

Complexity, Governance, and Networks: Perspectives from Public Administration

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Complex public policy problems require a productive collaboration among different actors from multiple sectors. Networks are widely applied as a public management tool and strategy. This warrants a deeper analysis of networks and network management in public administration. There is a strong interest in both in practice and theory of networks in public administration. This requires an analysis of complex networks within public governance settings. In this this essay I briefly discuss research streams on complex networks, network governance, and current research challenges in public administration.

Keywords: Complexity, networks, network governance, network analysis.

1. Introduction

Complex public problems require a productive collaboration across different organizations, professions, and sectors. Network governance refers to inclusive and participatory approaches to policy-making, collective action, and implementation. In addressing the complex policy problems, public managers, civic leaders, and professionals are often being expected to cooperate with each other. In difficult times, collaborative strategies and cross-boundary institutions gain importance for sharing resources, solving complex policy problems, and leveraging experience and knowledge. Devolution, privatization, and regulation are social, political, and economic trends that have resulted in an increased use of networks in the U.S. and affected their structures and functions. The move to privatize public services involves transfers of ownership to increase efficiency in them.

As the popularity of the New Public Management approach waned (Polidano, 2001), network governance and collaborative management approaches in administering programs to provide public services have gained popularity (McGuire, 2006; Provan & Kenis, 2007). The network governance approach has become influential also in the literature on public policy deliberation, design, and implementation, as policy processes have involved increasingly multiple stakeholders and deregulation. The new forms of governance have been depicted in terms of network relations in the literatures of public administration and public policy. It is argued that governance, policy, or public management networks help



the public sector mobilize resources from non-state actors in order to deliver effective services and formulate and implement public policies (Frederickson, 1999; Ingold & Varone, 2012; Kapucu, 2012; Powell, 1990; Rhodes & Williams, 1996).

The literature has identified various types of networks such as collaborative networks, policy networks, public management networks, and governance networks (Heaney, 2006; Isett, Mergel, LeRoux, Mischen, & Rethemeyer, 2011). The literature on *policy networks* is the oldest; the focus of this literature is mainly on public policy decision-making and involves policy making actors. The term *collaborative networks* is commonly used to depict the networks of governmental and non-governmental organizations in the administration of public programs and the delivery of public services. The term *governance networks* emphasize the governance process to achieve cross-sector and inter-organizational goals in the public sector (Isett et al., 2011). Governance networks conceptualization call to the attention the fact that government agencies, or the public sector in general, cannot solve today's complex policy problems by themselves and they need the help of non-state actors (Lecy, Mergel, & Schmitz, 2013). In the public administration and policy literature, often the terms policy, collaborative, and governance networks are used interchangeably.

2. Complexity, Governance, and Networks

Networks can offer the complex, interdependent responses to complex policy problems that have uncertain solutions and can lead to political disagreements (Provan & Lemaire, 2012). Complex problems “lack a definite formulation” and a “stopping rule”; “[e]numerable sets of potential solutions” do not exist for these wicked problems, and the solutions are just “better or worse,” not right or wrong (Koliba, Meek, & Zia, 2011a, p. 15). Networks are also necessary when political processes complicate administrative strategies (Kettl, 2006). Networks can combine human capital in order to participate in collaborative problem-solving activities. The use of network concept can be traced back to the beginning of the studies on federalism in the U.S. (Kettl, 2006; Koliba et al., 2011a). Scholars connected network governance to intergovernmental cooperation in the 1960s (Emerson, Nabatchi, & Balogh, 2012).

As public problems have become more and more complex, there has been a realization that individual government agencies working alone can no longer handle them. Instead, there has been a growing emphasis on replacing hierarchical bureaucratic structures with more integrated horizontal networks. These networks have been the focus of recent works on collaborative public management involving a variety of network arrangements. Although these types of collaborative efforts are increasing in numbers, a related growing concern is whether such arrangements have been any more effective than those involving single-agency or hierarchical structures. The measures that are often used to answer this question are those that apply to individual organizations, rather than network arrangements.

Networks are complex systems that have emergent qualities, they are adaptive to changing conditions, and they have the capability to self-organize. In both systems theory

and complexity theory, the roles of feedback and interactions play a central role in understanding society (Koliba et al., 2011a). As complex systems, networks change according to the “relative strength of feedback loops” (Koliba et al., 2011a, p. 92). Negative feedback are “controls placed over the system that come into effect when the system deviates from a goal” (Koliba et al., 2011a, p. 175). Positive feedback are rewards to the system that accentuates as a result of the two forces of mimicking and attention shifting, which together lead to saliency of previously ignored policy issues in a debate. The medium of feedback in governance networks may be explicit or tacit in the following possible forms: policy tools – grants, contract agreements, and regulations, representation and interest group competition, acts of administration, accountability, and performance measurement (Koliba et al., 2011b).

