

# A Manager's Guide to Choosing and Using Collaborative Networks



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IBM Center for  
**The Business  
of Government**



NETWORKS AND PARTNERSHIPS SERIES

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## F O R E W O R D

On behalf of the IBM Center for The Business of Government, we are pleased to present this report, "A Manager's Guide to Choosing and Using Collaborative Networks," by H. Brinton Milward and Keith G. Provan.

Government leaders are increasingly finding that using traditional hierarchical organizations does not allow them to successfully address complex problems, such as homeland security, emergency response to disasters, and the delivery of social services. As a result, they are beginning to explore the use of collaborative networks that reach across agencies and programs.

But networks are not a panacea to public problems. There are legitimate questions about when they should be used, for what purposes, and how they should be managed. Much academic literature has attempted to address these questions, but little has been written that is directly targeted to public managers who are wrestling with complex problems and trying to assess whether networks can help to solve them.

This report can be viewed as a public manager's primer on collaborative networks. It distills key concepts about the types and purposes of networks and, more importantly, what managers need to do if they find themselves in charge of or participating in a network. The authors' practical insights are rooted in more than two decades of observing ongoing networks, mainly at the local and regional levels, where much of the innovative work in using networks is occurring.



Albert Morales

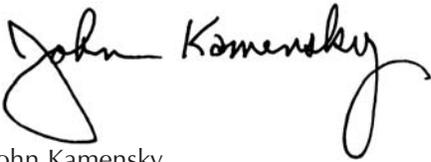


John Kamensky

We hope that this report serves as a useful guide for public managers across government, as they pursue ways to be more collaborative in delivering results citizens care about.



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## EXECUTIVE SUMMARY

This report on public network management attempts to integrate and critically evaluate what is known about the various kinds of networks and network management. The framework presented here allows public managers at the federal, state, and local levels, and those in the nonprofit and private sectors whose work is funded by government, to understand more clearly what kind of network they are attempting to manage or manage in. It will also provide a number of tools and methods that network managers can use to achieve network goals.

While there are many ways to divide up the world of networks, we have chosen two principles to organize the networks we have studied over the last 25 years—*purpose* and *task*. While social networks emerge from everyday interaction among individuals, networks of organizations emerge or are created for a specific purpose. Usually that purpose is to respond to a problem that either is currently occurring or is anticipated.

In this report we discuss four types of public management networks. The first type is a *service implementation network* that governments fund to deliver services to clients. Collaboration is critical because these networks are based on joint production of services, often for vulnerable citizens like the elderly, families on welfare, or the mentally ill. Integration of services is critical so clients will not fall through the cracks. The second type of network is an *information diffusion network*, whose central purpose is to share information across governmental boundaries to anticipate and prepare for problems that involve a great deal of uncertainty, such as earthquakes, wildfires, and hurricanes.

The third type of network (which often grows out of an information diffusion network) is a *problem*

*solving network*. The purpose of this network is to solve a proximate problem like the response to the attack on the World Trade Center and the Pentagon on 9/11. The problem that the managers confront demands immediate attention and shapes the nature of the response and the set of interorganizational relations that emerge. Past cooperative relationships prove useful in managing a problem solving network.

The fourth type of network is a *community capacity building network*, whose purpose is to build social capital in a community so that it is better able to deal with a variety of ongoing and future problems, such as substance abuse among youth. An effective community capacity building network allows a town or city to be more resilient and responsive when new problems emerge, as when methamphetamine emerged from drug labs to ravage certain communities.

Managing networks that do not have a hierarchical chain of command but which rely on trust and reciprocity as the levers of collaboration makes the tasks of managers much different from those in organizations. These tasks must be performed by network managers, like Coast Guard Vice Admiral Thad Allen, who led the recovery of New Orleans and the Gulf Coast in the wake of the devastation of Hurricane Katrina. But the tasks must also be performed by the managers of organizations who are part of a network, like the local police chief with a DARE (Drug Abuse Resistance Education) program in district schools that is part of a substance abuse prevention network but who manages a police department whose main purpose is to maintain law and order.

There are five different tasks that lead to effective network management. The first task is the *management of accountability*. With no chain of command,

this is a critical issue that both network managers and managers of organizations in networks must successfully negotiate. Key issues are determining who is responsible for what and how to respond to free riders who don't contribute their fair share but continually demand more resources.

The second task is the *management of legitimacy*, which is more critical for networks than organizations. A public organization is created by law to serve a particular purpose. A network is usually a cooperative venture that must continually negotiate its legitimacy, particularly if, as is often the case, its boundaries cross the public, private, and nonprofit sectors. Managers of organizations in networks must continually work to convince their stakeholders that their work with other organizations in the larger network continues to be valuable and worthwhile.

*Management of conflict* is the third task of network managers. Conflict can develop from differing goals among the organizations in the network, and the result cannot be resolved by commands issued from on high. It is important that network managers listen to the voices of their members and provide mechanisms for conflict resolution. These devices help to create dispute resolution mechanisms for conflicts that arise between managers of network organizations and network managers.

Just as there are design choices for organizations, there are design choices for networks, and the *management of design* (or governance structure) is a key issue. At an early stage of a network's evolution, it may be appropriate to operate (especially with only a few members) as a self-governed network that operates on the basis of consensus. A critical event in network evolution occurs when the existing governance structure fails. In a self-governed system, the requirement for consensus may give one recalcitrant organization veto power over the rest of the network members. At this point, the other members may consider going to a lead organization network, where one member shoulders the responsibility for network management as well as its other network duties. Many lead organization networks operate quite well, but sometimes the lead organization begins to identify its goals with the network's goals, leading to a crisis of leadership that may require the network, if it is to continue to exist, to adopt a network administrative organization network. This is

where the member organizations of the network create a specific organization whose task it is to manage the network. To ensure that the interests of member organizations continue to be represented, some members may serve on the network's board of directors.

*Management of commitment* in a network where most salaries are paid by individual organizations is a continuing task for managers of networks and managers in networks. Some organizations may feel they don't benefit as much from their association with the network as other organizations. Network managers need to be continually cognizant of the centripetal forces that threaten to destroy networks and deal promptly with the perception or reality of unequal distribution of resources in the network. A case manager in a child welfare network may feel a dual loyalty to the child welfare network as well as to her organization that provides foster care services as part of the range of services in the network. Training and joint problem solving exercises are effective ways to manage the commitment dilemma.

Managing a network or managing an organization in a network is a continual balancing act since collaboration cannot be forced by resort to command and control. Network managers will find that their job is challenging and consists of managing tasks that conflict. Accountability can conflict with commitment. One type of structure will solve some problems but create others. Still, networks have proven to be a very valuable public management tool that are chosen time and again because they are the only organizational forms that can operate horizontally, across a range of organizations, and integrate the strengths and talents of a variety of organizations in the public, nonprofit, and for-profit sectors to effectively address critical public problems.

# Introduction

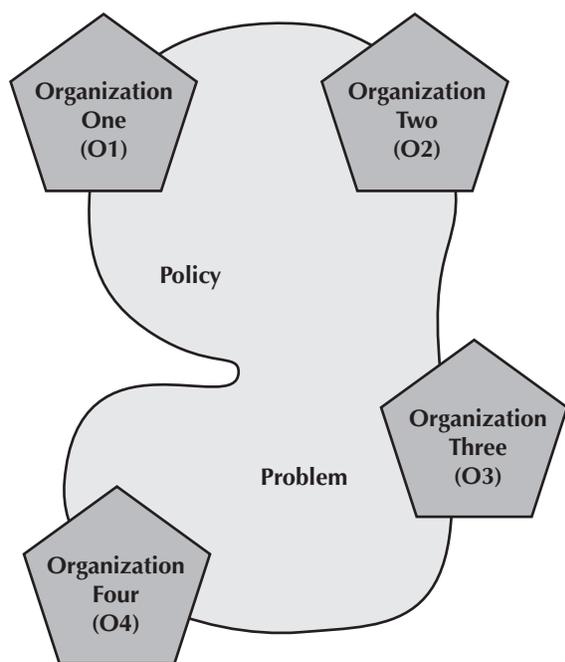
No matter what it is called—“hollow state” (Milward and Provan, 1993, 2000), “third party government” (Salamon, 1981), or “the market state” (Bobbitt, 2002)—almost all knowledgeable observers agree that government and governance have changed dramatically in the past 25 years. In what he calls the “global public management revolution,” Don Kettl has identified six common ideas behind the public management revolution: “the search for greater productivity; more public reliance on private markets; a stronger orientation toward service; more decentralization from national to subnational governments; increased capacity to devise and track public policy; and tactics to enhance accountability for results” (Kettl, 2005).

