

---

Wicked Problems, Knowledge Challenges, and Collaborative Capacity Builders in Network Settings

Author(s): Edward P. Weber and Anne M. Khademian

Source: *Public Administration Review*, Vol. 68, No. 2 (Mar. - Apr., 2008), pp. 334-349

Published by: [Wiley](#) on behalf of the [American Society for Public Administration](#)

Stable URL: <http://www.jstor.org/stable/25145606>

Accessed: 02-08-2015 02:44 UTC

---

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Wiley and American Society for Public Administration are collaborating with JSTOR to digitize, preserve and extend access to *Public Administration Review*.

<http://www.jstor.org>

**Edward P. Weber**  
Washington State University  
**Anne M. Khademian**  
Virginia Tech

## Wicked Problems, Knowledge Challenges, and Collaborative Capacity Builders in Network Settings

**Edward P. Weber** is director of the Thomas S. Foley Institute for Public Policy and Public Service and associate professor of political science at Washington State University. He is the author of *Pluralism by the Rules: Conflict and Cooperation in Environmental Regulation* (Georgetown University Press, 1998), *Bringing Society Back In: Grassroots Ecosystem Management, Accountability, and Sustainable Communities* (MIT Press, 2003), and many articles examining the growing use of innovative regulatory programs, accountability, and entrepreneurial public management frameworks.  
**E-mail:** weber@wsu.edu

**Anne M. Khademian** is an associate professor in the Center for Public Administration and Policy and the School for Public and International Affairs at Virginia Tech. She is the author of *Working With Culture: The Way the Job Gets Done in Public Programs* (CQ Press, 2002), *Checking on Banks: Autonomy and Accountability in Three Federal Programs* (Brookings Institution, 1996), *The SEC and Capital Market Regulation: The Politics of Expertise* (Pittsburgh 1992), and articles in public management and public policy.  
**E-mail:** akhademi@vt.edu

*Networks have assumed a place of prominence in the literature on public and private governing structures. The many positive attributes of networks are often featured—the capacity to solve problems, govern shared resources, create learning opportunities, and address shared goals—and a literature focused on the challenges networks pose for managers seeking to realize these network attributes is developing. The authors share an interest in understanding the potential of networks to govern complex public, or “wicked,” problems. A fundamental challenge to effectively managing any public problem in a networked setting is the transfer, receipt and integration of knowledge across participants. When knowledge is viewed pragmatically, the challenge is particularly acute. This perspective, the authors argue, presents a challenge to the network literature to consider the mind-set of the managers—or collaborative capacity-builders—who are working to achieve solutions to wicked problems. This mind-set guides network managers as they apply their skills, strategies, and tools in order to foster the transfer, receipt, and integration of knowledge across the network and, ultimately, to build long-term collaborative problem-solving capacity.*

Networks have assumed a place of prominence in the literature on public and private governing structures, gradually nudging hierarchies and markets as the foremost means to organize to address complex problems, share scarce resources, and achieve collective goals (Kickert, Klijn, and Koppenjan 1997; Peters 2001; Podolny and Page 1998; Powell, Kopet, and Smith-Doerr 1996). Just what constitutes a network and how a network comes to be a network rests within liberal definitional boundaries. In very broad terms, networks are defined by the enduring exchange relations established between organizations, individuals, and groups. As Hall and O’Toole (2004) note, these relationships may be a simple interorgani-

zational arrangement between two government agencies or a complex combination of organizations, groups, and individuals from a variety of sectors. Network analysis focuses on the structure of those relationships, the implications for behavior and performance, and ways to measure collaborative capacity (Milward and Provan 1998; Podolny and Page 1998; Provan and Milward 2001; Weber, Lovrich, and Gaffney 2005). Networks may evolve gradually to govern a shared resource or evolve to deal with impending problems (Gerberding 2004; Ostrom 1990); they may be initiated by mandate or regulatory requirement (Hall and O’Toole 2000, 2004; Weber 1998; Weber and Khademian 1997), or they may be “crafted” by entrepreneurial managers to accomplish resource sharing and enhance program performance (Bardach 1998).

Networks are understood to demonstrate several desirable characteristics for accomplishing complex tasks. They are considered to be flexible, efficient, and innovative organizing hybrids that enable participants to accomplish something collectively that could not be accomplished individually (Powell 1998). Networks have the potential to create value (Büchel and Raub 2002) and to accumulate the vital re-

---

Networks are examined as an alternative to the limitations of hierarchical and fragmented administrative systems in public policy development and delivery and as a more democratic means of developing public policy.

---

sources and power (Pfeffer and Salancik 1978) needed to carry out shared tasks and missions. Networks can coordinate and safeguard exchanges among firms in market settings (Jones, Hesterly, and Borgatti 1997), and when performance rests on the capacity to transmit information across a wide range of participants and the capacity for learning to take place among

participants, networks are viewed as a positive alternative to other implementing structures (Buskens and Yamaguchi 2005; Markle Foundation 2003; Powell, Kopet, and Smith-Doerr 1996). Networks are examined as an alternative to the limitations of

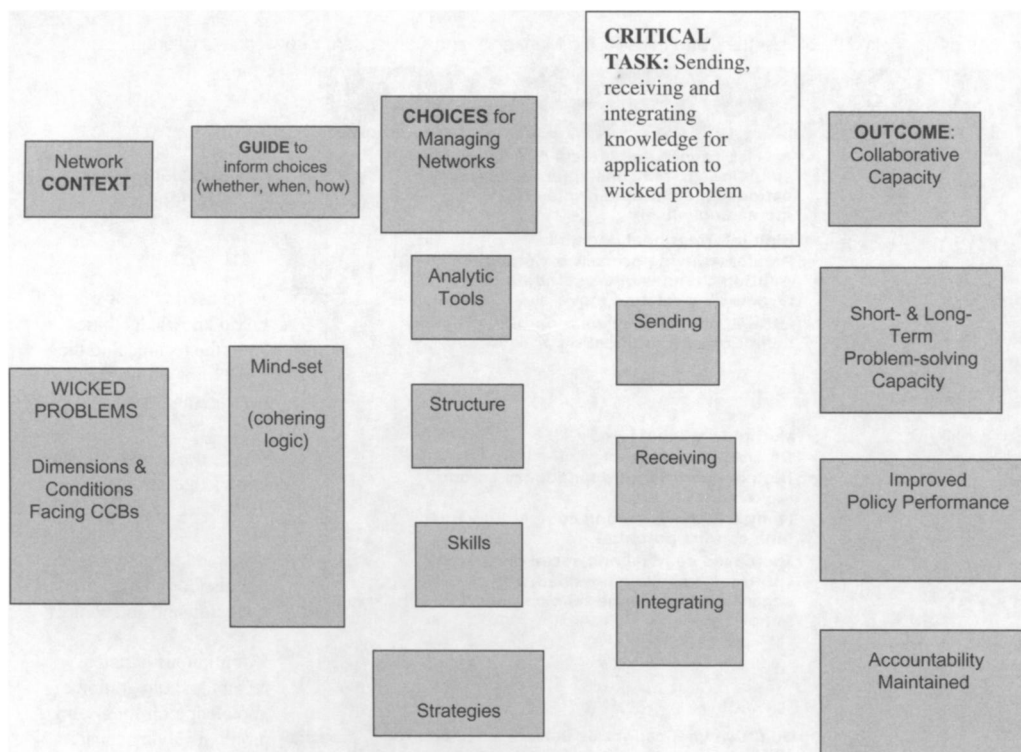
hierarchical and fragmented administrative systems in public policy development and delivery (Jennings and Ewalt 1998; Milward and Provan 1998; Powell 1990; Provan and Milward 1995) and as a more democratic means of developing public policy (Kenis and Raab 2003; Scharpf 1999). With these vast possibilities for performance, a growing literature examines the challenges facing public managers to support and utilize networks for accomplishing public goals (Bardach 1998, 2001; Klijn and Koppenjan 2000; Meier and O'Toole 2003; O'Toole 1997; Roberts 2000, 2002b).

We share an interest in understanding the potential of networks to address complex public problems. In this paper, we first examine the dimensions of “wicked” public problems and the challenges facing managers in building and sustaining networks to address these problems (Churchman 1967; O'Toole 1997; Rittel and Webber 1973; Roberts 1997, 2000, 2002b). In their study of dark networks, Raab and Milward (2003) identify variation in the dimensions of networks given the primary task or goal of the network, or the problem that is to be addressed. We see something distinctive in the nature of wicked problems and the networks that develop to address them.