3. Complexity and Networks

Networks involve a number of actors that are not only connected to each other, but also interdependent (Agranoff, 2007; Agranoff & McGuire, 2001). According to Sørensen (2006) the term governance implies “a complex governing process in which a multitude of public and private actors interact to govern society” (p. 99). Governance networks are characterized by the complexity of the interactions and decision-making process as well as the policy development and implementation (Klijn, Edelenbos, & Steijn, 2010). Complexity is described as the challenges and uncertainties that arise when managing and governing through networks, making policy decisions, and policy implementations. The high level of interdependence, number of functions, and number of actors involved in networks increase their complexity. Sørensen (2006) specifically states that the multitude of actors (and expected functions and tasks) involved in the process of governance increases the complexity of network governance. The different perceptions, cultures, goal convergence, institutional frameworks, and power structures of actors involved in the networks also cause complexity (O’Leary & Vij, 2012).

The existence of uncertainties contributes to complexity of networks in addition to the other factors highlighted above. Bueren, Klijn, and Koppenjan (2003) identify three types of uncertainties that typify policy problems: cognitive, strategic, and institutional uncertainty. Cognitive uncertainty, as the name implies deals with the lack of a clear understanding of the causal relationships that underlie the problem and are a result of a lack of scientific knowledge on the subject matter. Strategic uncertainty results from the multiple perspectives coming from multiple actors trying to address the wicked problem. Conflicting strategies and diverging perceptions may result in a lack of progress in formulating solutions and also unexpected consequences. Institutional uncertainty is the result of the nature of decision-making that takes place through complex policy networks that are polycentric in nature, fragmented and belong to multiple arenas and levels (local, regional, country-level, global).

Some in the literature highlight the complexity and uncertainty in governing networks and focus on how to deal with policy problems by utilizing networks and governance

effectively. Acknowledging complexity of network governance is one thing; developing capacities in effective network governance is another. For example, Termeer, Dewulf, Breeman, and Stiller (2012) identify four governance capabilities that are important for addressing these potential problems in managing complex networks. These capabilities are: (1) reflexivity (capability to prevent tunnel vision and appreciate different perspectives and frames); (2) resilience (capability to adjust actions to unpredictable consequences and changing conditions); (3) responsiveness (capability to respond to diverse demands, changing expectations and issues); (4) revitalizing (capability to overcome stagnations and recuperate policy processes).

Complexity is not only a characteristic of policy problems that networks aim to solve, but it is a characteristic of the governance of the networks as well. Collaboration between actors in the network involves a struggle for advantage and compromise to determine the real impact and value of managing in networks (Meier & O'Toole, 2007). Thus, although actors and agencies are working towards achieving collaborative advantage, they also seek to maintain their institutional identity, influence and power (Koliba et al., 2011a). According to Sørensen and Torfing (2009), governance networks aim to solve policy problems and “enhance democratic participation in public policy-making, but it may also create conflicts and deadlocks and make public governance less transparent and accountable” (p. 234). In their comparative analysis of the governance networks literature, Klijn and Edelenbos (2013) observe that most of the literature in the US has focused on service delivery and policy implementation networks, while the European literature utilizes networks to describe policy creation and decision-making in dealing with complex problems.

4. Network Governance

This section briefly highlights network governance perspectives in dealing complex policy issues and implementation. Network governance includes non-state actors; it is a participatory approach to policy-making, collective action, and implementation (Bingham, Nabatchi, & O'Leary, 2005; Provan & Huang, 2012). The emphasis is on the complex interactions between different entities to manage governance processes and provision of public services. “Networked governance is a particular framing of collective decision making that is characterized by a trend for a wider range of participants to be seen as legitimate members of the decision-making process in the context of considerable uncertainty and complexity” (Stoker, 2006, p. 41). The term *network governance* is commonly substituted with *network management* in the public administration literature. This literature has focused on how management in networks is different or similar compared to managing in more traditional settings of the hierarchy or a market-based system (Agranoff & McGuire, 2001; Fung, 2006; Meier & O'Toole, 2001). Agranoff and McGuire (2001) have identified key network management behaviors and strategies in network governance.