This revolution in public management has many different threads, some of which conflict (decentralization and accountability for results, for example). However, what is clear is that years of decentralization, devolution, and outsourcing have led to a world of “networked government” (Kamarck, 2002). Instead of organizing, providing, and managing services on its own, government has increasingly turned to contracting out these services, most often to nonprofit, but sometimes to for-profit, organizations. This increased contracting out of services has meant that public managers at all levels have had to coordinate and oversee the activities of the many organizations that government funds to ensure the smooth provision of multiple services to clients. Thus, government must not only manage its own internal operations, but it must also manage multi-organization networks (Goldsmith and Eggers, 2004).

These core ideas in the revolution in public management have led public managers to seek alternatives to traditional bureaucratic organizations to provide services to citizens in innovative ways. Two of these

ways are *contracting out* services to third parties and relying on *networks* of public, nonprofit, and for-profit organizations, instead of a bureaucratic hierarchy. Contracts may be a way in which two or more organizations are linked, but a set of contractual relationships is not the same as a network (Johnston and Romzek, 2000). Networks may be funded by grants, contracts, or fee-for-service arrangements (or a mixture of all three), but they use collaboration as a way of dealing with problems in a coordinated fashion that would be impossible for just one organization. The idea behind contracting is exactly the opposite of collaboration—competition, where two or more organizations are forced to compete for the contract. The network logic is that collaboration is needed to deal with problems that don’t fit neatly within the boundaries of a single organization.<sup>1</sup>

Collaborative networks are seen as appropriate devices to tackle public management problems like homelessness, child welfare, and terrorism. Figure 1 portrays a familiar relationship between public organizations and problems. Each organization (labeled 01, 02, 03, and 04) intersects with only part of the problem, and none of the organizations are linked in any kind of a collaborative relationship (Hjern, 1992: 4). This figure captures the rationale for public sector networks to collaborate to solve problems that cannot be contained within the boundaries of one organization. Since the problem is bigger than any organization, collaborating with other organizations is necessary if there is any hope of making progress in effectively managing the problem. If the problem represented in Figure 1 is terrorism, the organizations could be labeled the Federal Bureau of Investigation, the Central Intelligence Agency, the Department of Homeland Security, and the National Security Administration (Raab and Milward, 2003: 414).

**Figure 1: The Rationale for Collaboration**

Source: Hjern, 1992: 4.

There are many kinds of networks in the world. Each individual is part of a social network that links one to others in a variety of ways—friends, relatives, work colleagues, and so on. Each person is called a “node” in network terminology. Relationships, or linkages, among a group of individuals are commonly referred to as a social network, and the network as a whole is the pattern of linkages among

the individuals.<sup>2</sup> In this report, we examine networks of organizations—or what scholars call interorganizational networks—and discuss how managing a network or managing in a network differs from managing an organization.

Like a social network, an interorganizational network consists of linkages among a set of nodes, but instead of people, the nodes are organizations. The term organizational network has many different definitions. Most note that they consist of multiple organizations that are legally autonomous. Relationships (linkages) are based on cooperation and collaboration and, in the public sector, law and funding holds them together. The first network definition in the box below is by Laurence J. O’Toole, Jr. (1997: 45). We have used it as our definition of networks in our prior work, as has Donald Moynihan (2005: 6) in his IBM report and many other writers. While the second definition, by Michael McGuire (2003), is not widely cited, we like the fact that it recognizes that nodes and linkages are the core of a network and that in the public sector, networks span levels of government and sectors of the economy. The third definition, by Robert Agranoff (2004), nicely captures, in a general way, what goes on in networks of organizations but is a bit thin on the nature of the linkages among the actors.

### Definitions of Networks

1. “Networks are structures of interdependence involving multiple organizations or parts thereof, where one unit is not merely the formal subordinate of the others in some larger hierarchical arrangement. Networks exhibit some structural stability but extend beyond formally established linkages and policy-legitimated ties.... The institutional glue congealing networked ties may include authority bonds, exchange relations, and coalitions based on common interest, all within a single multi-unit structure.” (O’Toole, 1997: 45)
2. Networks are “structures involving multiple nodes—agencies and organizations—with multiple linkages. A public management network thus includes agencies involved in a public policy making and administrative structure through which public goods and services are planned, designed, produced, and delivered (and any or all of the activities). Such network structures can be formal or informal, and they are typically intersectoral, intergovernmental, and based functionally in a specific policy or policy area. That is, officials from government organizations and agencies at federal, state, and local levels operate in structures of exchange and production with representatives from profit making and not for profit organizations.” (McGuire, 2003: 4.)
3. “... [N]etworks of public organizations ... [involve] formal and informal structures, composed of representatives from governmental and nongovernmental agencies working interdependently to exchange information and/or jointly formulate and implement policies that are usually designed for action through their respective organizations.” (Agranoff, 2004: 63)

# Public Management Networks: Types and Purpose

In order to know how to manage networks or to manage an organization operating within a network context, network managers must first understand the purpose of the network. A great many types of networks have been proposed, especially in the rich literature generated by previous IBM reports by Agranoff (2004), Imperial (2005), Moynihan (2005), and others. This literature has been helpful in understanding the wide range of networks that are possible. However, what is needed now is to try to sort out the essential elements of networks of different types. Doing this is critical for effective management of networks, since some types of public networks have different managerial problems and challenges than others. While it is possible to carve up the network universe in many different ways, we identify four essential types of networks, each based on the fundamental *purpose* of that network. We recognize, of course, that, in practice, networks often have multiple purposes.

As many of the definitions we examined noted, the central characteristic of a public management network is the connections among people, programs, and organizations for the purpose of implementing public policy. The question for public network managers is, what kinds of connections are we talking about? In studies of networks, research has concentrated on two issues: (1) collaboration among the people and organizations that make up the network, and (2) the flow of resources—information, money, clients, contracts, and the technology to track them—among a set of interdependent organizations. It is collaboration and resources shared by a set of agencies that create the linkages that make up the network. Power in networks accrues to those who control the flow of these resources or are at the center of a web of collaborative activity. The structure of the network is cemented by the power and influence these connections provide those who govern the network.

The currency of a network is the trust and reciprocity that exist among its members. As Robert Axelrod (1984) famously said, trust and reciprocity “lengthen the shadow of the future” and reward those who choose to cooperate because people want to work with them again; therefore, the more trust and reciprocity in the network, the greater the ability of the network to accomplish shared goals. The task of network managers is to increase the stock of trust and reciprocity by creating incentives (using resources) and to increase their collaborative skills to build relationships within the network to accomplish network goals, whether it is environmental cleanup, alleviating homelessness, reducing teen pregnancy, or responding to a natural disaster.

Networks do not exist in a vacuum. Network managers need support from critical constituencies outside their network to accomplish their goals. Even with all the technology at its disposal, the government finds that homeland security becomes much more difficult without the cooperation of communities to identify potential terrorists. Network managers need skills at building alliances with external groups and relating effectively to diverse and often conflicting groups of stakeholders. Each one of these groups is critical for effective network management, but each will use its own evaluative criteria to judge how well a network is being managed (Provan and Milward, 2001). A child welfare network that quickly removes children from harm’s way may be accused of destroying families that could be repaired. Differing values (protecting children’s rights versus protecting the rights of parents) can lead to differing views about a network’s effectiveness. Also, a network manager who is very accountable to funders may be viewed as not very responsive to the needs of clients who require very expensive services.

