish Nambisan

The performance of the next administration and, more broadly, the American government in the twenty-first century will be shaped by how well it adopts collaborative innovation and problem-solving approaches to harness external resources and creativity for addressing the nation's most challenging issues. Many of the issues we currently face—ranging from education and healthcare to homeland security and environmental conservation—are often ill-defined or emergent in nature, involve diverse sets of stakeholders, and cross organizational and geographic boundaries.

Looking Beyond Boundaries

The first step in addressing such issues is to pursue a policy agenda focused more on the problems than on the structures of the agencies charged with solving them. However, the transformational innovation—in business models, operations, and services offered by government agencies—needed to address such problems is unlikely to always originate from within the four walls of the government. Indeed, government agencies need to “look outside” to harness the needed creative talent and expertise.

In adopting such a collaborative problem-solving approach, government agencies can learn from the private sector. In recent years, many companies, including IBM, 3M, Proctor & Gamble, Staples, DuPont, and Boeing, have initiated a gradual shift from innovation initiatives that are

centered on internal resources to those centered on external networks and communities. For example, IBM has successfully partnered with Linux and other open-source software communities. Similarly, consumer product companies such as Procter & Gamble and Staples have partnered with independent inventors to source new product concepts and ideas. Technology companies such as 3M and DuPont have partnered with external scientist networks to source solutions to specific technical problems. Some of these collaborative innovation and problem-solving approaches adopted by the private sector clearly extend to the public-sector context, and government leaders can garner valuable, practical insights from the private sector on managing such collaborative innovation.

This article identifies four different roles that government agencies can pursue in network-based collaborative innovation and problem solving: innovation integrator, innovation seeker, innovation champion, and innovation catalyst. It draws on examples to elaborate on these four roles. It also briefly considers the organizational competencies and capabilities that government agencies would need to succeed in such network-based collaborative innovation initiatives.

Network-Based Collaborative Approaches in Government

The notion of applying network-based collaborative approaches in the public sector is not new. Over the last fifteen years or so, the traditional hierarchical model of government has increasingly been replaced with a network model, where the government executive's core responsibilities center "on organizing resources, often belonging to others, to produce public value." However, this has largely been limited to the production and delivery of government services or operations. For example, in the 1990s, the Arizona Motor Vehicles Department (MVD) established a network of more than seventy private companies to handle its day-to-day operations such as vehicle title and registration, driver's license services, and vehicle inspections. Private companies that met the compliance standards set by the program and were duly qualified and authorized served as another channel to offer the services to the Ari-

zona public, enabling the agency to enhance the customer service quality without increasing the costs.

Such network-based, "third-party government" models are evident in many other areas of local, state, and federal government—from military operations, social services, and healthcare services to more mundane government tasks such as road maintenance and trash collection—and indicate the shift in government's role from being a service provider to a service coordinator. The success of such network-based government service delivery systems also indicates the potential to apply a similar network-based collaborative approach toward finding innovative solutions to some of the important problems in the public sector.

Network-based collaborative innovation is an externally focused, collaborative approach to innovation and problem solving in the public sector, which relies on harnessing the resources and creativity of external networks and communities (including networks of citizens, nonprofits, and private corporations) to enhance the range and quality of innovation outcomes or solutions.

The Blackfoot Challenge (www.blackfootchallenge.org), an early illustration, was a radically new approach to environmental conservation that took root in southern Montana in the early 1990s. Started by a few private landowners, it gradually involved a diverse set of partners (government agencies, private companies, and nonprofit organizations), all of which shared in the common vision of restoring the area's ecosystem and preserving a way of life in the watershed. Over the last fifteen years or so, the Blackfoot Challenge has produced remarkable results and illustrates the power of collaborative problem solving in the public sector. As this example shows, such a network-based, collaborative problem-solving approach needs to be built on four foundational principles: shared goals, shared world view, social knowledge creation, and architecture of participation (Table 1).

Four Roles in Collaborative Innovation and Problem Solving

Two important dimensions structure the landscape of collaborative innovation and problem solving in government. The first relates to the nature of the innovation

Satish Nambisan is a widely recognized researcher and thought leader in technology and innovation management and an associate professor of technology management and strategy in the Lally School of Management at Rensselaer Polytechnic Institute, Troy, NY. His new book, The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World, was published by Wharton School Publishing in October 2007. He can be reached at nambis@rpi.edu. This article is an abridged version of his report on collaborative innovation in government published by the IBM Center for the Business of Government, which can be accessed from www.businessofgovernment.org/pdfs/NambisanReport.pdf.