Another major stream of literature concerns the effectiveness and the performance of network governance. Some scholars study the performance of local public networks

through empirical analysis (Span, Luijkx, Schols, & Schalk, 2012), while most others rely on conceptual and theoretical discussions on the outcomes of collaborative arrangements (Rogers & Weber, 2010), network management strategies and performance measurements of networks (Herranz, 2008, 2010; Provan & Milward, 2001), and network performance and effectiveness (Provan & Lemaire, 2012; Provan & Milward, 1995).

There is also a literature on the implications of network governance for democracy (Bogason & Musso, 2006; Heikkila & Isett, 2007; Klijn & Edelenbos, 2013; Mathur & Skelcher, 2007; Sørensen, 2006; Sørensen & Torfing, 2009; Zeemering, 2012). There is an emphasis on enhancing accountability and promoting democratic values in networks by the involvement of citizens (Bogason & Musso, 2006; Fung, 2006). Klijn and Skelcher (2007) suggest that more recently scholars have started studying the relationship between representative democracy and governance networks, or as Klijn and Skelcher (2007) call it the “democratic dimension of governance networks.”

Other recent topics and areas of study concern the influence of trust in the performance of governance networks (Klijn et al., 2010), accountability of networks (Koliba, Mills, & Zia, 2011b), economic development networks (Feiock, Lee, & Park, 2012), and environmental management (Robins, Bates, & Pattison, 2011). Some recent studies applied new innovative methods of analyzing performance of networks, such as comparing effectiveness of disaster response networks by comparing planned networks with emergent/actual networks during disasters (Brooks, Bodeau, & Fedorowicz, 2012; Choi & Brower, 2006; Kapucu & Demiroz, 2011; Nohrstedt, 2013).

5. Methodological Issues

As governing of complex networks provides several challenges, so does studying of the complex network governance. Recently the concept of network and network governance have received increasing attention in public administration and policy circles. I personally see network analysis is one of the appropriate methods in studying network governance. In the study of network governance, questions arise about whether boundaries (mission, resources, capacity, responsibility, and accountability) should exist, how they are drawn, and how to deal with their trade-offs. The mission of a network is to address a specific complex problem by allocating resources and a large budget while managing its inter-organizational capacity and expertise. Each actor in the network must have defined roles and responsibilities to ensure proper contribution to the mission, but the inability to hold any one actor accountable amidst shared responsibility is a potential issue (Kettl, 2006).

Most of the literature that exists on network governance is conceptual and theoretical in nature and there are only few occasions in which the concepts were tested empirically. Most of the researchers did not operationalize the term network; they rather used it as a metaphor. The most popular method used in studying networks in public administration is case studies. This is somehow expected since the contextual nature of networks impacts the characteristics and structure of governance networks. The context is also integral to

understanding the complexities and processes involved in the interactions and exchanges that make up a governance network. Other researchers used comparative case studies (Herranz, 2010; Nowell, 2009; Rogers & Weber, 2010).

Most studies on networks either relied on interviews of network actors, or some document or content analysis. Elite interviews are a common source of data for research on governance networks (e.g. Sørensen, 2006; Zeemering, 2012). Sørensen (2006) relied on elite interviews to understand the outcomes of network governance in four Danish municipalities, for example. Even though limited, some of the articles used social network analysis (SNA) as a method. Among the measures used, whole network such as density, visual maps, and centralization measures along with ego network measures, such as degree centrality and betweenness centrality were most common.

SNA is utilized as an analysis method in analyzing theoretical constructs that are defined as relational. These constructs can be processes and outcomes (Knox, Savage, & Harvey, 2006; Wasserman & Faust, 1994). SNA analyzes ties among actors or nodes within a network. Actors within a network can represent individuals, organizations, and communities. These ties can indicate communication, information exchange, formal contractual relations, or, informal friendship ties between nodes. SNA provides ways to analyze dynamic relationships between various actors and examining complex processes and various types of interactions within network governance systems. Both intra- organizational and inter-organizational relationships can be studied using SNA.

6. Conclusion

The ability for organizations to collaboratively work across sectors in order to solve complex public policy problems exists through networks, governance networks, collaborative governance, and collaborative public management. Several principles from economics, organization behavior, political science and policy studies, sociology, and human behavior were utilized in addressing complexity networks across individuals, organizations, and sectors.

Even though the essay used limited number of journals in the field of public administration for a limited time period and books, the growth in studying complexity, governance, and networks in public administration is a noticeable fact. A major body of research on network governance in public administration concerns the performance of networks or the effectiveness of managing through networks. Some progress has been made in using different methods, such as case study method, different tools such as social network analysis, as recommended by Berry et al. (2004), to advance research on network governance in public administration. Yet, significant challenge remains to be addressed by the researchers in the future.