Second, the distinction that we see is the challenge associated with knowledge sharing among diverse participants in order to achieve network effectiveness in a wicked problem setting. We define effectiveness as collaborative capacity (i.e., long- and short-term problem-solving capacity), improved policy performance, and the

maintenance of accountability for public action. Knowledge sharing and integration are key to building collaborative capacity, and we draw on studies that examine knowledge as inseparable from the *practices* of participants to explore this challenge. We focus on efforts to send knowledge to other network participants, to ensure the receipt or comprehension of that knowledge, and to integrate knowledge in order to create a usable *new* knowledge base for effective problem solving. These tasks are particularly acute for networks built around wicked problems, where the differences between participants are deep and the barriers to knowledge transfer, receipt, and integration are distinct.<sup>1</sup>

Third, given the knowledge challenge in wicked problem settings, we suggest pushing the network literature to consider the less visible dimensions of network effectiveness within the context of management. Our previous observations of public managers working in networked, wicked problem settings (Khademian 2002; Weber 1998, 2003; Weber and Khademian 1997; Weber, Lovrich, and Gaffney 2005; Weber, Lovrich, and Nice 2000) point to the importance of a “collaborative capacity builder” who does not make choices about whether, when, and how to use analytic tools, management strategies, network structure, and managerial skills in a vacuum. Rather, we examine the mind-set, or the set of commitments that can facilitate his or her efforts to ensure that knowledge can be sent, received, and integrated as part of a broader effort to build and sustain collaborative capacity for addressing a wicked problem (see figure 1).<sup>2</sup>



**Figure 1 Collaborative Capacity Building for Wicked Problems**

## Wicked Problems and Management Challenges

"Wicked problems" are a hot topic within public administration and policy research circles, and for good reason. As early as 1967, scholars and practitioners from different disciplines recognized that the dynamic complexity of many public problems defies the confines of established "stovepiped" systems of problem definition, administration, and resolution (Churchman 1967; Rittel and Webber 1973; Roberts 1997, 2000, 2002b). In the past two decades, this clash between wicked problems and traditional problem-solving systems has produced a need for institutions and public managers capable of working across the many agencies, organizations, and members of the public needed to build wicked problem-solving capacity (Kettl 2002; O'Toole 1997; Roberts 2002b). The distinctive characteristics of wicked problems highlight why networks are likely to be better suited to wicked problem management than a traditional stovepiped approach, but they also pose a series of challenges for building collaborative capacity in a network setting (see the first two columns in table 1).

First, wicked problems are unstructured. This means that causes and effects are extremely difficult to identify and model, thus adding complexity and uncertainty and engendering a high degree of conflict because there is little consensus on the problem or the solution (Roberts 2000). In addition, the unstructured character makes for a fluid, continuous decision process. "Each attempt at creating a solution" write

Rittel and Webber (1973), "changes the understanding of the problem." Put differently, the "targets" of decisions constantly "morph and move."

Second, the wicked problem space comprises multiple, overlapping, interconnected subsets of problems that cut across multiple policy domains and levels of government. Wicked problems, in other words, cut across hierarchy and authority structures within and between organizations and across policy domains, political and administrative jurisdictions, and political "group" interests (see table 1). The cross-cutting characteristic means that wicked problems are inescapably connected to other problems, such as environmental preservation and economic development (Weber 1998, 2003), engage conflicting values, such as homeland security and privacy protection (Khademian 2005), and generate high degrees of uncertainty (Van Bueren, Klijn, and Koppenjan 2003; Mason and Mitroff 1973). The social and political complexity associated with such problems can be overwhelming. Participants or stakeholders in the problem are numerous, with a variety of worldviews, political agendas, educational and professional backgrounds, programmatic responsibilities, and cultural traditions. And the participants come and go depending on the way in which a wicked problem affects individuals, organizations, or groups of people at any given point in time.

Finally, wicked problems are relentless. The problems are not going to be solved once and for all despite all

**Table 1** Dimensions of Wicked Problems, the Conditions Facing Managers in Network Settings, and Consequent Knowledge Challenges

Dimensions	Conditions facing Managers in Network Settings	Knowledge Challenges
Unstructured	<ul style="list-style-type: none"> <li>Precise causes and effects difficult to identify so unanticipated consequences of policy actions (the multiple ripple effect) increasingly likely</li> <li>High informational demands</li> <li>Problem-solving process is fluid, each solution changes understanding of problem – targets "morph and move"</li> <li>Little, if any, consensus regarding problem definition or identification or solutions</li> </ul>	<ul style="list-style-type: none"> <li>The need to draw on broad knowledge bases from the technical to the local from within the network and without</li> </ul>
Cross-cutting	<ul style="list-style-type: none"> <li>Multiple stakeholders</li> <li>Diverse perspectives</li> <li>High degree of interdependency among stakeholders</li> <li>Many trade-offs among competing values; high conflict potential</li> <li>Increased political and social complexity</li> <li>Informal, socially embedded, and diverse sources of knowledge take on added importance</li> </ul>	<ul style="list-style-type: none"> <li>Must develop usable new knowledge applicable to the wicked problem</li> <li>Shared knowledge as the premise for cooperation, not command and control</li> </ul>
Relentless	<ul style="list-style-type: none"> <li>No finish line, cannot be solved "once and for all"</li> </ul>	<ul style="list-style-type: none"> <li>Continuous transfer, receipt and integration of knowledge for long-term problem solving capacity</li> </ul>



the best intentions and resources directed at the problem, and efforts to solve the wicked problem will have consequences for other policy arenas as well. Similar to a stone dropped in the water, the ripples spread rapidly to have an impact other issue areas. Habitat restoration associated with endangered species, for example, will have repercussions for hunting and fishing practices, for the balance and variety of plants and species, and for development and farming. Efforts to prevent, prepare for, and respond to terrorism will have repercussions for disaster response, for privacy, for the hiring and training and equipping of first responders across the country, for the way states organize their emergency response abilities, and for the money flowing to high tech industries associated with security and surveillance, to name a few. Rebuilding broken urban neighborhoods, reforming public education, creating and maintaining environmentally sustainable communities, reducing drug abuse, reducing teenage pregnancy, addressing non-point source pollution (e.g., urban storm water runoff), and ecosystem and watershed management are also examples of problems that are difficult to define, with vertical and horizontal cross-cutting dimensions, multiple stakeholders, close connectedness with other problems, trade-offs between values, and a relentless quality.

Given these dimensions of wicked problems, scholars have argued that the effective management of such problems involves a combination of multiple specialized “functions” rooted in traditional bureaucracies (Hudson 2004; Kettl 2002, 2003, 2004), of different policy arenas and sectors (Agranoff 2003; Agranoff and McGuire 1998, 2003; O’Toole 1997), of the concerns of members of the public with experts and elected officials (Feldman and Khademian 2005), and of diverse resources across the network (Brenner, Reinicke, and Witte 2004; O’Leary et al. 1999).<sup>3</sup> Yet key to any combination of functions, policy areas, resources, and concerns is the effective transfer, receipt, and integration of knowledge across participants in a network. For wicked problems that are unstructured, cross-cutting, and relentless, this challenge is particularly acute. Any effort to effectively manage a wicked problem will require efforts to draw on a broad range of knowledge, to develop a new base of knowledge to address the complexities of the wicked problem and to serve as a premise for cooperation, and the effort to transfer, receive, and integrate knowledge will be an ongoing effort as the wicked problem takes on different dimensions and participants in the management effort change (see the outside column of table 1).

We examine the challenge by focusing on knowledge in a network setting through a pragmatic lens. By a pragmatic approach, we mean the investigation of practice-based knowledge in networks and the practical lessons that can be derived from that understanding

for building collaborative capacity.<sup>4</sup> It is the focus on knowledge as intricately connected with practice, and knowledge as distinct from information, that distinguishes this work from other efforts to focus on the transfer, receipt, and integration of information in networks. Our discussion of “knowledge in networks” begins with a focus on the term “information” and the technical rather than the pragmatic dimensions of the term.