Despite the increase in networked government over the past decade, most of what we know about management is derived from studies of how to manage individual organizations. However, the research literature on networks suggests that networks are quite different from organizational hierarchies. In particular, networks are generally collaborative, non-bureaucratic structures, involving autonomous organizations that are often responsive to a broad range of non-governmental stakeholders, while also working in interdependent ways with both government and other network providers. Thus, effective network management requires skills and development of coordinating structures that are not the same as those that might be effective for managing individual organizations.

Although much is now known about public networks, there is still a great deal of confusion about

how they should be managed. One of the main problems is that most of the work on the topic has drawn few distinctions among the types of public networks that exist or the purposes they serve, while assuming that issues of network management are similar for all networks. From our own fieldwork and from our analysis of the literature on networks, however, we have identified four distinct types of public sector networks. Our argument is a contingent one—public managers must understand what type of network they are managing and what its purpose is before they can manage it effectively. The four types of public networks we discuss here are *service implementation networks*, *information diffusion networks*, *problem solving networks*, and *community capacity building networks*. The key characteristics of each type of network are summarized in Table 1.

**Table 1: Public Management Networks—Types and Key Characteristics**

Network Type	Key Characteristics
<b>Service Implementation Networks</b>	<ul style="list-style-type: none"> <li>• Government funds the service under contract but doesn't directly provide it (frequently health and human services).</li> <li>• Services are jointly produced by two or more organizations.</li> <li>• Collaboration is often between programs of larger organizations.</li> <li>• Horizontal management of service providers is a key task. These can be firms, nonprofits, or government agencies.</li> <li>• A fiscal agent acts as the sole buyer of services.</li> <li>• Key management tasks include encouraging cooperation, negotiating contracts, planning network expansion, etc.</li> </ul>
<b>Information Diffusion Networks</b>	<ul style="list-style-type: none"> <li>• Horizontal and vertical ties between interdependent government agencies.</li> <li>• Primary focus is sharing information across departmental boundaries.</li> <li>• Commonly used for disaster preparedness and other "high uncertainty" problems.</li> <li>• Key network goal is to shape government's response to problems through better communication and collaboration.</li> <li>• May be either designed or emergent.</li> </ul>
<b>Problem Solving Networks</b>	<ul style="list-style-type: none"> <li>• Primary purpose is to help organizational managers set the agenda for policy related to a critical national or regional problem.</li> <li>• Focus is on solving existing complex problems rather than building relationships for future problems.</li> <li>• Often emerges from information diffusion networks.</li> <li>• Relationships may be temporary, to address a specific problem, and then become dormant after the problem is resolved.</li> <li>• May be either designed or emergent.</li> </ul>
<b>Community Capacity Building Networks</b>	<ul style="list-style-type: none"> <li>• Primary goal is to build social capital in community-based settings.</li> <li>• Network purpose is both current and future oriented (i.e., to build the capacity to address future community needs as they arise).</li> <li>• May be created by participants (bottom-up) or by private and government funders (top-down).</li> <li>• Often involves a wide range of agencies with many emergent sub-networks to address different community needs that may arise.</li> </ul>

## Service Implementation Networks

Service implementation networks consist of inter-governmental programs like Temporary Assistance for Needy Families (TANF) and services for those who are seriously mentally ill, the aged, abused and neglected children, and the developmentally disabled, which are often funded by federal grants to the states. From the federal and often the state perspective, the task is to manage programs that are lodged in public, private, and nonprofit organizations that actually deliver services directly to clients. The tools in the hands of federal and state managers consist of grants, contracts, rules, and training opportunities that, over time, can help to shape the way a given program is delivered at the local level. For services like this, government effectively becomes the sole buyer of services. Economists refer to this type of market as a *monopsony*.

At the local or state level, managing a service implementation network that actually delivers services is a horizontal management problem involving both assembly and joint production. Using some type of contract or fee-for-service arrangement, the network manager must assemble a set of largely nongovernmental third parties to jointly produce a service like community trauma care or drug and alcohol prevention. The money from each federal or state program usually flows to a lead agency or a network administrative organization, like a mental health authority, whose job it is to arrange for a set of services to be delivered to clients who qualify for the program. Horizontal network management requires a government-designated fiscal agent (like a mental health authority) that issues contracts (sometimes competitively) to specific organizations while urging them to collaborate with one another. Since no one organization delivers all of the services a client is likely to need, collaboration is essential if a client's needs are to be met. Managers of horizontal networks view service integration as their major task as they try to overcome the tendency of networks to fragment, which is why many of the managers we have interviewed think competitive contracting (often in a thin market with few sellers) is an impediment to collaboration. This may be the reason that studies of contracting for social services find that contracting is done no more frequently than required by higher levels of government, and that the same agencies often get the contracts year after year (Smith and Smyth, 1996).

In our national study of community mental health networks (Provan and Milward, 1995) we encountered an exceptional network manager. Charlie Maynard had been director of the Providence Center for almost 25 years when we met him. In the time he had managed the network of mental health services for Providence, Rhode Island, he had learned many hard truths about network management. He knew that his clients were cognitively impaired and that change often led to them compensating for the disruption by self-medicating with drugs and alcohol. He wanted a stable network that was predictable from the clients' point of view. In our studies we have found that Maynard was right: In a service implementation network, *stability is critical to network effectiveness*, and managers can have a good deal of control over this key factor.

There is a paradox at the heart of network management. Networks are often chosen because they are more flexible than bureaucratic agencies. However, because they are so flexible, they are fragile and need a good deal of stability to operate effectively. Maynard made sure that he had excellent relationships with key Rhode Island politicians and administrators, gaining their trust and making sure they were never blindsided by mental health issues involving his network. He did everything he could to stabilize his network's environment.

He did the same thing with the organizations in his network. While some managers grumbled about how long it took Providence Center to stabilize mentally ill clients, they all agreed that by the time the clients were sent to them for housing or job training services, the clients were able to effectively utilize the services the other agencies provided. In contrast to Maynard, managers of networks that weren't very effective were constantly tinkering with the network's structure and membership. We hesitate to claim that stability is critical for all public networks, but it is particularly appropriate for service implementation networks that serve vulnerable populations of adults and children for whom disruption of services is particularly harmful. However, we note that stability has been shown to be equally important in a nationwide study of trauma systems that became most effective after they had been operating between eight and 13 years (Nathens et al., 2001).

Controlling the ratio of clients to resources is critical in network management. Maynard understood that each network had a carrying capacity and that the number of clients who could be cared for effectively was determined by the available resources. He did two critical things. First, he attempted to control the number of people determined to be eligible for services in his network. He realized that there were many more people who needed services than he had the resources to provide and thus made very certain that mentally ill individuals clearly met all of the criteria for eligibility. He did not expedite the process since he recognized that the mental state of a client can vary. This policy did not endear him to advocates of the mentally ill, as it created a waiting list.

Second, he tried to manage his scarce resources as effectively as possible. In-patient psychiatric beds are enormously expensive. To determine the cost of providing psychiatric beds, Maynard leased a wing of a hospital and staffed it with his own psychiatrists so that he would know the cost of production of in-patient psychiatric services. There was no way that the leased beds could cover the needs of the whole Providence mental health network, but the information on costs proved extremely valuable in negotiating with the other hospitals for beds.

The structure of a network may not be chosen by the manager. Network structures may be determined in law or regulation. What we found in the case of the Providence network and the others we studied was that clear external control between the government and the fiscal agent and horizontal integration of the network between the fiscal agent and the providers were both efficient and effective (Provan and Milward, 1995).

### Service Implementation Networks: Management Insights

- Stability is positively related to effectiveness.
- Every network has a carrying capacity, and rationing may be necessary in a world of scarce resources.
- A fiscal agent who buys services needs to know the cost of production. It may make sense to produce some critical services as well as purchase them.
- Centralized collaboration promotes effectiveness.