The number of network research has significantly increased since O'Toole's (1997) call for more rigorous and systemic research on networks. Yet methodological advancements of network research is still behind the need in public administration. Compared with the rapidly growing interest in collaborative governance and network research, empirical

studies on networks remain limited. I hope that *Complexity, Governance, and Networks* will provide a platform for researchers from interdisciplinary perspectives, including public administration, to advance research on complex governance networks.

References

- Agranoff, R. (2007). *Managing within networks: Adding value to public organizations*. Washington, DC: Georgetown University Press.
- Agranoff, R., & McGuire, M. (2001). Big questions in public network management research. *Journal of Public Administration Research and Theory*, 11, 295–326.
- Berry, F. S., Brower, R. S., Choi, S. O., Goa, W. X., Jang, H.S., Kwon, M., & Word, J. (2004). Three traditions of network research: What the public management research agenda can learn from other research communities. *Public Administration Review*, 64(5), 539–552.
- Bingham, L. B., Nabatchi, T., & O’Leary, R. (2005). The new governance: Practices and processes for stakeholder and citizen participation in the work of government. *Public Administration Review*, 65(5), 547–558.
- Bogason, P., & Musso, J. A. (2006). The democratic prospects of network governance. *The American Review of Public Administration*, 36(1), 3–18.
- Brooks, J., Bodeau, D., & Fedorowicz, J. (2012). Network management in emergency response: Articulation practices of state-level managers – interweaving up, down and sideways. *Administration & Society*, 45(8), 911–948.
- Bueren, E. M. V., Klijn, E. H., & Koppenjan, J. F. M. (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.
- Choi, S. O., & Brower, R. S. (2006). When practice matters more than government plans: A network analysis of local emergency management. *Administration and Society*, 37(6), 651–678.
- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 22(1), 1–29.
- Foiock, R. C., Lee, I. W., & Park, H. J. (2012). Administrators’ and elected officials’ collaboration networks: Selecting partners to reduce risk in economic development. *Public Administration Review*, 72(s1), 58–68.
- Fung, A. (2006). Varieties of participation in complex governance. *Public Administration Review*, 66(s1), 66–75.
- Frederickson, H. G. (1999). The repositioning of American Public Administration. *PS: Political Science and Politics*, 32(4), 701–711.
- Heaney, M. T. (2006). Brokering health policy: Coalitions, parties, and interest group influence. *Journal of Health Politics, Policy and Law*, 31(5), 887–944.
- Heikkila, T., & Isett, K. R. (2007). Citizen involvement and performance management in special-purpose governments. *Public Administration Review*, 67(2), 238–248.
- Herranz, J., Jr. (2008). The multisectoral trilemma of network management. *Journal of Public Administration Research and Theory*, 18(1), 1–31.
- Herranz, J., Jr. (2010). Multilevel performance indicators for multisectoral networks and management. *The American Review of Public Administration*, 40(4), 445–460.
- Ingold, K., & Varone, F. (2012). Treating policy brokers seriously: Evidence from the Climate Policy. *Journal of Public Administration Research and Theory*, 22(2), 319–346.
- Isett, K. R., Mergel, I. A., LeRoux, K., Mischen, P. A., & Rethemeyer, R. K. (2011). Networks in public administration scholarship: Understanding where we are and where we need to go. *Journal of Public Administration Research and Theory*, 21(s1), i157–i173.
- Kapucu, N. (2012). *The network governance in response to acts of terrorism: Comparative analyses*. New York, NY: Routledge.
- Kapucu, N., & Demiroz, F. (2011). Measuring performance for collaborative public management: Using network analysis methods and tools. *Public Performance and Management Review*, 34(4), 551–581.

