

Shapeshifting to address complexity: Advancing a typology of network evolution and transformation

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In practice, health and social services are delivered through purpose-oriented networks (PONs) that are often favored by government and philanthropic investment as an effective means for collectively solving complex social problems. Current theories examine the evolution of these groups by resting on the traditional organizational forms of market, hierarchy, and network, without a consideration of trajectories that show movement between organizational forms over time. This article utilizes the network itself as the unit of analysis within a larger network domain to examine the most common trajectories and changes in organizational forms over time. To date, little theory has been developed or applied to account for both endogenous characteristics and exogenous system-wide dynamics and their longitudinal effects on networks. As is appropriate in the early stages of developing new theories, this article addresses the foundational steps of first clarifying the phenomenon of interest with the creation of a typology of the ways in which networks evolve as organizational forms and suggesting future network-level and network domain research agendas.

Keywords: purpose-oriented networks; evolution; network forms

Introduction

In practice, health and social services are commonly delivered through purpose-oriented networks (PONs) (Nowell & Kenis, 2019) comprised of public agencies, nonprofit organizations, for-profit businesses, and consumer associations to address complex problems and implement public policy. These networks are often favored by government and philanthropic investment as an effective means for collectively solving complex social problems (Head & Alford, 2015; Morçöl, 2014; Weber & Khademan, 2008). PONs are multi-organizational governance arrangements that can form and evolve over time, yet the nature of these changes has only been considered in the current literature under the assumption that the network itself maintains its organizational form as a network.

To date, there has been little consideration of how and why a PON may potentially move *between* organizational forms. Overall, research and scholarly advancements have focused on differentiating the dynamics of organizational interactions, as seen in traditions like Transaction Cost Economics (Williamson, 1975, 1981), development of clans (Ouchi, 1980), and Collaborative Governance regimes (Ansell & Gash, 2007; Emerson et al., 2012), rather than considering *how* and *why* a network may evolve out of, and into, other organizational forms. This article seeks to address the concerns of a recent article taking stock of network and collaborative governance literature in Public Management that notes that there is a “lack of research on network evolution and tie dissolution” (Siciliano, Wang, & Medin, 2020, p. 14).

Past studies have overlooked the possibility for system-wide dynamics that could contribute to a network’s changes over time in network domains with shared members (one exception is Nowell, Hano, and Yang, 2019). This static view has considered networks as insular and only understood through process and structure theories that are driven by the assumption that the network organizational form itself is stable over time. For example, network governance research has largely grown from Provan and Kenis’ (2007) explication of three progressively more centralized internal processes like shared-governance, lead organization, and network administrative organization. This internal focus overlooks *how* and *why* these groups may respond to environmental contingencies by evolving into other organizational forms as markets or hierarchies over time, rather than remaining a network at all.

This article utilizes the PON itself as the unit of analysis within a larger network domain which is bound as a collection of networks sharing an environmental niche defined by a similar geographic area



and problem-area of focus (Nowell et al., 2019). The specific context of this research includes a variety of health and wellness networks that are situated in a broader network domain defined by shared members who create meaningful inter-network ties. Our field's theory building and empirical research has mostly focused on the nature of changes within a network over time by most often leveraging data from case studies that focus on one or two networks alone (Voets et al., 2020). While there has been some discussion and examination of the nature of the network as a whole to advance an exogenous theory of understanding performance, there is a limited body of studies that examine evolution using the network itself as the unit of analysis (Isett et al., 2011; Kenis & Provan, 2009; Raab & Kenis, 2009; Rethemeyer & Hatmaker, 2007). This research seeks to advance our field's body of knowledge about the nature of a network's trajectory as an entity in-and-of-itself in a network domain over time.

Mechanisms of internal network characteristics are considered here, as has been a tradition in public administration scholarship (Isett et al., 2011), but these forces are also examined in combination with a focus on how a PON's larger network domain (an exogenous force) coupled with its unique characteristics (endogenous factors) may drive evolutionary changes between organizational forms. By considering exogenous system-dynamics, this research highlights issues of flexibility and adaptability, as well as the possibilities for networks to differentiate, merge, or spin-off new groups over time (Nowell et al., 2019). By considering the network's longitudinal trajectory, evolutionary outcomes can also be examined to determine what important aspects may remain after the network organizational form disbands.