## Information Diffusion Networks

Information diffusion networks are a common form of network within any level of government. Whether it is a joint task force on intelligence sharing in the wake of 9/11 or a state task force created in the wake of a child protective services horror story, the job is the same: Interdependent government organizations need to develop the means to share information across departmental boundaries so that disasters have a better chance of being avoided. Unlike the service implementation network, the product of an interagency task force is to shape government's response to problems through better communication and collaboration rather than more effective service provision, as with the service implementation network. It is the shared information that should lead to improved services produced by each agency. A terrorist watch list that combines the resources of the CIA, FBI, and foreign intelligence agencies allows the State Department consular officer to do a better job of screening out threats to the United States who may apply for a visa in a foreign country.

The National Institutes of Health and some medical foundations have managers whose task it is to manage knowledge that flows from the research that they fund, diffusing information among a set of researchers so that everyone in the program is informed of problems, protocols, and findings. The government of Canada has created networks of excellence in many different areas of health to improve information sharing among networks of doctors, researchers, and healthcare professionals. One of the newest networks is called AllerGen, which brings together allergists, geneticists, and immunologists around the funding of a set of research issues that the government of Canada has deemed critical after seeking advice from the community of practice (Snyder and de Souza Briggs, 2004) that has coalesced around the study of the genetic basis of allergic disease.

While AllerGen is a *designed* information diffusion network, there are *emergent* information diffusion networks. Big-city police chiefs in cities like Los Angeles, Washington, D.C., Chicago, and Las Vegas have banded together out of frustration with the "slow and sometimes grudging way that federal officials share information about terrorist incidents...." (Broder, 2005: A12). Spearheaded by William J. Bratton, the Los Angeles police chief, a number of big-city chiefs have instituted their own network

to share information about terrorist threats. While acknowledging that the information they receive from the FBI and the Department of Homeland Security is generally of high quality, it is received so slowly that it is rarely actionable. Police chiefs have to deploy officers and cordon off areas in real time if a threat emerges like the London subway or Madrid train bombings, and they view the federal information as more analytical in nature. Federal officials admit that the information they share has to be vetted before it is sent out, which takes time, and the police chiefs want raw, unfiltered information, even if it is later proved to be wrong, since good information received after a terrorist event is worthless.

What is so interesting about this case is that there is a formal, designed network in place where local police chiefs have a place at the table in the Homeland Security Operations Center, whose job is to diffuse information on terrorist threats to police departments all over the country. Chief Bratton is attempting to organize an emergent network in response to perceived weaknesses in this designed network. Bratton is working with the police departments in 10 to 15 U.S. and Canadian cities to share raw data on rapidly emerging terrorist threats. In a twist of irony, the actions of one network serve to create another to remedy the designed network's flaws. Out of this conflict comes a new type of network with a different purpose—a problem solving network.

### Information Diffusion Networks: Management Insights

- The goal is problem shaping rather than problem solving.
- The focus is on diffusion of new knowledge and best practices.
- Learning can come from emergent networks that grow out of opposition to the official designed network.
- Conflict clarifies choices.
- The successful conclusion to an information diffusion network is often a problem solving network (see next section).

## Problem Solving Networks

Problem solving networks have several different purposes. When an information diffusion network reaches a certain point, it can morph into a problem solving network that can help managers set the agenda in regard to policy toward a critical national or regional problem. In a decentralized and devolved political system like the United States has, it can help to shape the implementation of a new policy. After most states deinstitutionalized their mentally ill clients, the Community Support Program of the National Institute of Mental Health proved to be a very effective way of providing information and training to many public and nonprofit mental health managers about how to run a decentralized, community-based mental health system (Weiss, 1990).

Problem solving networks are also used in the case of disasters as a way to quickly solve the ensuing crisis. It can either be designed prior to a problem occurring, like a wildfire incident command system that can be adapted to a variety of settings, or it can emerge in the aftermath of an unanticipated problem. Donald P. Moynihan (2005) described the *designed* problem solving network in his IBM report, "Leveraging Collaborative Networks in Infrequent Emergency Situations." Emergencies of any magnitude are rarely contained within the boundaries of one organization, and public managers have struggled over many years to try to prepare for what Secretary of Defense Donald Rumsfeld calls "known unknowns." This characterization refers to events that we *know* will happen, the only *unknown* being when and where they will happen. Wildfires are an example of a known unknown. In the western United States, generally arid conditions and periodic drought create perfect conditions for seasonal wildfires. Whether started by lightning, a lit cigarette, or a campfire, every summer thousands of acres across the West go up in flames, sometimes threatening major cities like Los Angeles and San Diego.

Given the predictability of wildfires, it makes sense to plan for these occurrences. What has come to be known as the Incident Command System (ICS) was born out of the frustration of the lack of collaboration among agencies and levels of government in the face of these periodic wildfires. Congress required the U.S. Forest Service to design a system to alleviate these problems, and in the 1970s the Forest Service worked with the California Department of Forestry and

Fire Protection, Office of Emergency Services, and local police and fire departments in California to coordinate their firefighting efforts. The ICS has proved so successful in fighting wildfires that all federal agencies are required to use it for managing emergencies.

While there are many different elements of an ICS, three of them are critical. First, there is a designated chain of command. The ICS comes together around a problem, and when that occurs, there is no doubt as to who is in charge. Second, the ICS is modular. Pieces of various organizations can be placed under its command structure as needed. If fire crews from several different states are needed, they can be inserted or withdrawn as the wildfire expands or contracts. If it contracts, the fire crews can be inserted into other ICS networks, fighting fires in different states and various locations. This allows for very efficient utilization of fire crews, which are in short supply. Third, supplies and equipment are pre-positioned in locations where fires are likely to occur so that the ramp-up time to begin operations is greatly reduced. ICS supplies for fighting fires are cheap, and aircraft to drop fire suppressant or water, while in short supply, are highly mobile. In situations that require the pre-positioning of expensive supplies, such as medical ventilators that would be needed in a bird flu epidemic, it is much more difficult to justify this redundancy (McNeil, 2006: A19).

A word of caution is in order in choosing an ICS network. The effectiveness of an ICS is contingent on

it being utilized to address problems that are known and that reoccur. The predictability of the problem and the repeated implementation of the ICS allow the agencies collaborating to critique their performance after each fire and strive to improve their effectiveness over time. We worry about ICS becoming a victim of its own success if it is used against problems that are neither known nor predictable—what Secretary Rumsfeld calls “unknown unknowns.” It is in the area of homeland security, where we might face any number of previously unknown terrors, that this appears most likely to happen.

While we can argue about whether the FBI and the CIA should have done a better job of “connecting the dots” and thus averting the al Qaeda attack on the World Trade Center Towers and the Pentagon, few people thought that terrorists would (or could) successfully fly aircraft loaded with aviation fuel into buildings. When it did occur, an *emergent* network arose in New York to meet new and unique challenges. The emergent network that “unbuilt” the World Trade Center is beautifully described in William Langewiesche’s *American Ground* (2002: 83–141). It was not the Office of Emergency Management (whose office was destroyed in Building 7 of the World Trade Center complex), which on paper was supposed to lead the effort, but an obscure department in New York City government, the Department of Design and Construction (DDC), that ended up leading the unbuilding effort. Networks emerge because of existing relationships and entrepreneurial leadership. Langewiesche recounts how two men emerged to lead the unbuilding effort based on their willingness to act in the face of uncertainty and to rely on their expertise in construction to bring order to chaos. In the face of the conflicting needs of finding human remains, removing rubble, and shoring up a weakening sub-basement wall, Ken Holden and Mike Burton of DDC emerged to lead a network of 3,000 people to conduct the largest unbuilding project in American history. Since emergent networks are unique, it is difficult to develop a model for how managers should create one that will be effective. Nevertheless, there were certain things that can be learned about network management from this unique situation.