Table 1. Foundational Principles of Network-Based Collaborative Innovation

Key principle	Description	The principle applied in the case of the Blackfoot challenge
Shared goals and objectives	One or more goals that help bring the network members together and channel their diverse resources and activities	Enhance, conserve, and protect the natural resources and the rural lifestyles of the Blackfoot River Valley for present and future generations
Shared "worldview"	Common assumptions and mental models related to innovation and its external environment	Share understanding of environmentally responsible resource stewardship and the adoption of Best Management Practices (BMPs) both on and off conservation easement lands
"Social" knowledge creation	Interactions among network members as the basis for new knowledge creation	Hold different types of forums and establish committees to facilitate interactions and dialogue among private landowners, federal and state land managers, and local government officials and to generate and develop innovative solutions
Architecture of participation	Set of systems, mechanisms, and processes to facilitate participation in value creation and value appropriation	Establish a diverse steering committee to represent all interests in the watershed and facilitate widespread participation; through newsletters, educational workshops, and tours, diffuse best practices and other relevant information, enabling all partners to benefit from the initiative

Source: Adapted from S. Nambisan and M. Sawhney, *The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World* (Wharton School Publishing, 2007).

or problem and ranges from "well-defined" problems at one end to "emergent" or ill-defined problems at the other. The second relates to the nature of collaboration arrangement or network leadership and ranges from highly centralized or government-agency led at one end to highly diffused or community led at the other end.

These two dimensions together define four roles that government agencies can play in network-based collaborative innovation and problem solving (as previously mentioned): innovation integrator, innovation seeker, innovation champion, and innovation catalyst (Figure 1). Each role emphasizes partnerships with different types of external entities, different types of collaboration arrangements, and different types of innovation outcomes.

Government as Innovation Integrator

The first role—innovation integrator—reflects a government-led collaborative effort with external partners to solve well-defined problems related to the agency's existing services and programs (for example, developing a new type of weapons system). Thus, as innovation integrator, the government agency (1) brings together a set of external partners (typically private companies with specific capabilities and expertise), which innovate on the basis of defined innovation architecture, and (2) orchestrates or facilitates the integration of those contributions to develop the final product or service. Innovation processes tend to be highly organized and coordinated, and the government

substantially invests in infrastructure to support the activities of the network members.

Boeing's development of its new airplane, the Dreamliner 787, illustrates such a role in the private sector. Boeing assembled a set of global partners that it could trust with the process of creating entire sections of the plane, from concept to production. The design and development tasks were not just outsourced to these partners. Instead, they made financial investments in those tasks. In other words, Boeing made a critical shift from making its partners "build to print" to "design and build to performance." Although each global partner had a lot of autonomy with regard to the design of their individual components, a single decision maker on important design and development issues was needed, and Boeing played that role.

The innovation integrator role implies the need for government agencies to make a departure from the traditional government-contractor collaboration arrangement and move toward a more network-based collaborative approach (as illustrated in the Boeing example). The lead agency has to assume the sole responsibility for clearly defining the problem that needs to be solved and communicating the desired goals and outcomes to the primary network partners.

More important, as the case of Boeing 787 illustrates, truly collaborative problem solving means that the agency does not just "contract out" the design and development tasks to suppliers. Instead, it enables the part-

Figure 1. Four Roles in Collaborative Innovation and Problem-Solving

Innovation space	Network leadership	
	Government-led (centralized; formal structure/linkages)	Community-led (diffused; informal structure/linkages)
Emergent (new services/programs; unstructured problem space)	Government as innovation seeker	Government as innovation champion
Defined (existing services/programs; structured problem space)	Government as innovation integrator	Government as innovation catalyst

Source: Adapted from S. Nambisan and M. Sawhney, *The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World* (Wharton School Publishing, 2007).

ners to play a more inclusive role and ensures that they are sufficiently invested in the project (assume greater level of project risk) and also share in the rewards. In turn, this calls for greater alignment of goals and incentives among the diverse network partners, and achieving this becomes the key responsibility of the lead agency playing the integrator role.

Government as Innovation Seeker

In this role, the government agency seeks innovative ideas—that it can then develop into new services and programs—from a diverse network of citizens, volunteer scientists and researchers, and nonprofit organizations. The nature of the innovation tends to be emergent as the specific problems are not always prespecified by the agency. Instead, innovative ideas or solutions emerge from the network, often on the basis of “perceived problems” of key stakeholders, and if those solutions fit with the agency’s overall goals and agenda, then it implements them or transforms them into new services and programs.