- Kettl, D. F. (2006). Managing boundaries in American administration: The collaboration imperative. *Public Administration Review*, 66(1), 10–19.
- Klijin, E., & Edelenbos, J. (2013). The influence of democratic legitimacy on outcomes in governance networks. *Administration & Society*, 45(6), 627–650.
- Klijin, E., Edelenbos, J., & Steijn, B. (2010). Trust in governance networks: Its impacts on outcomes. *Administration & Society*, 42(2), 193–221.
- Klijin, E. H., & Skelcher, C. (2007). Democracy and governance networks: Compatible or not? *Public Administration*, 85(3), 587–608.
- Knox, H., Savage, M., & Harvey, P. (2006). Social networks and the study of relations: Networks as method, metaphor and form. *Economy and Society*, 35(1), 113–140.
- Koliba, C., Meek, J. C., & Zia, A. (2011a). *Governance networks in public administration and public policy*. New York, NY: CRC Press.
- Koliba, C., Mills, R. M., & Zia, A. (2011b). Accountability in governance networks: An assessment of public, private, and nonprofit emergency management practices following hurricane Katrina. *Public Administration Review*, 71(2), 210–220.
- Lecy, J. D., Mergel, I. A., & Schmitz, H. P. (2013). Networks in public administration. *Public Management Review*, 15(1), 1–23.
- Mathur, N., & Skelcher, C. (2007). Evaluating democratic performance: Methodologies for assessing the relationship between network governance and citizens. *Public Administration Review*, 67(2), 228–237.
- McGuire, M. (2006). Collaborative public management: Assessing what we know and how we know it. *Public Administration Review*, 66(s1), 33–43.
- Meier, K. J., & O'Toole, L. J. (2001). Managerial strategies and behavior in networks: A model with evidence from U.S. public education. *Journal of Public Administration and Theory*, 11(3), 271–293.
- Meier, K. J., & O'Toole, L. J. (2007). Modeling public management: Empirical analysis of the management-performance nexus. *Public Administration Review*, 9(4), 503–527.
- Nohrstedt, D. (2013). Explaining mobilization and performance of collaborations in routine emergency management. *Administration & Society*, 1–28. doi:10.1177/0095399712473983.
- Nowell, B. (2009). Out of sync and unaware? Exploring the effects of problem frame alignment and discordance in community collaboratives. *Journal of Public Administration Research and Theory*, 20(1), 91–116.
- O'Leary, R., & Vij, N. (2012). Collaborative public management where have we been and where are we going? *The American Review of Public Administration*, 42(5), 507–522.
- O'Toole, L. J. (1997). Treating networks seriously: Practical and research-based agendas in public administration. *Public Administration Review*, 57(1), 45–52.
- Polidano, C. (2001). Why civil service reforms fail. *Public Management Review*, 3(3), 345–362.
- Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior*, 12, 295–336.
- Provan, K. G., & Huang, K. (2012). Resource tangibility and the evolution of a publicly funded health and human services network. *Public Administration Review*, 72(3), 366–375.
- Provan, K.G., & Kenis, P. (2007). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, 18(2), 229–252.
- Provan, K. G., & Lemaire, R. H. (2012). Core concepts and key ideas for understanding public sector organizational networks: Using research to inform scholarship and practice. *Public Administration Review*, 72(5), 638–648.
- Provan, K. G., & Milward, H. B. (2001). Do networks really work? A framework for evaluating public sector organizational networks. *Public Administration Review*, 61(3), 414–423.
- Provan, K. G., & Milward, H. B. (1995). A preliminary theory of interorganizational network effectiveness: A comparative study of four community mental health systems. *Administrative Science Quarterly*, 40(1), 1–33.
- Rhodes, R., & Williams, A. (1996). The new governance: Governing without government. *Political Studies*, 44(4), 652–667.
- Robins, G., Bates, L., & Pattison, P. (2011). Network governance and environmental management: Conflict and cooperation. *Public Administration*, 89(4), 1293–1313.

- Rogers, E., & Weber, E. P. (2010). Thinking harder about outcomes for collaborative governance arrangements. *The American Review of Public Administration*, 40(5), 546–567.
- Sørensen, E. (2006). Metagovernance: The changing role of politicians in processes of democratic governance. *American Review of Public Administration*, 36(1), 98–114.
- Sørensen, E., & Torfing, J. (2009). Making governance networks effective and democratic through metagovernance. *Public Administration*, 87(2), 234–258.
- Span, K. C., Luijkx, K. G., Schols, J. M., & Schalk, R. (2012). The relationship between governance roles and performance in local public interorganizational networks: A conceptual analysis. *The American Review of Public Administration*, 42(2), 186–201.
- Stoker, G. (2006). Public value management a new narrative for networked governance? *The American Review of Public Administration*, 36(1), 41–57.
- Termeer, C. J. A. M., Dewulf, A., Breeman, G., & Stiller, S. J. (2012). Governance capabilities for dealing wisely with wicked problems. *Administration & Society*, 1–31. doi:10.1177/0095399712469195.
- Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. New York, NY: Cambridge University Press.
- Zeemering, E. S. (2012). The problem of democratic anchorage for interlocal agreements. *The American Review of Public Administration*, 42(1), 87–103.