### Knowledge in Networks

Networks, it is argued, have “distinct efficiency advantages not possessed by pure markets or pure hierarchies” (Podolny and Page 1998). One such advantage identified in the literature is the transfer of information across a network through the channels or relationships that connect participants (Hamel 1991; Root 2003). Research explores how this transfer of information takes place and the advantages of the transfer for individual participants (organizations) and for the network as a whole. In some instances, the focus is on technology as a means of transferring information among participants (Schau, Smith, and Schau 2005); the sharing of information across a network, in other words, could be as basic as providing the technical capacity to do so. Others focus on the speed or flow of information diffusion. The emphasis is on the structural dimensions of networks, such as the density of the network, the degree of centralization, and the number of “bridges” within a network, as well as the geographic propinquity of network members (Buskens and Yamaguchi 1999; Owen-Smith and Powell 2005). Others focus on the need for network managers to be skilled at facilitating and prompting communication across organizational or group boundaries (Tushman and Scanlan 1981) and the evolution of rules or norms that might guide or inhibit the sharing of information within a network (Gargiulo and Benassi 2000). Still others focus on the common interests, training, or background that members of a network may have to facilitate the transfer and sharing of information (Büchel and Raub 2002).

The emphasis on common interest, background, or training begins to focus our attention on the dimensions of information sharing that we view as critical to developing network capacities focused on wicked problems. When participants in a network have a common focus or set of experiences, they may share a common lens or framework for interpreting and using the information that is passed throughout. Yet wicked problem-based network settings involve highly diverse participants, so the information flowing through the network is likely to have different meanings, different uses, and different values for the individuals and groups receiving and using it. Consider, for example, participants with a shared interest in renewing an urban area, loosely linked by occasional meetings and forums around the general problem of renewal.

A cluster of landscape architects working on the renewal problem may have information on existing and potential green spaces in the urban area, horticultural variation, pedestrian and motor vehicle traffic, and property values that is valuable for the architects who are trying to plan and utilize the spaces of the city. The immediate relevance of this information for a resident, on the other hand, may be significantly less. The information that the resident values most could be the stories collected and told among other residents about the difficulties in finding work, the scarcity of stores selling fresh produce, traffic patterns near a school, graffiti on the buildings, and the recent wave of crime in a neighborhood. The relevance of any and all information will depend not only on the experience and expertise participants bring to the network but also on the various interpretations of the problem of renewal and the understandings among participants of what renewal might accomplish. Environmentalists, elected officials, developers, and government agencies with a stake in the renewal of the city will all bring different experience with and expertise in the problem of renewal, different expectations for what renewal might accomplish, and hence different understandings of what information will be valuable for addressing the problem. The analogy could extend to any type of network setting.

The variance in value assigned by different participants to particular information in a network has two implications for the way we think about information in a network and about the capacity of a network to use information to solve wicked problems. First, there is a fundamental difference between information and knowledge. Knowledge, we argue, is socially mediated information (Berger and Luckmann 1967). Societies, communities, groups, professions, and neighborhoods develop forms of discourse that frame and give meaning to the information that is brought in. Knowledge, in this view, cannot be separated from the application, use, and development of information (Lave and Wenger 1991; Nicolini, Gherardi, and Yanow 2003). Each set of participants—residents of a community, elected officials, interest groups, experts, entrepreneurs—does not bring “information” to the network about the problem; rather, these participants *know* the problem and perceive possible solutions through their engagement with the problem. Each has experienced, perhaps analyzed, discussed, and interpreted the dimensions of the wicked problem through specific lenses, or communities of discourse, and these diverse lenses of experience create formidable barriers. The challenge is to find ways in which this knowledge can be distributed across participants, received (or accepted) among participants, and integrated to form a base of knowledge that can be used by the network to address the wicked problem (Feldman and Khademian 2005).

Second, we argue that the knowledge associated with each participant’s practices poses critical challenges for managers’ attempts to convince participants to send or share their distinctive knowledge, receive the knowledge of others in the network, and integrate network knowledge into the kind of unified, practical, and useful knowledge base necessary for achieving effective collaborative problem-solving capacity for wicked problems. In short, failure to recognize and make allowances for these socially constructed sources of knowledge will necessarily hamper the problem-solving effectiveness of networks. We build on the work of Paul Carlile (2002) and James Scott (1998), among others, to tie the challenges associated with network knowledge to not only the skills and competencies of a manager as collaborative capacity builder but also to the importance of a mind-set that becomes a critical component of effective collaborative problem-solving capacity when the context involves a wicked problem.

### Conceptualizing Knowledge: Sending, Receiving, and Integrating

The growing literature on knowledge and knowledge transfer can be viewed in three ways. The first and most traditional approach grows out of a view of knowledge as distinct from practice. Nicolini, Gherardi, and Yanow describe this approach to knowledge as “[t]he conceptualization of knowledge as an object instead of a process—that is, as a mental substance mainly located in individual minds and manifested in written texts, representations, and routinized behaviors” (2003, 6). From this perspective, knowledge is a thing or object that can be captured, stored, transferred, and managed. Prominent in this view of knowledge and knowledge transfer is reference to knowledge as an “asset” with value for an organization, or a form of intellectual capital (Nahapiet and Ghoshal 1998). The emphasis is on the “creation, codification, and capture” of knowledge, and the management goal is to find ways to transfer or share that knowledge and to utilize the intellectual capital to grow, enhance, and sustain an organization (Ladd and Ward 2002).

In his study of knowledge transfer across organizational boundaries, Carlile (2002) refers to this first conceptualization of knowledge and knowledge transfer as “syntactic.” This has two dimensions. First, in order to process information among participants in a network or organization, boundaries are viewed as surmountable through a common language or a compatible means of transfer. A common language, common code, computer capability, common set of training guidelines and procedures, and so on, will facilitate the transfer of knowledge. For example, the widespread distribution of the policies of an organization, the strategic plans of organizational divisions, or standardized training manuals could be viewed as

syntactic efforts to transfer of knowledge across an organization. Similarly, the search for standard mechanisms for communication among firefighters, police, and public health officials in the arena of homeland security or the development of compatible computer systems within and across agencies can be viewed as a syntactic approach to the transfer of knowledge.

This approach to knowledge and knowledge transfer is the predominant approach in the network literature. The emphasis is on *sending* information, or finding ways to standardize or make compatible methods of communication to facilitate the transfer of knowledge from one participant or organization to the next and to identify the barriers that slow this process or the structural components of networks that might speed this process (Podolny and Page 1998). Such an approach may be sufficient, Carlile (2002) argues, if there is an understanding of the kind of knowledge that is required for a particular task. This assumes clarity or agreement on what the task is, or the problem, as well. Syntactic assumptions might also be sufficient when the knowledge that is transferred is “not complex” (Hansen 1999).

If the knowledge is complex and without clarity of purpose, the syntactic approach to knowledge transfer is likely to be inadequate. A second way to view knowledge transfer is through a “semantic” lens (Carlile 2002). In the syntactic context, the challenge is to find a means for transferring knowledge that addresses a task or problem for which there is some consensus. In the semantic approach, the challenge shifts to the *receipt* of knowledge, or recognizing the role interpretation plays in receiving and disseminating knowledge. Consider the children’s game of “telephone.” One player quietly tells a brief story to another, and the story is passed on from player to player until the story is told out loud by the final player, often to laughter, as the story has been transformed through the grapevine. In terms of syntactical challenges, the story might be told from start to finish more accurately if everyone in the game had better technology—machines to record the message from a neighbor and to transfer the exact message to the next in line. The more simplistic the story, as well, the more likely the transfer would take place in an accurate manner. A semantic approach, on the other hand, would recognize the limitations of clear transmission, even of noncomplex information, based on the different ways in which each player interprets the message from his or her neighbor. Different experiences, different cultures, different approaches to language, and different relationships among the players would all inhibit the transfer of information. The challenge, then, is to identify those points of difference and find ways to work through them.