Consider the illustration of this role in the private sector. Companies such as Procter & Gamble, Staples, Dial, Gillette, Sunbeam, and Unilever seek innovative product ideas from customers, independent inventors, and other such external sources and then use their proprietary commercialization infrastructure to build on the ideas and bring them to the market as new products and services. For example, Staples, the leading office supply company in the United States, holds idea contests called Invention Quests, in which independent inventors are invited to submit their ideas to Staples. Winning ideas are commercialized by Staples under the Staples brand name, and the inventor receives a share of the revenues.

Such an approach may extend to the public sector, too. Government agencies that play the role of the innovation seeker can harness the vast creative potential of the citizenry—either directly or indirectly (through intermediaries)—to create new services or to significantly enhance the quality and effectiveness of existing programs and services. For example, in areas such as health and human services, internal revenue services, citizen and immigration services, and transportation, government agencies have the potential to tap into the creativity of citizens and to seek ideas and solutions to problems that are not always visible to the agency.

For example, the Toronto Transit Commission (TTC)—the third-largest public transit system in North America—recently embarked on a radical approach to seek innovative ideas and solutions from its customers to improve the quality of the services. Assisted largely by the Toronto blogging community, TTC organized a unique one-day event called the Toronto Transit Camp (www.transitcamp.org), which brought together ordinary riders, transit activists, and technology geeks—online and in person—to collaboratively find creative ideas and solutions for enhancing TTC’s Web site and the user experience of transit in the city.

A wide range of tools and techniques are available for engaging citizens in such activities, both offline (polling, citizen study-circles, and citizen juries, for example) as well as online (dialogue forums and discussion boards, government blogs and wikis, etc.). In the case of the Toronto Transit Camp, collaborative problem solving was made possible by Web 2.0 technologies such as blogs, wikis, and social networking sites.

To succeed in the role of an innovation seeker, government agencies need to actively seek and sustain long-term relationships with relevant citizen networks and share

their broader innovation or reform goals—much the same way that Staples established relationships with independent inventors and shared the company's broader market goals. Government agencies also need to establish the internal process infrastructure to seek and facilitate such citizen innovation and to rapidly transform external ideas into new or improved services and programs.

Government as Innovation Champion

In certain public-sector contexts—such as environment conservation, emergency preparedness, and health-care—the government may not be the primary agent for innovation; that is, the problems being solved (as well as the potential solutions), even if related to the broad agenda of a particular government agency, may fall outside its realm of operations. However, the agency may still be able to bring together the relevant set of partners (including citizens, nonprofits, and private corporations) and champion or steer them toward innovative solutions that create significant public good.

The third role—innovation champion—emphasizes such a supportive role, which a government agency can play in contexts where a community of innovators come together to collaborate in envisioning and developing innovative solutions to address problems that are emergent in nature and fall mostly outside the existing service portfolio of the agency.

Consider the example of the Mid-Atlantic All Hazards Consortium (AHC) (www.ahcusa.org). AHC is a public-private initiative conceptualized in 2003 by a few government agencies in the states of Virginia and Maryland and the District of Columbia. It is aimed at adopting a regional approach to natural and terrorist disaster management in the Mid-Atlantic states. The AHC organizes the All Hazards Forum (AHF) that brings together private corporations, nonprofits, universities and other educational institutions, volunteer citizens, and government agencies in the Mid-Atlantic states to devise innovative solutions that address key problem areas in disaster management and emergency preparedness.

The lead government agencies that together form the board of directors of AHC play the role of an innovation champion in the network. Specifically, as innovation champion, they carry out three critical tasks: (1) identify potential network members and bring them to the initiative, (2) provide a structure or mechanism for members to conduct dialogue with one another in ways that lead to identification of the problems to be solved, and (3) pro-

vide an infrastructure for knowledge sharing among network members and facilitate cumulative knowledge creation or solution development.

The role of innovation champion emphasizes establishing and supporting a collaborative environment where the diverse stakeholders can come together to devise a shared understanding of the emergent problem and develop appropriate solutions.

Government as Innovation Catalyst

The fourth and final role—innovation catalyst—implies a context where the lead agency's existing services and programs structure the problem space (the problems being solved tend to be defined in terms of existing services), but the solutions to such problems are reached collaboratively and "owned" or implemented by the community that has a stake in solving them (including citizens, private companies, and nonprofit agencies). The agency's role is to catalyze such collaborative problem solving by helping to define the problem and sharing the information instrumental in solving it with the community.

