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Sharon S. Dawes
Anthony M. Cresswell
Theresa A. Pardo
University at Albany/SUNY

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From "Need to Know" to "Need to Share": Tangled Problems, Information Boundaries, and the Building of Public Sector Knowledge Networks

Research on organizational networks in the public sector has burgeoned since the mid-1990s. This body of work includes, among other things, studies of structure, function, focus, development, processes, resources, relationships, costs, benefits, and results. Some of this work is empirical, some conceptual. Some of it explores hypotheses and develops theory, some aims to inform and improve practice, and some seeks to do both. This body of work represents great variety in the policy domains examined, kinds of organizations and levels of government involved, the role (if any) of actors or organizations outside government, the level of analysis, choice of methodologies, and so on. In a sense, research on public sector networks and network dynamics itself represents a tangle of problems. These share some of the characteristics of the tangled policy or management problems that were at the heart of the case studies in our article. The good news is that we are learning a lot and have ample opportunity to learn more. The frustrating news is

that we still lack a strong theory of networked public management, and no single stream of this diverse research area is likely to produce one soon. It is in this context that we would like to respond to the thoughtful e-commentaries provided by Sharon Caudle and Lisa Bingham in this interactive discussion format of *Theory to Practice*.

First, however, we should state our preferences and motivations for working on public sector networks in general and public sector knowledge networks (PSKNs) in particular. Simply stated, we take Laurence O'Toole's (1997) question as a starting point: "What if networks mattered?" Twelve years ago O'Toole asserted that:

Discussions in the field contain little to help practicing managers cope with network settings.... And yet, these arrays are now consequential and becoming increasingly so. Practitioners need to begin to incorporate the network concept into their administrative efforts. The challenge for

scholars is to conduct research that illuminates this neglected aspect of contemporary administration. (45)

Agranoff and McGuire (2001) later sketched a network research agenda that encompasses network management, collaborative processes, responsibility and accountability, flexibility, cohesiveness and trust, power, and results. They urged researchers to shed light "on these issues by examining the *black box* of networks...to contribute to building an empirically derived knowledge base of network management" (295).

Our research program at the Center for Technology in Government focuses on the black box. It empirically examines the interactions among policy, management, technology, and information in the functioning and performance of government. It is further characterized by combining empirical research on public management problems with the practical application of research results by government managers. Consequently, our work nearly always involves a close and sustained working partnership with managers in public agencies. In these settings, we see firsthand the many ways in which networks do matter, as well as the many difficulties that public managers encounter as they try to build, manage, and work within them.

Since most of this work entails long-term engagements and multiple methods, we have had the opportunity to compile an extraordinarily rich and nuanced dataset that includes survey data, hundreds of interviews, and countless of hours of observation, as well as many kinds of documentary evidence and, in some cases, prototypes or experiments. Our article is a brief summary of the big, practical lessons that have emerged so far from this work, prepared for a managerial audience.

In her e-commentary, Sharon Caudle correctly points out that we have reported some of these lessons before. The 2006 (Zhang and Dawes) article that she cites reported on an exploratory study which rests on the data from two successive surveys of the same groups of network participants, some of which are used as case illustrations in our article. This was one look at the quantitative data that produced a variety of findings which were then tested and confirmed by qualitative analysis and by additional later case studies. Other lessons—on leadership, trust, early and authentic treatment of stakeholder needs, and others—emanate from these additional studies and analyses.

Given the characteristics of our research program and the opportunities we have to pursue it, we have chosen to pull on three threads in the tangle of possible ways to study, understand, and improve these networks. First, we take unfolding public management challenges as a problem focus. We study initiatives in which public managers are in the process of taking deliberate action, often in tentative and experimental ways, to work with other organizations to accomplish some shared goal or solve a shared problem. In other words, we study networks in action. Second, because cross-boundary organizational relationships inside government or between government and external agents or partners are essential to networked action, we try to learn in detail how those relationships develop, how they are perceived, and how well they work and why. The research is therefore multi-method, both qualitative and quantitative, and often longitudinal. Third, we focus specifically on knowledge and information as essential resources in these networks. This focus includes not only flows and exchanges but also the characteristics and quality of the information itself, as well as the suitability and usability of tech-

nologies, and other means for information and knowledge sharing and management.

These three threads—management action, cross-boundary relationships, and information and knowledge as resources—combine to give us a certain view into PSKNs and allow us to ask and try to answer certain kinds of questions, many of which we explored in our article. To be sure, however, there are many other threads in this tangle, and they are also worthy of concentrated attention. Some of these include:

- Organizational collaboration as a general matter for study. This is essential context for our own work but not its main focus.
- Public governance as a network form and a means of networked action. (This is a topic of the Bingham e-commentary, which we will return to in a moment.)
- Many other ways to explore the meaning and usefulness of findings in the areas we have chosen for study (including those emphasized in the Caudle e-commentary and discussed more below).
- Additional questions and issues that emerge only after we understand something a bit better than we did before. This, of course, is a hallmark of wicked and tangled problems, and it keeps researchers and managers alike in constant action.

Readers should note that the Caudle and Bingham e-commentaries were based on the shorter print version rather than the longer online version of our article due necessarily to the *PAR* production process. Consequently, some of the observations made by the e-commentators are addressed to some extent in the longer version. For example, in the online version we attempt to place PSKNs in

the context of other kinds of public sector networks such as those devoted to service delivery, policy formulation, or the development of professional identity and expertise. We have also provided longer descriptions (and citations or links to full reports) of the six case studies to give readers a better idea of the situation, relationships, and challenges that each one embodies. In an expanded discussion of future research, we offer a broader and more detailed description of our ideas for extending this line of research to develop a better-framed typology of PSKNs and for delving more deeply into needed human and organizational capabilities and ways to measure and improve them. (These are both areas that Sharon Caudle and Lisa Bingham respectively discuss at some length in their e-commentaries.) Our online version also offers some ideas for addressing the need for a useful theory of the relationship between knowledge and practice, drawing on themes from sociology and anthropology. That said, we would like to explore some of the comments and to make our views and choices of emphasis more plain so that further discussion with interested readers can continue.