When confronted with questions about who was to lead the effort, Mayor Rudy Giuliani, a bold and pragmatic leader, supported DDC’s position, even

### ***Designed Problem Solving Networks: Management Insights***

- The problem to be solved must be a known unknown.
- The command structure should be designated in advance.
- Organizational modules that can be added and subtracted need to be created.
- Supplies must be pre-positioned in places where it is likely the problem will occur.
- Scarce resources must be mobilized to the maximum extent possible.
- After action reports should be conducted to compare performance to expectations.

### ***Emergent Problem Solving Networks: Management Insights***

- **Expertise is critical.** There is no substitute for expertise in an emergency. The New York City Department of Design and Construction (DDC) understood the construction business better than any of the other agencies (see page 15).
- **Relationships matter.** DDC had existing relationships with the four largest construction companies in the New York area. They immediately called these firms into action. The world of construction in New York is a network of individuals who have worked with one another many times in the past, and relationships about whom to work with are based on trust and reciprocity. DDC had an average of 800 ongoing construction projects at any one time.
- **Coordination is key.** The four construction firms brought in thousands of workers and every piece of construction equipment they could lay their hands on. Three of the firms hired subcontractors for much of their business. DDC divided the World Trade Center site into four quadrants, with each construction firm responsible for one quarter of the site. This reduced coordination costs and fights over whose job it was to do something. The DDC managers constantly walked the site and negotiated problems at the borders of these quadrants and among the large cast of agencies at the site—from police and firefighters recovering remains of their fallen comrades to Environmental Protection Agency officials.
- **Bold leadership is critical.** As Hurricane Katrina has shown, failure to act can make a disaster a catastrophe. In an emergency whose parameters are unknown, there is no substitute for leadership. This was certainly true for Mayor Giuliani, who assumed control and seemed to be everywhere while the silence in Washington was deafening. At the operational level, Holden and Burton simply assumed responsibility. Holden said, "None of us wondered, 'Should we contact the state? Should we contact the feds? FEMA? The Army Corps (of Engineers)?' It was just, 'We've got a disaster here. Let's fix it....' We had the equipment. We had the connections. We could handle it. We just went in and did what we had to do. And no one said no." (Langewiesche, 2002: 95).

though the department wasn't even mentioned in the city's emergency response plan. The result of allowing this emergent network to proceed was that the site was cleared much faster than anticipated with due respect to those killed in this American tragedy.

## **Community Capacity Building Networks**

Community capacity building networks have become very important in recent years. In the wake of Robert Putnam's pioneering work on social capital, a variety of federal agencies have challenged communities to create partnerships in areas like economic development or the prevention of drug and alcohol abuse (Putnam, 1993; 2000). The goal of the network is to build social capital so that communities will be better able to deal with a variety of problems related to education, economic development, crime, and so on. Federal agencies like the Center for Substance Abuse Prevention, which is part of the Substance Abuse and Mental Health Services Administration (SAMHSA) in the Department of Health and Human Services, have given grants to many communities if they will create a prevention partnership organization that will serve as a fiscal agent to coordinate drug and alcohol abuse prevention for youth.

We were involved in one of these grants that created a partnership agency whose job it was to weave together all of the prevention resources in an urban county with a population of just under a million people (Milward and Provan, 1998). At the very beginning of the grant, we were hired to map the network of potential partners who were interested in substance abuse prevention. The number of agencies was quite large and included police, school systems, parks and recreation departments, Boys and Girls Clubs, the YMCA, and the YWCA as well as many specific drug and alcohol prevention agencies, some governmental, some nonprofit, and some for-profit. The goal was clear—to increase the level of community awareness of substance abuse and increase the capacity of the county to decrease the level of youth substance abuse. It was acknowledged that this was not something that would happen in a year. The goal was to make progress, and the first step was to create an organization to coordinate the effort to reduce substance abuse.

This network was both emergent and designed. There had been prior prevention efforts that involved voluntary cooperation, and a group of organizations came together to write the grant proposal, but the Center for Substance Abuse Prevention grant award

required that one organization serve as fiscal agent and assume responsibility for network coordination. As an aside, it should be noted that while network researchers often exhibit a bias in favor of emergent networks (Jones, Hesterly, and Borgatti, 1997), there is very little evidence to support the assertion that emergent networks are more effective than networks that have been designed or mandated. In this case, a condition of the grant was that the set of substance abuse agencies that submitted the grant would have to create a fiscal agent to receive the funds, promote the cause, manage the network, and monitor its progress through periodic evaluations.

We began our work with the network by conducting meetings with representatives of all of the agencies and getting them to talk about who worked together in regard to substance abuse prevention. We soon found that there were major gaps in the network. The substance abuse agencies operated in one world; the after-school-based programs operated in another; and the police became involved in a crisis or very episodically through programs like DARE in the schools. At a series of meetings with agency representatives, we gave out network questionnaires and asked that the representatives indicate who they had relationships with and the nature of these relationships. Using a network analysis software program,<sup>3</sup> we graphed the relationships so that anyone looking at the results could clearly see which agencies were connected to which other agencies in several different ways—information sharing, referrals, contracts, and joint programming. The response to the analysis was quite interesting. When the network maps were

### Community Capacity Building Networks: Management Insights

- The network of agencies and organizations involved in your area must be mapped.
- It's essential to work with community leaders to compare the relationships shown on the map with what you believe to be the desired level of collaboration.
- The map can be used to formulate a strategic plan to weave the network closer together.
- The network should be mapped at intervals to document progress.

presented, it verified what leaders of the prevention partnership had been saying—that there were a number of independent networks of substance abuse prevention with little connection between them. In addition, there were some agencies, particularly in the more rural parts of the county, that were completely isolated.

The response to these “network snapshots” was to create a strategic plan to weave the elements of the substance abuse prevention community together much more closely. There was a great deal of discussion about how to bring the isolated agencies to the table and how to bridge the different worlds of substance abuse prevention to create a more coordinated approach to what was clearly a community-wide problem. Seeing the gaps in the networks created a movement to bring the community together around this problem.

### Resources on How to Map Community Networks

Valdis Krebs and June Holley. 2005. Building Adaptive Communities through Network Weaving. *The Nonprofit Quarterly* (Winter): 66–72.

H. Brinton Milward and Keith G. Provan. 1998. Measuring Network Structure. *Public Administration* 76 (Summer): 387–407.

Keith G. Provan, Mark A. Veazie, Lisa K. Staten, Nicolette I. Teufel-Shone. 2005. The Use of Network Analysis for Strengthening Community Partnerships in Health and Human Services. *Public Administration Review* 65: 603–613.

# Essential Tasks for Network Managers

No doubt there are countless small things that managers can do to enhance the effectiveness of their network. Rather than getting into these details, we propose what we have found to be five broad and essential tasks that managers must perform if their networks are to be successful. The importance of each task is based both on network research and on our extensive consulting experience. A critical point is that each network management task has both network- and organization-level implications. That is, each task is essential both to the role of the managers *of* networks, and to the role of managers operating *in* networks. Effective networks must have both. Managers *of* networks are concerned with the network as a whole. These are typically individuals who are charged with the task of coordinating overall network activities and, in general, ensuring that network-level goals are set, addressed, and attained. The goals and success of organizational members become secondary to the network as a whole. Managers *in* networks are individuals who represent their organization within the network. They are managers whose primary loyalty is to their organization, but who must work within a network context, addressing both organization- and network-level goals and objectives. These managers have split missions and, sometimes, split loyalties. The essential tasks of both types of managers are explained below and summarized in Table 2.

## Management of Accountability

Accountability in networks is sometimes discussed, but, in practice, it is often marginalized. While organizations have clear lines of authority and responsibility based on hierarchy, networks are essentially cooperative endeavors. All network members may agree in principle that they should share in the work, but, in practice, it is easy to shirk responsibility and

assume that someone else will be responsible for a particular network activity or outcome. Nonetheless, maintaining accountability is critical for network performance and for continued flow of resources.