Finally, a third approach to knowledge and knowledge transfer takes a “pragmatic view of knowledge” and

treats it as “localized, embedded, and invested in practice” (Carlile 2002). As Carlile argues, it is not enough to highlight the differences among participants, for sometimes that will only heighten the difficulties of transferring knowledge. Rather, there is a need to recognize the connections between knowledge and practice, or the premise that what people and organizations know is deeply embedded in what they practice. This view of knowledge has a “situated” dimension to it, in that knowledge must be understood in the context of practice that is situated in a geographic setting, a particular point in time, or within a particular set of relationships (Nicolini, Gherardi, and Yanow 2003). Some scholars refer to this as “local knowledge,” meaning knowledge that is produced through practice in a particular setting (Yanow 2004), within a particular occupational group (Orr 1996), or in the context of a specific time. A practice approach to knowledge, in other words, intricately connects the knowledge that people and organizations have to the practices or activities of both. This has challenging implications for the transfer of knowledge within an organization or between organizations. Consider the following quote by Carlile exploring the pragmatic understanding of knowledge as it relates to the willingness of two different divisions within an organization to share knowledge or consider the collective creation of new knowledge:

They are reluctant to change their hard-won outcomes because it is costly to change their knowledge and skills. The cross-boundary challenge is not just that communication is hard, but that to resolve the negative consequences by the individuals from each function they have to be willing to alter their own knowledge, but also be capable of influencing or transforming the knowledge used by the other function. (Carlile 2002)

Scott’s (1998) concept of *metis* is closely related to the pragmatic view of knowledge. “Metis,” he explains, “represents a wide array of practical skills and acquired intelligence” that is developed in response to the dynamic environment (313). Drawing on the work of professionals who respond to emergencies and disasters, Scott argues that “rules of thumb,” or a manual of operations, can be taught and used as a guide, but when emergency response is required, “half the battle is knowing which rules of thumb to apply in which order and when to throw away the book and improvise.” Metis is knowledge, in other words, that evolves through practice and is closely connected to the identity and experiences of those who build that knowledge through practice.

In the context of networks that are built around wicked problems, this understanding of knowledge as practice and identity creates a significant challenge for



sending and receiving knowledge across network participants. Each set of participants in a wicked problem network bring his or her own metis, or practice-based knowledge of the problem that is, to use Carlile's term, "hard won." Such hard-won knowledge is difficult to share or send and difficult to receive. More critically, practice-based knowledge poses a significant challenge for the network's ability to integrate disparate knowledge into a useful, practical whole. Similarities and differences in practice-based knowledge, such as expert-based decision protocols, priorities, norms, values, experiential "rules of thumb," and so on, must be identified in effort to create a "novel syntheses" of knowledge across a network, or new knowledge, by integrating existing knowledges, identifying gaps, and learning from interaction and problem-solving efforts. In short, the "new," collectively generated knowledge is distinct from that held by individuals across the network (Powell and Brantley 1992), specific to the wicked problem, and necessary for developing long-term problem-solving capacity. We argue that the capacity to integrate disparate knowledge requires an understanding of knowledge as practice and an exploration of how collaborative capacity builders approach collaborative problem solving, such that the integration of existing knowledge and the creation of new knowledge can occur.

### **The Mind-Set of Collaborative Capacity Builders**

The knowledge sending, receiving, and integration challenges associated with wicked problems necessarily involve multiple organizations, professions, and a wide range of participants with contrasting knowledge needs, demands, and perspectives. "How to turn network knowledge, as it develops, into practical, useful information is the nub of the issue" (O'Toole 1997, 48). Essential lines of inquiry to address the "nub of the issue" examine the dimensions, characteristics, and maturity of network structure; whether, when, and how network managers might use analytic tools; and whether, when, and how to apply particular management skills or strategies. Yet the knowledge challenge discussed in the previous section suggests the need to push the network literature to consider the "softer" aspects of network management as well. In our collective observations of networks focused on wicked problems in urban development, environmental policy, disaster response, and transportation policy, we note the value added by those who approach the network management task from a unique perspective as collaborative capacity builders (CCBs). Here, we develop the concept of the "mind-set" of a CCB, comprising several commitments that provide a context within which a manager as collaborative capacity builder might consider design and function, and the application of skills, strategies, and analytics. A CCB is someone who either by legal authority, expertise

valued within the network, reputation as an honest broker, or some combination of the three, has been accorded a lead role in a network's problem-solving exercises. In addition, others recognize a CCB as having a long-term stake in and commitment to building collaborative capacity for continuously addressing wicked problems. While public managers will inevitably be involved in addressing wicked problems, CCBs do not always need to be public managers.

We propose that CCBs work from a mind-set, or a number of commitments that frame the task of sending, receiving, and integrating knowledge for collaborative capacity.<sup>5</sup> The concept of a mind-set that can influence the efforts of top managers or leaders has a basis in the business literature, where the role of a mind-set in the pursuit of innovation, decentralization, alternative ways of conceptualizing problems, and global competitiveness, for example, is examined (Aspinwall and Cain 1997; Kedia and Mukherji 1999; McGrath and MacMillan 2000; Resnick 1996). The role of a mind-set, or a set of commitments in the development of governing structures in the public sector, has also been explored. In his book *Leadership and Administration*, Philip Selznick (1957) argues that successful managers or leaders infuse their organizations with a set of values that can guide the practices and behavior of organization members and that are essential to organizational success. These values focus not only on what the organization does but also on how the organization does its work—its "distinctive competence." The argument is similar to La Porte's recognition of the importance of a "cohering" or common informing logic "that is persuasive to [a network's] members in providing guides that order their relations with each other. These cohering logics are a source of legitimizing and ordering member relationships," as well as "a central influence in shaping the ... sources of the net[work's] rules of engagement" (1996, 58), or as Heclo (1978) aptly puts it, part and parcel of the network's governing philosophy.

In the following sections, we identify six commitments that are components of a collaborative capacity building mind-set in wicked problem settings. These components stand out in our own collective field research on managers working to facilitate the sending, receiving, and integration of knowledge needed to build collaborative capacity in wicked problem settings. Much of the network literature concerned with the transfer and utilization of information and knowledge focuses on network context, structural dimensions, and managerial skills. Although these are clearly important factors for understanding the knowledge challenge in networks, our observations suggest the importance of an additional factor. The mind-set frames the approach to problem solving and the relationships between government and other



participants in the network. It accepts the inhospitable circumstances of heterogeneous interests and goals, as well as the uncertainties and complexities inherent in any network setting, and informs collaborative capacity building actions to facilitate the integration of knowledge that is necessary to tackle wicked problems. The commitments identified here are only a beginning. The depth of commitments, the breadth of commitments, and the significance for the choices that CCBs make and the actions that they take require investigation. Furthermore, we are certain this list is not exhaustive. We view this as a step toward understanding the softer side of network effectiveness by focusing on the role of a mind-set in facilitating the sending, receiving, and integration of knowledge in network settings. The commitments that we discuss are as follows:

- A commitment to governance *with* government
- A commitment to govern within the rules yet think creatively
- A commitment to networks as mutual-aid partnerships with society
- An acceptance that a CCB can be someone without an official government portfolio
- An understanding of the intrinsic inseparability of performance and accountability in wicked problem settings
- A persistent commitment to the collaborative process

#### **A Commitment to Governance with Government**

The term “governance” has many interpretations (Rhodes 1996). As Klijn and Koppenjan (2000) observe, these differences roughly break out into two basic groups. First are those who view governance as a reference to the reduced role of government in favor of combinations of actors and organizations from the private and nonprofit sectors finding independent ways to govern collective interests (Peters and Pierre 1998; Rhodes 1996; Rosenau and Czempel 1992). Second are those who view the interdependencies among government, private, and nonprofit sectors as inevitable, with the state playing an important role (Klijn and Koppenjan 2000). The CCB mind-set suggests not only that interdependencies are inevitable but also that government has a responsibility to play a prominent role in any networked approach to public problems. Consider the comments by the director of the Centers for Disease Control, Julie Gerberding, on the evolving management approach of the that agency in the months and years following the terrorist attacks of 9/11, the discovery of anthrax in postal facilities, and global challenges to public health, such as the SARS disease:

We will be able to change the CDC’s management platform into a less hierarchical one. We never will be a completely distributed network.

Nor should we be; that would not be in the interest of our accountability or the important work that we need to do. But, we can move much further beyond the hierarchy than where we are today. (2004, 10)

As these comments suggest, a commitment to governance *with* government is not a belief that government alone can “solve” problems, with connotations of finality and absolute success. Instead, government is viewed as a key actor among many, but one with a responsibility to the public that other nongovernmental actors do not have. Indeed, this premise of the CCB mind-set recognizes that in a wicked problem setting, vertical *government* responsibilities must necessarily be coupled with an obligation to build capacity in horizontal systems and the linkages between vertical and horizontal systems. From this perspective, government can be a catalyst for producing broad, enduring capacity for addressing, managing, and coping with wicked problems. It also means that managers who accept this commitment are less concerned about who or what agency or actor gets the credit for success but whether the problem gets addressed and, given its relentless character, continues to receive attention.