Lisa Bingham's e-commentary offers two very valuable contributions to the discussion. Her elaboration of the importance of legal frameworks for PSKNs and other forms of collective action deftly points out the underlying problems of a government that assigns authority on the basis of outdated notions about the ability of single agencies or programs to carry out complex responsibilities. We too have found that agencies do not so much suffer from prohibitions against collaboration (in our case, information sharing) as they do from the lack of an explicit legal basis for, in Bingham's words, "how to exercise their delegated authority in networks." She offers examples from negotiated rulemaking and administra-

tive dispute resolution that might serve as models for both foundational authorization and practical guidance in implementing collaborative action.

Bingham's e-commentary also provides a very useful discussion of conflict management and negotiation as essential skills for managers working in network settings. Her comments emphasize the need for skills in problem framing, mutual education, value creation, option generation, and evaluation, among others. Our article enumerates some of the skills we view as critical, especially in leaders, including leading by example, persuasion, education, and focus on human relations. Although not part of this *Theory to Practice* article, we have also done considerable work on capabilities for information sharing and integration, including a self-assessment guide that assists leaders, planners, and participants to assess their individual and collective capabilities in such areas as collaboration readiness, stakeholder identification and engagement, resource management, data assets and management, governance, organizational compatibility and information policies (Cresswell et al. 2005).

Bingham's strong statement of the governance role of PSKNs ("...that these are not simply information technology (IT) structures but rather structures for governance") deserves some further discussion. Our article focuses on PSKNs as useful in problem solving and identifies relevant problems, mostly by example. Of the ones identified in the article, some are clearly examples of governance in a management sense. That idea is articulated clearly by Michael Spicer's (2007) thoughts on Bernard Crick. Spicer contrasts Crick's view of governance as primarily political and engaged in the resolution of value differences with the more instrumentalist rationalist views of Lynn, Heinrich, and Hill (2000). The latter view "ex-

presses both an instrumental rationalist and a deterministic vision of the process of governance" (774). We think of governance more in Crick's sense, of dealing with the political, value reconciling, and structuring aspects of public administration and government. That also seems to fit with Bingham's emphasis on the public role in governance. PSKNs however, can be effective and important in a much broader range of problem solving in public administration. Clearly Bingham's point of the value of public inclusion is well taken. However, it raises the question of where and in what form public knowledge sharing should be part of problem solving and where more technical or professional knowledge is needed.

Bingham's comments about public input in the real-estate assessment case misses the point of the problem in that particular situation. This illustrates the difficulty of assessing how to include public (or any other source) of input in problem solving. Assessors had too few sales available for estimating market value and rejected as politically infeasible using sales data from surrounding jurisdictions as a basis for assessments in their own jurisdiction. Bingham suggests that the assessors could have consulted potential purchasers in their own jurisdiction as a source of market value. The state Office of Real Property Services is legally responsible for collecting transaction data and adjusting assessments according to estimated market values. Individual assessors do not have this authority and the public is leery of statistical methods that can have such large impacts on their tax bills. In this case, rather, the principle problem was the need for improved knowledge sharing between the local assessors and the state regulating agency, not with the public.

By contrast, the GIS cooperative case has great potential for, and a long record of,

public involvement. It was designed in an open consultative process that involved data collectors and data users. It makes data and data descriptions available to public users through a statewide clearinghouse and facilitates public access to data holdings that are maintained by various state and local entities outside the clearinghouse. Nevertheless, the essential components of the data cooperative required negotiation and agreement among the government entities as the foundation for the entire program, so internal network governance remains essential as well.

Sharon Caudle's comments are very useful for designing further research because of the connections she describes with a wide range of other research literature (on communities of practice, assessment, and coordination). She also makes reference to ways in which other studies of practice, such as those conducted by the Government Accountability Office on information sharing, could be used as a way to test or triangulate on our findings further. In particular, her comments on the need to identify critical success factors point to valuable directions for new exploration. We also agree that more explicit treatment and exploration of alternative typologies of PSKNs would make the distinctions among different types more visible and useful for both study and application.

Caudle's heavy emphasis on collaborative networks in much of this e-commentary does call for some discussion. Collaboration in a set of network relationships can take many forms, only one of which is the kind of knowledge sharing we describe. Collaboration can involve joint decision making and direction or coordination of action, resource sharing or pooling, division of labor, and data sharing as well as knowledge sharing.

Further, effective knowledge-sharing collaborations come in different flavors, since the

kinds of interactions necessary for sharing knowledge can vary with the nature of the knowledge itself and the purpose for sharing it. For example, studies of transmitting knowledge that has mainly tacit characteristics describe many kinds of intense and often long-term interpersonal interactions. By contrast, more formalized and explicit knowledge may require only shorter interactions or can be extensively mediated. Finally, in the cases reported in the paper, some forms of effective knowledge sharing were a prerequisite for establishing other forms of collaboration. Consequently, we expect that further investigations will find many kinds of relationships between knowledge networks and other kinds of collaboration.

We thank the e-commentators for their thoughtful engagement with our work and welcome others to join in the conversation.

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