Network managers have a major responsibility to ensure that those who participate in a network are responsible for their share of network activities and are held accountable for their actions, at least relative to network-level goals. In part, this means monitoring network members to ensure participation and to protect against the “free rider” problem, which refers to members who perform little or no work but who reap the network’s benefits. Network managers must be willing and able to expect members to participate and to take responsibility for their actions (or lack of actions) relative to the purpose and goals of the network as a whole. If some members do not do their share of the work and contribute little to network-level goals, then it is the role of the network manager to try and work around them or even to encourage other network members to exclude these free riders from beneficial network activities. On the positive side, network managers can and should reward, especially through providing available resources, those members who take a broader, network-level perspective, working to achieve not just their own organization’s goals but also those of the network as a whole. For instance, network managers may encourage development of joint programs among active network members while discouraging referrals to organizations that do not reciprocate. In networks, incentives take the place of a chain of command in organizations.

At the level of the individual organization, managers *in* networks have a responsibility to ensure that their organization contributes to the network,

**Table 2: Management Tasks in Public Networks**

<b>Essential Network Management Tasks</b>	<b>Management of Networks</b>	<b>Management in Networks</b>
<b>Management of Accountability</b>	<ul style="list-style-type: none"> <li>• Determining who is responsible for which outcomes.</li> <li>• Rewarding and reinforcing compliance with network goals.</li> <li>• Monitoring and responding to network “free riders.”</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring your organization’s involvement in the network.</li> <li>• Ensuring that dedicated resources are actually used for network activities.</li> <li>• Ensuring that your organization gets credit for network contributions.</li> <li>• Resisting efforts to “free ride.”</li> </ul>
<b>Management of Legitimacy</b>	<ul style="list-style-type: none"> <li>• Building and maintaining legitimacy of the network concept, network structures, and network involvement.</li> <li>• Attracting positive publicity, resources, new members, tangible successes, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrating to others (members, stakeholders) the value of network participation.</li> <li>• Legitimizing the role of the organization among other network members.</li> </ul>
<b>Management of Conflict</b>	<ul style="list-style-type: none"> <li>• Setting up mechanisms for conflict and dispute resolution.</li> <li>• Acting as a “good faith” broker.</li> <li>• Making decisions that reflect network-level goals and not the specific interests of members.</li> </ul>	<ul style="list-style-type: none"> <li>• Working at the dyad level to avoid and resolve problems with individual network members.</li> <li>• Working inside your organization to act as a “linking pin” to balance organization versus network demands and needs.</li> </ul>
<b>Management of Design (Governance Structure)</b>	<ul style="list-style-type: none"> <li>• Determining which structural governance forms would be most appropriate for network success.</li> <li>• Implementing and managing the structure.</li> <li>• Recognizing when structure should change based on network and participant needs.</li> </ul>	<ul style="list-style-type: none"> <li>• Working effectively with other network participants and with network-level management, based on the governance structure in place.</li> <li>• Accepting some loss of control over network-level decisions.</li> </ul>
<b>Management of Commitment</b>	<ul style="list-style-type: none"> <li>• Getting the “buy-in” of participants.</li> <li>• Working with participants to ensure they understand how network success can contribute to the organization’s effectiveness.</li> <li>• Ensuring that network resources are distributed equitably to network participants based on network needs.</li> <li>• Ensuring that participants are well informed about network activities.</li> </ul>	<ul style="list-style-type: none"> <li>• Building commitment within the organization to network-level goals.</li> <li>• Institutionalizing network involvement so that support of network goals and participation goes beyond a single person in the organization.</li> </ul>

through its activities and resources, and that their organization is held accountable for its actions. This may mean that specific resources (money, facilities, personnel, etc.) are set aside to work specifically on network activities. At the same time, it is also up to the managers of organizations working in networks to ensure that their organization gets its fair share of network-level recognition and resources. Accountability is two-sided and implies both a will-

ingness to take responsibility for one’s actions and an expectation that these actions will be recognized.

### **Management of Legitimacy**

Legitimacy isn’t asserted; it is externally conferred. It is not something that an individual or organization confers upon itself; rather, it is based on reputation and social acceptance. Legitimacy is especially

important in the public and nonprofit sectors, where measurable outcomes are often difficult to achieve. When goals can be either vague or conflicting and performance outcomes are difficult to measure, legitimacy is frequently used as an alternative indicator of effectiveness and success. Like organizations, networks also need to be legitimized. Unlike formal organizations, however, networks are less readily understood and identifiable forms, thus making legitimacy critical for ultimate success (Human and Provan, 2000).

In a network setting, managers must be concerned with both the internal and the external legitimacy of the network. For managers *of* networks, these tasks can be considerable. Externally, managers must be able to attract new members, secure needed resources (through grants, contracts, etc.), generate good publicity, and, in general, convince outside groups that the network itself is a viable entity that can and will be effective in addressing and resolving complex public problems. In practice, this may involve working with non-network community groups and organizations to build confidence and support. For instance, to build legitimacy, the network administrator of a health network for people with no insurance may talk to small business owners (many of whom do not provide health insurance for their employees), chamber of commerce members, and the leaders of hospitals and health clinics not already included in the network. The health network administrator may also work to build support among government agencies and politicians, sometimes to generate financial resources but other times simply to make the network's activities known among community leaders.

Internally, managers must be able to maintain the legitimacy of the network to member organizations, by encouraging and supporting interaction, providing needed resources, and, in general, ensuring that member organizations act and think like they are part of a network, not simply autonomous entities. In practice, building network legitimacy can occur through activities as simple as holding regular meetings, talking regularly to network members, and writing and sending out a newsletter to network members and other interested non-members to build support and recognition.

We have worked with a network manager who is a master of creating and expanding network legitimacy. Janice Popp is director of the Southern Alberta

Child & Youth Health Network (SACYHN) based in Calgary. Her network is part of the government-sponsored Child and Youth Health Networks of Canada. Early in the network's life, Popp sponsored a review of network research and what it meant for effectively managing networks, which she shared widely with members of her network and the other Canadian networks. The newsletter that SACYHN sends out is informative, celebrates small wins for the network, and includes new network research findings. It features the activities of agencies who are members of the network. SACYHN sponsors training for network members in effective network management and makes sure that members in remote locations are included through videoconferencing. At the national level, Popp maintains a high profile in encouraging other networks to seek government or foundation funding for network evaluation of Canadian child and youth health networks. Her personal style is unfailingly cooperative, and she makes a point of maintaining excellent relations with political officials in Alberta. Her board includes many powerful individuals including the wife of Alberta's premier.

The managers of organizations working in a network context also have a responsibility to build and maintain network legitimacy. They need to represent the network through their own involvement with outside groups, thereby enhancing network-level legitimacy through organization-level interactions. A key member of the Community Partnership of Southern Arizona, a mental health network, sponsors the "Arizona Women's Conference" every year, which recognizes the fact that the workforce in the human services area is overwhelmingly female. There are training sessions in both advocacy and management skills, and prominent women are featured as plenary speakers. This conference is supported by the staff of this key agency because the conference is a way to support a cause that the director believes in and that increases the legitimacy of his agency within the community.

In addition, managers *in* a network must establish the legitimacy of their own organization as a viable network player. It is relatively easy to lose autonomy and recognition when operating as part of a network of 20 or more organizations. While legitimacy of the organization should not come at the expense of the network, it is important for the viability of the network as a whole to ensure that individual

network members are viewed by the other network members as legitimate participants. In the Community Partnership of Southern Arizona, key member agencies sit on the board of the network both to give them ownership and to allow them to identify with the needs of the network as well as their individual agencies. It is thus the task of managers within networks to balance the legitimacy needs of the organization as an autonomous entity with its needs as a valued and important member of the network as a whole.

## Management of Conflict

A critical task for the manager of a network is to ensure that conflict is managed appropriately and constructively. Although network organizations generally commit to achieving network-level goals, conflict among network participants is inevitable. Networks, by their very nature, are composed of multiple members with different organization-level goals, methods of operation and service, and cultures. Some drug treatment agencies believe that abstinence and group support from former drug addicts in a 12-step program is the optimal treatment model. An agency with this culture may have trouble working with an agency whose culture supports a model that utilizes highly trained medical personnel and psychotropic drugs for behavioral health problems.