As is appropriate in the stages of developing new theories, this research addresses the foundational step of both clarifying the phenomenon of interest and describing its components. Two research questions are addressed in this article:

1. Do networks change form over time?
2. If so, what are the ways in which networks can change?

This article first examines organizational and network theories regarding structure and evolution of networks over time, highlighting the current gap in scholarship regarding how and why networks may evolve *out* of a network organizational form. The data and methods of this research are discussed, followed by a typology of evolution of organizational forms. To conclude, discussion of the findings and avenues for future research are presented.

Network evolution: Structure and process change theories

Networks as a phenomenon can be examined both as social structures and governance forms. This article focuses on networks as an organizational form of governance, or a way to collectively and strategically address issues through purpose-oriented networks (Agranoff & McGuire, 2001; Nowell & Kenis, 2019). This view aligns with the commonly held definitions of community-based networks that engage in collaborative governance (Emerson, Nabatchi, & Balogh, 2012) and are highly boundary spanning, and focused on complex social problems that cannot be solved by one organization or agency alone (Agranoff & McGuire, 2001; Bryson, Crosby, & Stone, 2015, Morçöl, 2014). As noted by Provan, Fish, and Sydow (2007), networks as a form of governance have focused on two levels of analysis: 1) the micro or egocentric level in which individuals and organizations are the center of attention, or 2) the macro or whole-network level.

To situate this study also in the field's traditions of collaborative governance research, it is important to note distinctions of definitions. Collaborative governance is "the processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished" (Emerson et al., 2012, p. 2). PONs are one mode through which collaborative governance may take place, and indeed they often struggle with similar issues of time, trust, and interdependence (Ansell & Gash, 2007; Berthod & Segato, 2019).



This review of extant literature focuses on a whole-network, external view of PONs and is summarized in Table 1 below. This overview is an illustration of how far the field has come, yet also highlights gaps. As will be discussed in more detail in the next section, these past studies do not consider the more complex dynamics that are occurring within a community that houses many network efforts in overlapping issue areas that constitute a domain. Indeed, prior network literature has overlooked the influence of environmental effects of a network domain, defined as a population of PONs focused on the same broad mission area within a defined geographic area, by studying networks as if they are in insular (one notable exception is Nowell et al., 2019). Network domains are also defined as systems of resources in which networks may compete or collaborate. Past literature has examined forces external to a network, like financial resources and policy changes, but research has yet to clearly define and operationalize the effects of the dynamic nature of interdependencies across networks in a system with many other networks.

Scholars who have looked at the whole-network level of analysis have broadly been concerned with governance, structures, and how network outcomes are generated (Provan et al., 2007). Whole-network studies still recognize the importance of individual organizations or agencies, but put more emphasis on the nature of the network's behavior over time as a collective group. Whole-network research is defined by three or more organizations that are connected in meaningful ways to achieve a common goal (Provan et al., 2007).

How networks evolve (Frameworks)	Why networks evolve (Mechanisms)	What features of networks evolve (Components)
<p><i>Linear-sequential</i></p> <ul style="list-style-type: none"> (Gray, 1985) - Overall processes of a network as it forms, based in domain-level interactions (Lowndes & Skelcher, 1998) - Consideration of partnership forms across market, hierarchy, and network; progression of forms is based on inter-organizational relationships, but level of analysis is the form itself (Provan & Kenis, 2007) - Governance focus from participant to NAO, linear "maturing" of network organizing structure <p><i>Cyclical</i></p> <ul style="list-style-type: none"> (Doz, 1996) - Learning cycles for a whole network; initial conditions enter cycle of learning, re-evaluation, and revising conditions <p><i>Dialectical</i></p> <ul style="list-style-type: none"> (McGuire, 1988) - Focus on network construction 	<p><i>Contingencies and environment</i></p> <ul style="list-style-type: none"> (Koka et al., 2006) - Changes in resource munificence and uncertainty lead to organization or agency actions, like tie creation or deletion and changes in network portfolio size and scope (egocentric dynamics that aggregate up to the network level) <p><i>Developmental needs</i></p> <ul style="list-style-type: none"> (Butterfoss & Kegler, 2009)- Network outcomes are driven by roles, relationships, decision-making processes, and member satisfaction/participation patterns (Feiock, 2013) - Focus on nature and change of institutional collective action (ICA) arrangements based on collaboration risk and transaction costs <p><i>Path dependencies</i></p> <ul style="list-style-type: none"> (Gray, 1985) - Overall processes of a network as it 	<p><i>Governance and formality</i></p> <ul style="list-style-type: none"> (Herranz, 2009) - Different network coordination strategies that help balance the informal and formal aspects of Ring and van de Ven's (1994) ego-centric framework (Feiock, 2013) - Focus on nature and change of institutional collective action (ICA) arrangements based on collaboration risk and transaction costs (Provan & Kenis, 2007) - Governance focus from participant to NAO, linear "maturing" of network organizing structure (Saz-Carranza & Vernis, 2006) - Based on critique of past linear process studies; view of governance and formality as a more complex process <p><i>Size, composition, and structure</i></p> <ul style="list-style-type: none"> (Koka et al., 2006) - Changes in resource munificence and