This commitment projects a government and managerial role in networks that is both less and more. The governance with government premise is less because it is *not* about government agencies bearing the entire burden of problem definition, program design, funding, and the implementation of programs designed with final solutions in mind. Indeed, this is fundamental to the knowledge challenge posed by wicked problems. Precisely because the definition of a problem, the design of a capacity to address it, and responsibilities for funding and implementation will not be concentrated in a single government entity, the need to share, understand, and integrate diverse understandings of the wicked problem is paramount. This commitment is more, however, because it requires public managers to be accountable for the programs under their guidance while also facilitating collaboration across organizational and government boundaries, between the public and private sectors, and among officials, professionals, and members of the public. But the authority of a government agency can also play a critical role in soliciting, sharing, and integrating knowledge among participants in a network. Whether the CCB is a public manager who can draw directly on the authority of his or her agency or a nongovernmental manager, understanding the role of government in tapping traditional and nontraditional expertise inside and outside government, as well as the experience of those most familiar with a wicked problem, can facilitate the sending, receiving, and integration of new knowledge.

### ***A Commitment to Govern with the Rules yet Think Creatively***

Collaborative capacity builders accept existing rules (established by an agency, a legislative or executive mandate, or an existing policy) as a necessary beginning of the process to build long-term capacities to address wicked problems, but it is not sufficient. Wicked problems, by their nature, defy categorization within a strict rules-based system that seeks to divide complex systems and problems into more manageable parts and assumes that the causal relationships within the wicked problem set are clear and identifiable. The complexity and uncertainty of knowledge transfer and the creation of new knowledge associated with wicked problems means that “anticipatory” rules-based actions are bound to be inadequate. This commitment reflects a balance between the public manager as “conservator” (Terry 1995) and as “entrepreneur” (Moore 1995). It is a recognition of democratically defined rules that place necessary boundaries on permissible actions, combined with an openness to new ideas expressed within the network that can help build new competencies for the long-term management of wicked problems. It is also a recognition that “by the book” problem solving, or a heavy rules-oriented approach, is unlikely to create the kinds of relationships among stakeholders that are required for the sending, receiving, and integration of knowledge needed for long-term problem-solving capacity (Bardach and Kagan 1982). As noted in column three of table 1, the premise for cooperation in wicked problem settings is likely to be a common knowledge base, not command and control processes.

### ***A Commitment to Networks as Mutual-Aid Partnerships with Society***

Collaborative capacity builders view citizens and other organizations, including government entities and nonprofits, as partners.<sup>6</sup> Potential participants in the network are viewed as potential helpers who nevertheless face legitimate constraints on collective action, including narrow or limited knowledge about the scope and severity of the problem, a fear that acting alone will do little to resolve the larger problem, limited individual resources, and the fear that government authorities will not listen to, much less incorporate and allow, innovative solutions produced by those outside the agency that has formal jurisdiction over the problem. This open approach is difficult; managers under intense public scrutiny—as managers dealing with wicked problems often are—might be inclined to adopt a “fortress” mentality as a means to shut out criticism (and potentially useful problem-

solving ideas) and rely on internal agency expertise and narrowly apply that expertise without public interference (Goldsmith and Eggers 2004).

In the effort to form partnerships, the CCB views authority and expertise as tools that allow managers to “serve” citizens (Bireley 2001). The flip side is that the blunt, coercive use of formal authority in networked scenarios is of limited value, particularly when encouraging participants to send, receive, and integrate knowledge for long-term capacity to address a wicked problem<sup>7</sup>—such an approach risks breeding resistance and alienating the very people necessary for successfully

---

It is a recognition of democratically defined rules that place necessary boundaries on permissible actions, combined with an openness to new ideas expressed within the network that could help to build new competencies for the long-term management of wicked problems.

---

managing a particular wicked problem. This commitment does not view experts and managers as having all the answers; expertise is one source of knowledge, and public management is just that—management of problems and decision mechanisms *within a democracy*. More specifically, the management role is understood to be facilitative (Denhardt and Denhardt 2000). A “helper,” or servant manager, not only treats members of the network with appropriate respect and actively

solicits their input but also takes responsibility for helping build the capacities that all participants need for addressing wicked problems (Bireley 2001; Reich 1990; Roberts 2002a).<sup>8</sup> To address the knowledge challenge, the manager as facilitator in a mutual-aid partnership is more likely to draw out different sources of knowledge to address the wicked problem and will play a role in sharing the knowledge across the network.

### ***“Public” Managers Can Be People without Official Government Portfolios***

While formal authority rests with official government-based decision makers, this commitment is a recognition that not all CCBs are employed by traditional government bureaucracies. A *public* manager in this conception is a person who is critical for coordinating and catalyzing resources on behalf of public problem-solving efforts. Authority, or leadership, in networks is often organic and informal in character, meaning that leadership is not granted automatically because of formal titles or location within an organizational hierarchy. Rather, it is earned or awarded by other stakeholders to those with access to critical resources or the ability to catalyze and apply them successfully for problem-solving purposes (Khademian 2002; Weber 2003). This form of leadership recognition could be key to bringing people and organizations together to initially share information, to encourage participants to listen and learn, and to integrate disparate forms of knowledge into a workable knowledge base particular to any given wicked problem.

Consider, for example, a wicked problem involving a community with a high degree of social capital. There are likely to be key leaders, whether political, social, cultural, or economic, within the community that can activate a network drawing on community social capital to support or oppose a public problem-solving effort. This point recognizes that communities have, over time, developed institutions, both informal and formal, and that long-term problem-solving success involves getting them to work *with you* rather than against you. Put differently, using only government-based public managers and coercion to solicit information and bring about compliance may lead to short-term, incomplete, high-cost successes at the expense of long-term problem-solving effectiveness within the community or communities in question (Bardach and Kagan 1982). The trade-off is more problematic to the extent that the public problems are of the relentless, wicked type, thus demanding long-term problem-solving capacity. Government-based CCBs are therefore committed to identifying and cultivating key *nongovernmental* “public” managers in cases in which such citizen leaders exist. Of course, this also raises the possibility that collaborative action may not be possible in all settings because of hostility to the policy in question or serious value differences over the aims of government.

### ***The Intrinsic Inseparability of Performance, Capacity, and Accountability***

In the whirl of management change and reform philosophies emphasizing results, the question of performance typically focuses on whether the problem has been solved, the targets met, whether progress is being made toward a solution, and whether benefits exceed costs. Though the emphasis on results is welcomed by practicing managers and scholars, important cautions have been issued to attend to accountability (Behn 1998; Moe 1994; Terry 1993)—how we arrive at results can be as crucial as the results that are achieved, particularly when the desired goal or result is not clear or under contentious dispute. This is, of course, particularly the case when working to address wicked problems. By definition, wicked problems are hard to define and solutions remain elusive. An important component of the CCB mind-set links performance and accountability by emphasizing the capacity of the network to demonstrate accountability to a wide range of stakeholders whose participation in the network is essential for long-term management of the wicked problem.

The sending, receiving, and integration of knowledge is fundamental to the effort to build capacity for performance and accountability. Successful efforts to

integrate across knowledge bases will provide an ongoing and evolving premise from which network actors can take actions to address wicked problems. But the process of integrating knowledge and identifying new sources of knowledge that are valuable across the network is also an exercise in accountability. Sharing knowledge and creating a collective premise from which to address ongoing wicked problems requires stakeholder participation and understanding of the knowledge that is being shared and the knowledge that is being created (Feldman and Khademian 2005).

The *public* in public problems requires consideration of to whom, and what values, a program initiative or policy is responsive. Wicked problems typically involve large sets of stakeholders up and down the formal political authority structure (cutting across state, local, and federal jurisdictions), across multiple policy areas and agencies, and individual citizens within the affected communities. The attendant complexity and interdependency are such that coercive solutions or solutions responsive to only a few interests will not provide the kind of simultaneous, broad-based accountability, or an accountability system that maintains or improves accountability to local interests, private and public, without a corresponding diminution of accountability to broader state, regional, and national public interests, that is necessary to keep stakeholders collaboratively and constructively engaged over the long term (Weber 2003, 13). And if all stakeholders do not stay constructively engaged, it

---

...if all stakeholders do not stay constructively engaged, it is unlikely that the capacity to solve wicked problems can be maintained for the long term.

---

is unlikely that the capacity to solve wicked problems can be maintained for the long term. From this perspective, CCB managers recognize that capacity is about finding ways to create and sustain mechanisms for participation for all stakeholders and finding solutions or processes that meet the needs of

stakeholders across the board, *including government at all appropriate levels*, whether in terms of mutual gain for all within a particular decision, mutual gain stemming from the assurance of reciprocity across decisions over time, or a reasonable, mutually agreed sharing of burdens (e.g., implementation costs, programmatic responsibilities, time and personnel commitments).