In the public-sector context, the role of an innovation catalyst, while relatively nascent, holds considerable potential as a way for the government to engage external partners (particularly citizens and nonprofits) in solving problems related to existing services and programs but that might not fall within the agency's realm of operations. In such contexts, community-owned solutions may co-exist with—as well as complement or enhance the value of—the related services of the agency.

As an innovation catalyst, the government agency (1) attracts the "right" set of community members and shares a vision of the opportunities that exist for community-led problem solving with them, (2) provides access to relevant background information and resources to help the community members "discover" the problems and formulate innovative solutions, and (3) facilitates the implementation of those community "owned" solutions by providing appropriate access to the existing service or program infrastructure. Although the solutions might be "owned" and implemented by the community, they still need to operate within the parameters defined by local law enforcement.

In sum, the innovation catalyst role implies the potential for government agencies to go beyond the current "education" focus in initiatives such as the Citizen Corps and adopt an "innovation" or problem-solving focus to facilitate community-led collaborative efforts in ar-

areas where the problems and their solutions complement and enhance the value of existing government services and programs.

Implementing Collaborative Innovation and Problem Solving

Implementing these collaborative innovation roles requires government agencies to develop different types of capabilities and competencies (Table 2).

To get started on the collaborative approach, a government agency should conduct a critical assessment of its broader service or program goals and priorities and the types of problems that are visible on the broad landscape in which it operates. From this assessment, it should select one of the four collaborative problem-solving roles and develop a clear vision of how it is going to play the role. This requires making explicit the specific responsibilities and activities of the agency in that role. The agency should then identify the most relevant and valuable external partner for problem solving and the nature of part-

nerships that would be acceptable. Senior managers should assume the responsibility to communicate this effectively to all corners of the organization.

Conclusion

In conclusion, the promise and potential of the network-based collaborative approach to innovation and problem solving have been well demonstrated in the private sector in recent years. This article should help government agencies at every level—federal, state, and local—evaluate and pursue opportunities to engage diverse external partners in such collaborative problem-solving initiatives.

References

- Bulkeley, William M. "Staples Turns to Inventors for New Product Ideas," *Wall Street Journal*, July 13, 2006, B1.
- Goldsmith, S., and W. D. Eggers. *Governing by Network* (Brookings Institution Press, 2004), p. 8.
- Nambisan, S., and M. Sawhney. *The Global Brain: Your Roadmap for Innovating Faster and Smarter in a Networked World* (Wharton School Publishing, 2007).

Table 2. Success Factors in Collaborative Innovation and Problem-Solving

Collaboration capabilities	Innovation integrator	Innovation seeker	Innovation champion	Innovation catalyst
Cultivate a culture of openness	<ul style="list-style-type: none"> Ability to integrate partners as part of extended organization 	<ul style="list-style-type: none"> Ability to embrace non-traditional partners (and their ideas) in innovation and problem solving 	<ul style="list-style-type: none"> Ability to play supportive roles without "controlling" activities 	<ul style="list-style-type: none"> Ability to share proprietary information to support community-led projects
Create the right organizational structure	<ul style="list-style-type: none"> Ability to establish and maintain agencywide relationships 	<ul style="list-style-type: none"> Ability to bring coherence to diverse partner relationships 	<ul style="list-style-type: none"> Ability to identify and promote best practices 	<ul style="list-style-type: none"> Ability to identify and channel agency resources to external communities
Develop appropriate leadership and relationship skills	<ul style="list-style-type: none"> Ability to create a level playing field for external partners Ability to devise and communicate a shared set of goals and values 	<ul style="list-style-type: none"> Ability to enhance partner commitment to innovation Ability to minimize perceptions of power asymmetry 	<ul style="list-style-type: none"> Ability to give "voice" to diverse sets of stakeholders Ability to facilitate development of a shared set of goals 	<ul style="list-style-type: none"> Ability to nurture community-led problem solving by providing visibility to key problem areas
Adopt a portfolio of success metrics	<ul style="list-style-type: none"> Capabilities and reputation of partners Trust and commitment among partners Clear innovation goals 	<ul style="list-style-type: none"> Number of external ideas sourced Number of new services/programs generated from external ideas Number of partners 	<ul style="list-style-type: none"> Turnover in innovation community Extent of consensus building Speed of problem identification 	<ul style="list-style-type: none"> Intensity of activity in the community Value added to services and programs