How networks evolve (Frameworks)	Why networks evolve (Mechanisms)	What features of networks evolve (Components)
<p>and externalization based on the social paradigms of component organizations and agencies</p> <p><i>Nonlinear</i></p> <ul style="list-style-type: none"> • (Koliba et al., 2010) - Environmental factors (such as privatization, devolution, public-private partnerships) that give rise to network forms • (Scheinert et al., 2017)- Complex adaptive systems view emphasizing stochastic or random nature of network evolution 	<p>forms, based in domain-level interactions</p> <ul style="list-style-type: none"> • (Herranz, 2009)- Different network coordination strategies that help balance the informal and formal aspects of Ring and van de Ven's (1994) ego-centric framework • (Moynihan, 2009) and (Nowell & Steelman, 2015) - Impact of network characteristics like diversity, shared authority, and trust/relationships; disaster-response context 	<p>uncertainty lead to organization or agency actions, like tie creation or deletion and changes in collaboration portfolio size and scope, that aggregate up to the network level</p> <ul style="list-style-type: none"> • (Milward et al., 2010) - Comparison of for-profit and nonprofit NAO governed networks along the dimensions of structure, relationships/trust, and preliminary performance measures • (Nowell & Steelman, 2015) - Impact of network characteristics like trust and relational embeddedness; disaster-response context • (Provan & Kenis, 2007)- Governance focus from participant to NAO, linear "maturing" of network organizing structure <p><i>Group dynamics</i></p> <ul style="list-style-type: none"> • (Milward et al., 2010) - Comparison of for-profit and nonprofit NAO governed networks along the dimensions of structure, relationships/trust, and preliminary performance measures • (Provan & Kenis, 2007) - Governance focus from participant to NAO, linear "maturing" of network organizing structure • (Saz-Carranza & Vernis, 2006) - Based on critique of past linear process studies; view of

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Table 1: Traditions of Whole-Network Evolutionary Theories

Trajectories and frameworks of evolution: Recent whole-network literature has also examined linear-sequential frameworks of evolution. These linear-sequential models have had such a strong hold on our understanding of evolution that these models have even been laid over theories of other aspects of network structures. In Provan and Kenis' (2007) exploration of governance types, they argue that networks will inevitably evolve from shared governance to more formal types of lead-organization or network administrative governance (NAO), with no discussion or consideration of the possibility of regressing or cycling backwards.

Alongside Ring and van de Ven's (1994) egocentric model of cyclical evolution, Doz (1996) also advanced a whole-network framework that focuses on the nature of learning and feedback loops. The dialectical model focuses on the ways in which network group members make sense of their social paradigms and power relations, with a clear drive towards creating stability so that the work of the whole group can be formalized and externalized (McGuire, 1988).

Within the nonlinear theories, complex adaptive system (CAS) models have begun to view networks as systems themselves that are informed by path dependence (Pierson, 2004). Koliba et al. (2010) have suggested a framework in which evolution is a function of environmental factors like privatization, devolution, and public-private partnerships that give rise to network forms of governance. This is the one example within network evolution scholarship, and a very recent area of exploration, that has been pushing on the idea that networks can be part of larger system and susceptible to exogenous pressures and shocks (Scheinert et al., 2017).

Mechanisms and drivers of evolution: Within Public Management literature, a diverse collection of theories and frameworks about why networks evolve over time has emerged. While these theories do collectively focus on the drivers and conditions for evolution, the three approaches have widely different assumptions. One of the earliest explorations of drivers of network evolution is rooted in contingency theories that were previously applied to organizations (Drazin & van de Ven, 1985). While a focus on contingencies does take a PON's environment into account, Koka et al.'s (2006) theory of network evolution leverages only single-network dynamics, with an emphasis on egocentric dynamics that are

aggregated up to the whole-network level. In this research, Koka et al. (2006) do not consider that a network's external domain may function as a network in-and-of-itself whose structure can have unique effects on evolution over time.