### ***A Passion for and Commitment to the Collaborative Process***

The network literature focused on management addresses the authority of managers, the skills for collaboration, and possible resources to build and sustain networks. We suggest that in addition to authority, skills, and resources, CCB managers working to address wicked problems require an undeniable passion and commitment to the collaborative

process. In an ongoing collaborative effort, the multiple organizations, people, and groups working together are really working out a new knowledge for the purposes of the network. There will be inevitable conflicts between the objectives and values developed within the network and those of organizations and other participants. Given this reality, managers need the energy to overcome resistance within their own organizations, as well as within other participating organizations, and to get network members to share the knowledge that is hard won, receive the knowledge from others, and create a new knowledge that will facilitate the management of wicked problems. In short, CCBs accept that they have primary responsibility for convincing the full range of affected interests to credibly commit to collaborative arrangements and the expected mutual gain results while also demonstrating a willingness to use their authority and the resources at their disposal to promote, enforce, and protect agreements arrived at collaboratively (Miller 1992; Weber 1998).

### Conclusion

The nature of wicked problems will ensure that networks will likely maintain their place of prominence as viable governing mechanisms in practice, as well as in a variety of scholarly literatures. A rich literature aimed at understanding network creation, maintenance, and performance in recent years focuses on the technical dimensions and instrumentalities associated with various management choices—analytic tools, managerial skills, appropriate strategies, and network structure. Here, we suggest the need to focus on softer dimensions of network success or failure by examining the mind-set of managers as context for actions.

The fundamental challenges posed by wicked problems place critical emphasis on the tasks of knowledge transmission and integration. Knowledge transmission tasks are communication issues that are grounded in social and political relationships involving heterogeneous actors with diverse interests and goals. The knowledge integration task is likewise grounded in these same relationships and involves taking what is known among network actors, engaging the collaborative network dynamic so that new information is developed, and putting it all together into a practical, useful database for problem-solving purposes. In short, network effectiveness, or collaborative capacity—long- and short-term problem-solving capacity, improved policy performance, and maintenance of accountability—requires successful completion of these “knowledge” tasks.

We have argued that successfully completing the critical tasks of transferring, integrating, creating, and ultimately applying new, useful knowledge requires a collaborative capacity builder who does not make

choices in a vacuum. The concept of a mind-set pushes the network literature to consider the context or frameworks that managers might use as a guide for tackling the “knowledge” tasks. What is the relationship between a mind-set and the choices of whether, when, and how to use analytic tools, management strategies, network structure, and managerial skills? How, in other words, might a mind-set facilitate the management of the complex social relationships inherent in networks and bridges the boundaries of knowledge between organizations, professionals, and members of the public and specialized interest groups?

The lesson for public managers is that, to the extent they understand the mind-set in collaborative network settings, they will be in a better position to make appropriate choices in terms of tools, strategies, and skill application. And if they are not the main CCB in a network, then they need to nurture or discover one in order to facilitate the successful creation of collaborative capacity. In this sense, it is not about public managers dropping back and ceding legal power to nonpublic CCBs but instead recognizing the value of such CCBs and shepherding their efforts, as well as the network’s more generally, on behalf of publicly mandated missions and goals.

### Notes

1. Argyris and Schön develop a similar concept known as “double-loop learning,” defined as “learning that results in a change in the values of theory-in-use, as well as in its strategies and assumptions.... Strategies and assumptions may change concurrently with, or as a consequence of, change in values” (1996, 21). It occurs “when ... actors test and change the basic assumptions that underpin their mission and key policies” and is more appropriate for “complex, nonprogrammable issues that are important to the organization’s survival” (Moynihan 2005, 204). However, the knowledge challenges discussed here occur within the existing framework of network organizations’ missions and policies, not necessarily as a direct threat to them, as Moynihan’s discussion of double-loop learning suggests. Moreover, although the challenges of knowledge sharing and creation *may* result in strategy changes and the revisiting, questioning, and changing of current missions and key policies for network organizations, there is also the likelihood that new knowledge will be integrated successfully within current missions and policies.
2. The emphasis on mind-set complements the important focus of the management literature on management strategies, whether “groping along” (Behn 1988), strategic analysis and planning (Roberts 1992), or the conditions under which each general approach should be applied (Roberts 1999), and it complements the concept of a “role”



that managers create through the actions they take and the relationships they build and sustain (Feldman and Khademian 2002, 2005). This emphasis, we suggest, also contributes to an interest in managers as leaders in networked settings. Much work has been done developing a “how to,” or instructional approach for collaborative leader/managers. Bryson and Crosby (1992, 31–56) and McKinney and Harmon (2004, 247–50), among others, develop sets of leadership tasks required for success. Bardach (1998), Bryson and Crosby (1992, 81–110), Chrislip and Larson (1994), and Miller (1992) explore the conditions, context, and characteristics of successful collaborative leadership. Others, such as Fisher and Ury (1981) and Susskind, McKernan, and Thomas-Larmer (1999), develop practical guides for conducting dispute resolutions and collaborative negotiations so that parties can “get to yes” (the idea of mutual gain outcomes).

3. By definition, wicked problems are not solved. Instead, effectiveness means to manage the challenges posed by a wicked problem. This could mean minimizing the negative collective effects of the problems for the immediate future and longer time horizons spanning decades (or to the extent that projections with reasonable certainty can be made), finding ways to address the problem that include coordination across network participants, or even developing new understandings of the problem that allows for more collaborative efforts.
4. Our use of the term “pragmatic” differs from the way others have used it in the public administration literature (Evans 2000; McSwite 1997; Snider 2000). These scholars make a strong normative distinction between participation and collaboration. They argue that collaboration focuses more on relationship building and collectively produced knowledge, whereas participation is viewed as the more traditional process of managers soliciting input from citizens and in which public managers play a prominent, if not dominant gatekeeping role. We agree that collaboration is about relationship building and collectively produced knowledge. However, in our investigations of collaboration, we have found that as collaborative capacity builders, public managers play a prominent role in building relationships and fostering the collective production of knowledge, especially when addressing wicked problems. The key is how they go about this process.
5. We view the mind-set as a resource that might help shape and sustain the role that a manager creates in a public policy arena (Feldman and Khademian 2005); the planning, strategies, and actions that a manager pursues in the network setting (Bryson and Crosby 1992; McKinney and Harmon 2004; Chrislip and Larson 1994; Agranoff and McGuire 2003); and a source of influence for the way work

takes place—the sending, receiving, and integration of knowledge—within the network. In short, we propose that the perspective of a manager working to address wicked problems utilizing networks—prior to the presentation of self to participants or any actions he or she may take—could be fundamental to the role of the manager in the network and the way the network develops and functions.

6. This does not mean that managers view actors as altruistic as opposed to self-interested.
7. There are, of course, different forms of networks and different strategies that managers use within these distinct settings. In his work on alternative managerial strategies in network settings, Herranz (2005) finds that “network managers face a continuum of strategic and managerial role choices depending upon network structure, composition, and policy outcome expectations.” In some cases, an authoritative role on the part of the manager may actually facilitate the work of the network, but it is unlikely in the case of wicked problem settings.
8. Appropriate respect can be as simple as a public manager starting meetings on time, taking into account the resource and time demands on other stakeholders when scheduling meetings, meeting in a place that is convenient for all players or, barring that, rotating meetings among several sites, and not dominating discussions or behaving in an arrogant, dismissive manner. It also means matching words, especially promises and actions. One sure way to severely hamstring or even destroy long-term problem-solving capacity is to adopt a responsive, accommodative public posture (face) that promises much, says all the right things, but rarely or never incorporates public input or concerns into final decisions or falls back on bureaucratic reasons (e.g., rules, blame superiors, and so on) to explain why this is the case. At a minimum, decisions that do not reflect the input/preferences of collaborative participants require that managers offer a reasonable explanation as to why. Such failures to incorporate collective input, if they happen at all, should be extremely rare if long-term problem-solving capacity is to be maintained.

## References

- Agranoff, Robert. 2003. *Leveraging Networks: A Guide for Public Managers Working across Organizations*. Washington, DC: IBM Center for the Business of Government.
- Agranoff, Robert, and Michael McGuire. 1998. Multi-Network Management: Collaboration and the Hollow State. *Journal of Public Administration Research and Theory* 8(1): 67–91.
- . 2003. *Collaborative Public Management: New Strategies for Local Governments*. Cambridge, MA: MIT Press.