Participating organizations also have their own stakeholder groups and funders that may be in direct conflict with those of other network members. It is, thus, an important task for network managers to try to minimize the occurrence of conflict and to resolve it successfully if and when it does occur. Conflict need not be detrimental, of course, and, in fact, may contribute to innovative solutions to complex problems by clarifying choices that face the network. However, the existence of frequent conflict among network members often undermines the establishment of trust, which is critical for the collaboration that distinguishes a network from a group of organizations tied together through mandate or only through contracts.

Network-level managers have an important role to play in resolving conflict. They must be continuously “tuned in” to the views of network members and must be prepared to intervene through discus-

sion and negotiation to resolve conflicts before they become overly troublesome. To do this effectively, a network manager must be objective and fair-minded, while clearly supporting the goals of the network as a whole, rather than siding with one organization or another. In this regard, network managers must not only manage network activities, but they must also be able to act as “good faith” brokers. For instance, in emergency response networks, participating agencies may be overly concerned with “turf” issues related to who should do what, when, and where. These sorts of conflicts must be anticipated and resolved prior to mobilization of the network so that the network’s activities are not disrupted or undermined by squabbling and disagreement. As mentioned earlier in the section on problem solving networks, Incident Command System networks have a command structure agreed to in advance. That way, in the case of wildfires or other disasters, a hierarchy of command is in place so that conflicts are resolved by the on-scene leader.

In less formalized networks, such as community care networks (Weiner and Alexander, 1998), conflict arising from turf issues about which organization serves which patients, in what specific ways, and who gets access to what resources are resolved on an ongoing basis and are, in part, addressed by the network manager. But these conflicts must also be addressed by the network members themselves. Regarding this last point, the managers *in* networks have an important role to play in the conflict resolution process. These managers must work as “linking pins” between their own organization and its stakeholders, and the other network participant managers. It is their responsibility to work cooperatively with the other managers to ensure that problems and conflicts are resolved early, prior to the need for intervention by the network manager.

## Management of Design

When most people talk about networks, they generally think of a group of organizations that collaborate with one another and govern themselves. There is no particular structural decision to be made other than either to form a network (or be part of one) or not to form a network (or not be part of one). In reality, the decision is much more complex. While some networks more or less form on their own with little conscious decision about what form it will

take, most networks, at some point in their evolution, will be guided by a design decision. That is, some decision will need to be made about how the network should be structured and governed, and then the governance form chosen must be implemented. This decision, as noted earlier, can be made by government or foundation officials as a condition of funding or, more preferably, by the members of the network who have to live by the structure they have chosen.

The most basic task for network-level managers is determining which structural governance forms would be most appropriate for network success. Recent work by Provan and Kenis (2005) has outlined three basic forms of network structure: self-governance, lead organization governance, and network administrative organization (NAO) governance. As they argue, the choice of one form versus another is not simply arbitrary, but involves careful consideration of which form is best suited to network needs and conditions. For instance, the most commonly used form, self-governance, in which all network members take an active role in network management, is only appropriate when a small number of organizations are involved. When many organizations participate in a network, network management becomes highly complex, resulting in the need for more centralized network design, either

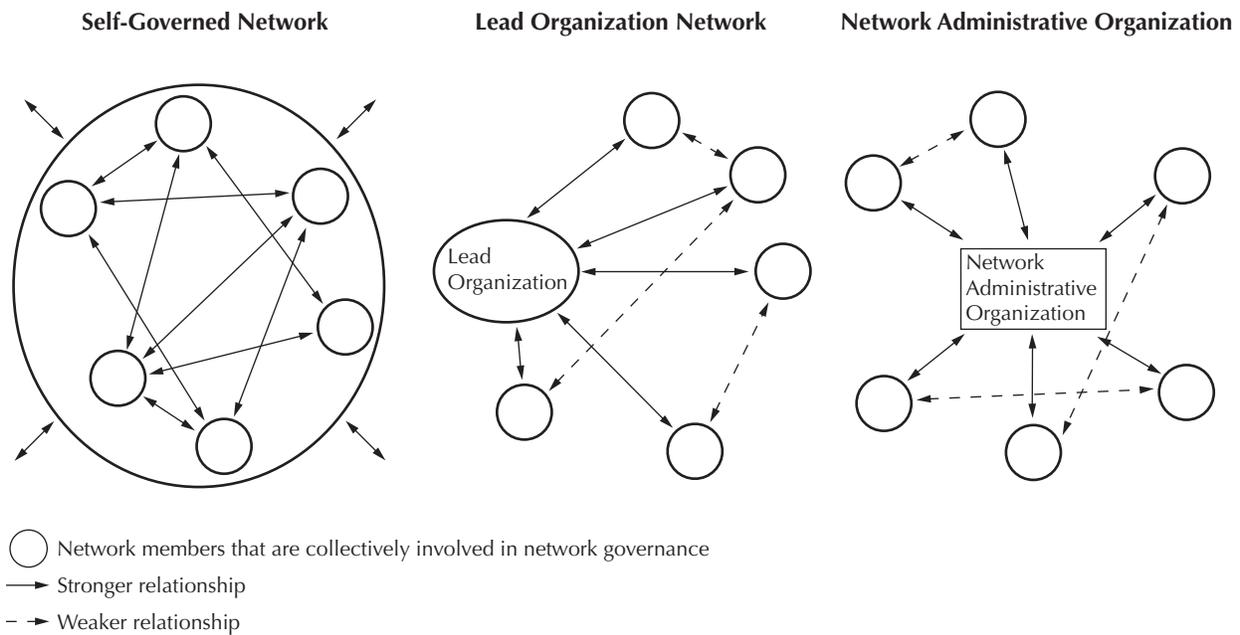
in the form of a lead organization form or an NAO form. Each of these three forms and their key characteristics are described in Table 3. They are graphically illustrated in Figure 2.

The main point for network managers is that an appropriate network design must be chosen and then implemented. As network needs change, network managers must be alert to shortcomings in network structure and be prepared to adopt a new form. This task of managers also means that they must be prepared to work with network participants both to recognize and to facilitate the change. Adoption and successful implementation of a governance form, or structure, is critical for sustainability of the network as it evolves.

For instance, one network studied by one of the authors evolved through several different design forms. This network, operating in a mid-sized city, focused on prevention of chronic disease related to obesity and the provision of services to people with diabetes and other obesity-related health problems. The network was first constructed informally by several program managers and executive directors representing the local community health center, a hospital, and several nonprofits. The design of this network was through self-governance. Each of the agency representatives interacted with one another

**Table 3: Alternative Forms of Network Governance—the Management of Design**

Design Characteristics	Self-Governance	Lead Organization	Network Administrative Organization
<b>Structure</b>	No administrative entity, participation in network management by all members	Administrative entity (and network manager) is a major network member/service provider	Distinct administrative entity set up to manage the network (not a “service provider”)—manager is hired
<b>Optimal number of members</b>	Few	Many	Many
<b>Decision making</b>	Decentralized	Centralized	Mixed
<b>Advantages</b>	Participation, commitment by members, ease of forming	Efficiency, clear network direction	Efficiency of day-to-day management, strategic involvement by key members, sustainable
<b>Problems</b>	Inefficient—frequent meetings, difficulty reaching consensus, no network “face”	Domination by lead organization, lack of commitment by members	Perception of hierarchy, cost of operation, complex administration

**Figure 2: Modes of Network Governance**

Source: Provan and Kenis (2005).

on a regular basis by phone and met on a monthly basis to coordinate their activities. This mechanism worked well when the network was small and when network involvement was limited mostly to coordinating client referrals and sharing some staff members. But the success of the network soon resulted in many more health and social service agencies wanting to be involved. In addition, because the treatment and prevention of obesity-related illness was so critical to the community's public health, several government agencies became involved. While the group still met on a monthly basis, it was clear that self-governance would no longer be sufficient to keep the network effective regarding the services being provided.