- Argyris, Chris, and Donald A Schön. 1996. *Organizational Learning*. 2nd ed. Reading, MA: Addison-Wesley.
- Aspinwall, R., and J. Cain. 1997. The Changing Mindset in the Management of Waste. *Philosophical Transactions: Mathematical, Physical and Engineering Sciences* 355: 1425–37.
- Bardach, Eugene. 1998. *Getting Agencies to Work Together: The Practice and Theory of Managerial Craftsmanship*. Washington, DC: Brookings Institution Press.
- . 2001. Developmental Dynamics: Interagency Collaboration as an Emergent Phenomenon. *Journal of Public Administration Research and Theory* 11(2): 149–64.
- Bardach, Eugene, and Robert Kagan. 1982. *Going by the Book: The Problem of Regulatory Unreasonableness*. Philadelphia: Temple University Press.
- Behn, Robert D. 1988. Management by Groping Along. *Journal of Policy Analysis and Management* 7(4): 643–63.
- Berger, Peter L, and Thomas Luckmann. 1967. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. London: Penguin.
- Bireley, M. 2001. Walla Walla River Basin Compliance Review Program, Reported Surface Water Diversions. Washington State Conservation Commission, Limiting Factors Report No. 32. <http://www.scc.wa.gov> [accessed November 30, 2007].
- Brenner, Thorsten, Wolfgang H. Reinicke, and Jan Martin Witte. 2004. Multisectoral Networks in Global Governance: Toward a Pluralist System of Accountability. *Government and Opposition* 39(2): 191–210.
- Bryson, John M, and Barbara C. Crosby. 1992. *Leadership for the Common Good: Tackling Public Problems in a Shared-Power World*. San Francisco: Jossey-Bass.
- Büchel, Bettina, and Steffan Raub. 2002. Building Knowledge-Creating Value Networks. *European Management Journal* 20(6): 587–96.
- Buskens, Vincent, and Kazuo Yamaguchi. 1999. A New Model for Information Diffusion in Heterogeneous Social Networks. In *Sociological Methodology*, vol. 29, edited by Mark Becker and Michael Sobel, 281–325. Oxford, UK: Basil Blackwell.
- Carlile, Paul R. 2002. A Pragmatic View of Knowledge and Boundaries: Boundary Objects in New Product Development. *Organization Science* 13(4): 442–55.
- Chrislip, David D, and Carl E. Larson. 1994. *Collaborative Leadership: How Citizens and Civic Leaders Can Make a Difference*. San Francisco: Jossey-Bass.
- Churchman, C. West. 1967. Wicked Problems. *Management Science* 14(4): B141–42.
- Denhardt, Robert, and Janet Vinzant Denhardt. 2000. The New Public Service: Serving Rather Than Steering. *Public Administration Review* 60(6): 549–59.
- Evans, Karen. 2000. Reclaiming John Dewey: Democracy, Inquiry, Pragmatism, and Public Management. *Administration & Society* 32(3): 308–28.
- Feldman, Martha S, and Anne M. Khademian. 2002. To Manage Is to Govern. *Public Administration Review* 62(5): 541–54.
- . 2005. The Role of Public Managers in Inclusive Management. Paper presented at the Public Management Research Conference, September 29–October 1, Los Angeles, CA.
- Fisher, Roger, and William Ury. 1981. *Getting to Yes: Negotiating Agreement without Giving In*. Boston: Houghton Mifflin.
- Gargiulo, Martin, and Mario Benassi. 2000. Trapped in Your Own Net? Network Cohesion, Structural Holes, and the Adaptation of Social Capital. *Organizational Science* 11(2): 183–96.
- Gerberding, Julie. 2004. Protecting the Public's Health with Small World Connections. James E. Webb Lecture, National Academy of Public Administration, November 18. <http://www.napawash.org/Pubs/gerberding.pdf> [accessed November 27, 2007].
- Goldsmith, Stephen, and William D. Eggers. 2004. *Governing by Network: The New Shape of the Public Sector*. Washington, DC: Brookings Institution Press.
- Hall, Thad E, and Laurence J. O'Toole, Jr. 2000. Structures of Policy Implementation: An Analysis of National Legislation, 1965–1966 and 1993–1994. *Administration & Society* 31(6): 667–86.
- . 2004. Shaping Formal Networks through the Regulatory Process. *Administration & Society* 36(2): 186–207.
- Hamel, Gary. 1991. Competition for Competence and Inter-Partner Learning within International Strategic Alliances. Special issue, *Strategic Management Journal* 12: 83–103.
- Hansen, Morten T. 1999. The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge across Organization Subunits. *Administrative Science Quarterly* 44(1): 82–111.
- Heclo, Hugh. 1978. Issue Networks and the Executive Establishment. In *The New American Political System*, edited by Anthony. King, 88–120. Washington, DC: American Enterprise Institute.
- Herranz, Joaquin, Jr. 2005. Network Governance Strategies for Public Managers. Paper presented at the Public Management Research Conference, September 29–October 1, Los Angeles, CA.
- Hudson, Bob. 2004. Analysing Network Partnerships: Benson Re-Visited. *Public Management Review* 6(1): 75–94.

- Jennings, Edward T., and Jo Ann Ewalt. 1998. Interorganizational Coordination, Administrative Consolidation, and Policy Performance. *Public Administration Review* 58(5): 417–28.
- Jones, Candace, William Hesterly, and Stephen Borgatti. 1997. A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. *Academy of Management Review* 22(4): 911–45.
- Kedia Ben L., and Ananda Mukherji. 1999. Global Managers: Developing a Mindset for Global Competitiveness. *Journal of World Business* 34(3): 230–51.
- Kenis, Patrick, and Jörg Raab. 2003. What Do Policy Networks Do? Paper prepared for the Conference on Democratic Governance, May 22–23, Copenhagen, Denmark.
- Kettl, Donald F. 2002. *The Transformation of Governance: Public Administration for Twenty-First Century America*. Baltimore: Johns Hopkins University Press.
- . 2003. Contingent Coordination: Practical and Theoretical Puzzles for Homeland Security. *American Review of Public Administration* 33(3): 253–77.
- . 2004. *System under Stress: Homeland Security and American Politics*. Washington, DC: CQ Press.
- Khademian, Anne M. 2002. *Working with Culture: How the Job Gets Done in Public Programs*. Washington, DC: CQ Press.
- . 2005. The Politics of Homeland Security. In *The McGraw-Hill Homeland Security Handbook*, edited by David G. Kamien, 1091–1114. McGraw Hill.
- Kickert, Walter, Erik-Hans Klijn, and Joop F. M. Koppenjan, eds. 1997. *Managing Complex Networks*. London: Sage Publications.
- Klijn, Erik-Hans, and Joop F. M. Koppenjan. 2000. Public Management and Policy Networks: Foundations to a Network Approach to Governance. *Public Management* 2(2): 135–58.
- Ladd, Darin A., and Mark A. Ward. 2002. An Investigation of Environmental Factors Influencing Knowledge Transfer. *Journal of Knowledge Management Practice* 3. <http://www.tlinc.com/articl38.htm> [accessed November 27, 2007].
- La Porte, Todd R. 1996. Shifting Vantage and Conceptual Puzzles in Understanding Public Organization Networks. *Journal of Public Administration Research and Theory* 6(1): 49–74.
- Lave, Jean, and Etienne Wenger. 1991. *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge University Press.
- Markle Foundation. 2003. *Creating a Trusted Information Network for Homeland Security* (Second Report of the Markle Foundation Task Force). [http://www.markletaskforce.org/Report2\\_Full\\_Report.pdf](http://www.markletaskforce.org/Report2_Full_Report.pdf) [accessed November 27, 2007].
- Mason, Richard O., and Ian I. Mitroff. 1973. A Program for Research on Management Information Systems. *Management Science* 19(5): 475–87.
- McGrath, Rita Gunther, and Ian MacMillan. 2000. *The Entrepreneurial Mindset: Strategies for Continuously Creating Opportunity in an Age of Uncertainty*. Boston: Harvard Business School Press.
- McKinney, Matthew, and William Harmon. 2004. *The Western Confluence: A Guide to Governing Natural Resources*. Washington, DC: Island Press.
- McSwite, O. C. 1997. *Legitimacy in Public Administration: A Discourse Analysis*. Thousand Oaks, CA: Sage Publications.
- Meier, Kenneth J., and Laurence O'Toole, Jr. 2003. Public Management and Educational Performance: The Impact of Managerial Networking. *Public Administration Review* 63(6): 689–99.
- Miller, Gary J. 1992. *Managerial Dilemmas: The Political Economy of Hierarchy*. Cambridge: Cambridge University Press.
- Milward, H. Brinton, and Keith G. Provan. 1998. Measuring Network Structure. *Public Administration* 76(2): 387–407.
- Moe, Ronald. 1994. The Reinventing Government Exercise: Misinterpreting the Problem, Misjudging the Consequences. *Public Administration Review* 54(2): 111–22.
- Moore, Mark. 1995. *Creating Public Value: Strategic Management in Government*. Cambridge, MA: Harvard University Press.
- Moynihan, Donald. 2005. Goal-Based Learning and the Future of Performance Management. *Public Administration Review* 65(2): 203–16.
- Nahapiet, Janine, and Sumantra Ghoshal. 1998. Social Capital, Intellectual Capital and the Organizational Advantage. *Academy of Management Review* 23(2): 242–66.
- Nicolini, Davide, Silvia Gherardi, and Dvora Yanow, eds. 2003. *Knowing in Organizations: A Practice-Based Approach*. Armonk, NY: M. E. Sharpe.
- O'Leary, Rosemary, Robert F. Durant, Daniel J. Fiorino, and Paul S. Weiland. 1999. *Managing for the Environment: Understanding the Legal, Organizational, and Policy Challenges*. San Francisco: Jossey-Bass.
- Orr, Julian. 1996. *Talking about Machines: An Ethnography of a Modern Job*. Ithaca, NY: Cornell University Press.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. New York: Cambridge University Press.
- O'Toole, Laurence J., Jr. 1997. Treating Networks Seriously: Practical and Research-Based Agendas in Public Administration. *Public Administration Review* 57(1): 45–52.
- Owen-Smith, Jason, and Walter W. Powell. 2004. Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston

- Biotechnology Community. *Organization Science* 15(1): 5–21.
- Peters, B. Guy. 2001. *The Future of Governing*. Lawrence: University of Kansas Press.
- Peters, B. Guy, and John Pierre. 1998. Governance without Government: Rethinking Public Administration. *Journal of Public Administration Research and Theory* 8(2): 223–44.
- Pfeffer, Jeffrey, and Gerald R. Salancik. 1978. *The External Control of Organizations: A Resource Dependence Perspective*. New York: Harper & Row.
- Podolny, Joe, and Karen Page. 1998. Network Forms of Organization. *Annual Review of Sociology* 24: 57–76.
- Powell, Walter W. 1990. Neither Market nor Hierarchy: Network Forms of Organization. In *Research in Organizational Behavior*, vol. 12, edited by Barry M. Staw and L. L. Cummings, 295–336. Greenwich, CT: JAI Press.
- . 1998. Learning from Collaboration: Knowledge and Networks in the Biotechnology and Pharmaceutical Industries. *California Management Review* 40(3): 227–40.
- Powell, Walter, and Peter Brantley. 1992. Competitive Cooperation in Biotechnology: Learning Through Networks? In *Networks and Organizations*, edited by Nitin Nohria and Robert G. Eccles, 366–94. Boston: Harvard Business School Press.
- Powell, Walter, Kenneth Kopet, and Laurel Smith-Doerr. 1996. Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology. *Administrative Science Quarterly* 41(1): 116–45.
- Provan, Keith G., and H. Brinton Milward. 1995. A Preliminary Theory of Network Effectiveness: A Comparative Study of Four Mental Health Systems. *Administrative Science Quarterly* 40(1): 1–33.
- . 2001. Do Networks Really Work? A Framework for Evaluating Public Sector Organizational Networks. *Public Administration Review* 61(4): 414–23.
- Raab, Jörg, and H. Brinton Milward. 2003. Dark Networks as Problems. *Journal of Public Administration Research and Theory* 13(4): 413–39.
- Reich, Robert B., ed. 1990. *The Power of Public Ideas*. Cambridge, MA: Ballinger.
- Resnick, Mitchel. 1996. Beyond the Centralized Mindset. *Journal of the Learning Sciences* 5(1): 1–22.
- Rhodes, R. A. W. 1996. The New Governance: Governing without Government. *Political Studies* 44(4): 652–67.
- Rittel, Horst W. J., and Melvin Webber. 1973. Dilemmas in a General Theory of Planning. *Policy Sciences* 4: 155–59.
- Roberts, Nancy C. 1992. Public Entrepreneurship and Innovation. *Policy Studies Review* 11(1): 55–71.
- . 1997. Public Deliberation: An Alternative Approach to Crafting Policy and Setting Direction. *Public Administration Review* 57(2): 124–32.
- . 1999. Innovation by Legislative, Judicial, and Managerial Design. In *Public Management Reform and Innovation: Research, Theory, and Application*, edited by H. George Frederickson and Jocelyn M. Johnston, 89–110. Tuscaloosa: University of Alabama Press.
- . 2000. Wicked Problems and Network Approaches to Resolution. *International Public Management Review* 1(1): 1–19.
- . 2002a. Keeping Public Officials Accountable through Dialogue: Resolving the Accountability Paradox. *Public Administration Review* 62(6): 658–69.
- . 2002b. *The Transformative Power of Dialogue*. Boston: JAI Press.
- Root, Franklin R. 2003. Some Taxonomies of International Cooperative Arrangements. In *Cooperative Strategies and Alliances*, edited by Farok J. Contractor and Peter Lorange, 69–80. Boston: Elsevier Science.
- Rosenau, James N., and Ernst-Otto Czempiel, eds. 1992. *Governance without Government: Order and Change in World Politics*. New York: Cambridge University Press.
- Scharpf, Fritz W. 1999. *Governing in Europe: Effective and Democratic?* New York: Oxford University Press.
- Schau, H. J., M. F. Smith, and P. I. Schau. 2005. The Healthcare Network Economy: The Role of Internet Information Transfer and Implications for Pricing. *Industrial Marketing Management* 34(2): 147–56.
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Selznick, Philip. 1957. *Leadership in Administration: A Sociological Interpretation*. New York: Harper & Row.
- Snider, Keith F. 2000. Expertise or Experimenting: Pragmatism and the American Public Administration, 1920–1950. *Administration & Society* 32(3): 329–54.
- Susskind, Lawrence, Sarah McKernan, and Jennifer Thomas-Larmer, eds. 1999. *The Consensus Building Handbook: A Comprehensive Guide to Reaching Agreement*. London: Sage Publications.
- Terry, Larry. 1995. *Leadership of Public Bureaucracies: The Administrator as Conservator*. Thousand Oaks, CA: Sage Publications.
- Tushman, Michael L., and Thomas J. Scanlan. 1981. Characteristics and External Orientations of Boundary Spanning Individuals. *Academy of Management Journal* 24(1): 83–98.
- Van Bueren, Ellen M., Erik-Hans Klijn, and Joop F. M. Koppenjan. 2003. Dealing with Wicked



- Problems in Networks: Analyzing an Environmental Debate from a Network Perspective. *Journal of Public Administration Research and Theory* 13(2): 193–212.
- Weber, Edward P. 1998. *Pluralism by the Rules: Conflict and Cooperation in Environmental Regulation*. Washington, DC: Georgetown University Press.
- . 2003. *Bringing Society Back In: Grassroots Ecosystem Management, Accountability, and Sustainable Communities*. Cambridge, MA: MIT Press.
- Weber, Edward P., and Anne Khademian. 1997. From Agitation to Collaboration: Clearing the Air through Negotiation. *Public Administration Review* 57(5): 396–410.
- Weber, Edward P., Nicholas P. Lovrich, and Michael Gaffney. 2005. Collaboration, Enforcement, and Endangered Species: A Framework for Assessing Collaborative Problem Solving Capacity. *Society and Natural Resources* 18(8): 677–98.
- Weber, Edward P., Nicholas P. Lovrich, and David Nice. 2000. Understanding Urban Commuters: How Are Non-SOV Commuters Different from SOV Commuters? *Transportation Quarterly* 54(2): 105–16.
- Yanow, Dvora. 2004. Translating Local Knowledge at Organizational Peripheries. *British Journal of Management* 15: S9–25.

### Attention Instructors

Have you reminded your students lately of the value of ASPA membership? Encourage them to visit [www.aspanet.org](http://www.aspanet.org) to take advantage of the best bargain available to practitioners and scholars in our field.