One alternative considered was to have the community health center or the hospital take a lead role in managing the network. This idea was favored by some, especially by the health center, since its involvement in the network had been so central in the past and since it had so much to gain by improved community health. But many network members resisted the idea of a lead organization form since they thought it would undermine the cooperative spirit of the network. Instead of working cooperatively, they feared that having the health center manage the network would lead to domination of the network and a resultant loss of interest in the network by many key members. The problem came to a head when the

network received a sizable foundation grant. Either a lead organization had to take the role of fiscal agent to manage the grant, or an alternative structure had to be established.

The solution was to form a network administrative organization. The NAO was set up as a 501(c)3 nonprofit corporation with a governing board consisting of representatives from the most active network organizations. The network also had its own executive director, with a part-time administrative assistant. The governing board considered all strategic-level decisions while the executive director addressed all operational decisions, sought additional grant funding, resolved conflicts, and kept the network going on a day-to-day basis. Some members of the network were still somewhat skeptical about the arrangement, thinking that the new NAO smacked of the very sort of hierarchy they had tried to avoid through self-governance. However, over time, the smoothness of the operation won over most members.

For managers of organizations operating in network settings, the management of design can mean several things. First, if a self-governance form is adopted, organizational managers, in effect, become network-level managers since all members participate in network governance. Thus, all managers are expected to work closely with one another to ensure that

network-level goals are addressed and that network outcomes, rather than just organizational outcomes, are attained. Second, if a more centralized structure is utilized, such as a lead organization or NAO form, network managers have a responsibility to work closely with the network-level manager. It means accepting the fact that decisions will be made by network-level managers that are not necessarily in the best interests of individual network members. This loss of control can be difficult, but it is necessary if the network as a whole is to be sustained and effective in accomplishing its goals.

## Management of Commitment

Finally, network managers have the important task of making sure that the level of commitment is sufficiently high to ensure that network-level goals can be attained. In particular, network managers at both levels must work to institutionalize key network relations. Doing this is critical for network sustainability. Commitment ensures that relations are not based solely on the personal ties of a single individual in each network organization, but that, instead, participant *organizations* commit resources and personnel to the relationship in ways that go beyond a single individual.

At the network level, managers must first recognize that all organizations in the network and all individual representatives are not equally committed to the network and its goals. People frequently speak of “the network” as if all organizations participated equally. In fact, networks consist of many organizations with varying levels of involvement. In particular, many organizations have multiple programs and services, only some of which are even related to the goals of the network. Thus, while it may be convenient to say that an organization is part of the network, it may be more accurate to say that a particular program of the organization is part of the network, while its other programs and clients are not involved. For instance, while schools may be involved in community policing networks, this is only a small part of their overall mission. While police departments may be involved in mental health networks, their broader mission is to protect the community, not serve the mentally ill. These organizations are only partially committed to the network and only some of their clients are involved. In fact, in service implementation networks that are linked at the program level, a single organization may be involved in several different networks.

It is the task of network-level management to build and maintain the commitment of all network members, recognizing that not all members will be involved to the same extent. Resources and benefits must, of course, be allocated differentially based on level of commitment. But resources can and should also be used to help build the commitment of those network members who are currently only peripherally involved, but whose commitment may be critical for overall network success in the future. Part of the commitment-building process may not involve the allocation of resources at all, but may simply involve providing information to members about what the network is doing and how it is contributing to community-level goals and client outcomes.

At the organization level, managers in networks have the critical task of building commitment of their organization to the goals of the network as a whole. One critical way of doing this is to ensure that multiple people are involved. When support is built throughout the organization, commitment to the network becomes institutionalized, so that if one individual were to leave, network connections would still be maintained. It is especially important for the value of the network to be established vertically within the organization so that administrators, and not just program staff, are committed to the network. Conversely, network agreements made only by an administrator, with little or no involvement by program staff, will not be successful unless commitment is built across organizational levels.

# Conclusion

While each type of network (based on purpose) has its own unique characteristics and challenges, all must be managed effectively. To do that, network managers need to accomplish an interrelated series of tasks. Likewise, managers in networks have a challenging set of tasks as well.

To date, most of the literature on networks has focused on discussing their value for addressing complex public problems. Networks have been considered as unique multi-organizational forms that are different from either informal market-based arrangements or formal hierarchy-based organizations. Although the difficulties of networking are often discussed, networks are often thought of as panaceas for problems that cannot be solved by traditional governmental organizations. While networks can be extremely useful for addressing public problems, the reality, of course, is far more complex, as we have tried to demonstrate in this report. In particular, networks are often difficult to form and sustain, and outcomes are not always positive.

What we have argued here is that addressing complex public sector problems effectively is not simply dependent on whether the problem is managed through a hierarchy versus a network. While networks have many advantages over hierarchies, networks can certainly be ineffective and fail. As with organizational hierarchies, effectiveness depends heavily on good management. However, organizational and network management are quite different, and the success of networks in addressing public problems depends on effective network management. Unfortunately, except for some general discussion of the topic, there is little that has been written on the tasks of network managers, and even less of what has been written has been based on research studies.

Such a discussion is critical for providing public managers with an understanding of exactly what needs to be done to enhance the likelihood that networks will, indeed, achieve the level of success that many have expected. We hope that this discussion of the various types of networks that serve a variety of purposes—service implementation networks, information diffusion networks, problem solving networks, and community capacity building networks—has contributed to the knowledge of network management. Likewise, we also hope that the discussion of the tasks of network management—accountability, legitimacy, conflict, design, and commitment—provides a basis for network managers and those who manage in networks to consider these key tasks and the potential trade-offs among them.

# Endnotes

1. In the real world, hard and fast distinctions tend to blur at certain points. Collaboration and contracting come together with what economists call “relational contracting,” which is contracting that is based on trust and reciprocity (just like networks) rather than a written contract that specifies what both parties’ obligations are in great detail. Relational contracts are typically kept in place as long as they serve the interests of both parties rather than being competitively bid with some frequency. They tend to be used for goods or services where price is less important than quality.

2. For an excellent layman’s guide to social network analysis, see Duncan J. Watts, *Six Degrees: The Science of a Connected Age* (New York: W. W. Norton and Company, 2003).

3. The network analysis program we used for mapping the network was UCINET, which is available from Analytic Technologies at <http://www.analytictech.com/>.

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Professor Milward's research interests revolve around the intersection of public policy and management. He has focused much of his recent work on understanding how to efficiently and effectively manage networks of nonprofit organizations that jointly produce public services like mental health. His most recent work is comparing private firms and nonprofit agencies that deliver the same services under government contracts. His recent article "Dark Networks as Problems" has been widely cited for its application of network analysis to terrorist networks, human trafficking, drug smuggling, and other illegal activities. His research has been funded by the IBM Center for The Business of Government, the Aspen Institute, the National Institute of Mental Health, and the Substance Abuse and Mental Health Services Administration.



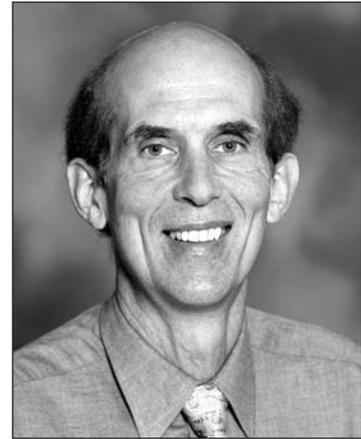
Milward is a Fellow of the National Academy of Public Administration and served as the first president of the Public Management Research Association. He served as president of the National Association of Schools of Public Affairs and Administration and has served on the Policy Council of the Association for Public Policy Analysis and Management. He has also served (twice) as chair of the Public Administration Section of the American Political Science Association and as chair of the Public and Nonprofit Division of the Academy of Management.

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