Developmental perspectives on network evolution have different theoretical traditions, largely drawing upon the concept that networks will evolve through stages that build upon each other. Butterfoss and Kegler's (2009) Community Collective Action Theory (CCAT) is rooted in social psychological theory and uses the assumption that networks will evolve in the same ways as other kinds of social groups. The Institutional Collective Action (ICA) framework as developed by Feiock (2013) rests in the traditions of political economy and rational choice theory by focusing on intergovernmental networks. Given this viewpoint, Feiock's work assumes that interdependencies will drive the formation of a network, and that as these interdependencies shift over time new drivers of evolution will emerge.

Some scholars have expanded on the exogenous driver category, developing propositions informed by path dependency theories. In these studies, initial starting conditions are shown to lead to different evolutionary trajectories for the whole network over time. For example, some studies have focused on the legitimacy of the network's convener (Gray, 1985), differences in the institutional logics of coordinating strategies within a network (Herranz, 2009), and social capital and relational embeddedness before networks convene (Moynihan, 2009; Nowell & Steelman, 2015). Again, while pre-conditions are considered exogenous factors in these cases, less attention is given to whether other networks also in the network domain and the potential for that broader system to contribute to the dynamics of changes organizational forms

Features that evolve: Whole-network studies have dominated research that is concerned with the components of networks that evolve. Logically, the whole-network level of analysis does lend itself to more holistic examinations of what features of a network can change over time, like governance and formality, size and structure, and group dynamics. Within the area of governance and formality, Feiock's (2013) ICA framework embraced a whole-network approach to address issues of coordination and change as risk and transaction costs change over time. As discussed in other examples above, Provan and Kenis' (2007) work made major strides in describing and defining three potential governance arrangements, creating a spectrum spanning from shared participant responsibility to a formal network administrative organization (NAO). Another interesting contribution to this literature is Herranz's (2009) whole-network research that leveraged Ring and van de Ven's (1994) ego-centric framework by applying it to network coordination strategies of the whole group based on the balance of informal and formal needs. Governance processes in practice at the whole-network level have also been cited as an example of why linear models of evolution are potentially too simplistic, given that the negotiations that result in formality and governance arrangements have many cyclical, feedback loop characteristics (Saz-Carranza & Vernis, 2006).

Network size, composition, and structure has also been widely examined at the whole-network level of analysis. Koka et al.'s (2006) work examined whole-network contingencies, drawing propositions about the effects of resource munificence and environmental uncertainty on tie creation or deletion within a network. Structure was also examined in Milward et al.'s (2010) comparison of for-profit versus nonprofit NAO-governed networks. In the disaster response context, Nowell and Steelman's (2015) research considered how trust and relational embeddedness within a network lead to dynamic structures and ties between responders.

Group dynamics are also unique to whole-network studies given the broader focus on network outcomes and the nature of network processes themselves. Again, Milward et al.'s (2010) and Provan and Kenis' (2007) work explores changes in whole-network group dynamics over time. Closely associated with research questions regarding group dynamics have been explorations of whole-network capacities over time (Milward et al., 2010; Provan et al., 2007). In addition to a wide variety of potential aspects of networks that may undergo evolution, across many studies, multiple aspects of a network are theorized to have a relationship with other aspects in such a way that networks function as complex systems (Nowell et al.,

2016). Overarchingly, this literature is concerned with components changing over time and is the most internally focused of all network evolution research.

Integrating organizational theories and network evolution theories

While the field has examined the phenomenon of the network itself, including its formation, processes, and internal characteristics, less is known about the nature of *when*, *why*, and *how* a network as an entity may change organizational form over time. To begin to examine changes in networks to other organizational forms over time, there are some insights in returning to traditional organizational theory for a foundation and suggested paths forward. This research considers the dynamics of network evolution to build from traditions of scholarship that define a network as an entity in-and-of-itself with meaningful differences from markets and hierarchies (Thorelli, 1986). The literature reviewed below is offered as a jumping-off point, and a means for understanding where we have come regarding our understanding of the network form and where we still need to go.

In the traditions of network scholarship that have followed the foundations laid by organizational theory, network forms have been examined through the structures that support shared decision-making (Bryson et al., 2015). Based on Provan and Kenis' (2007) discussion, three specific modes of governance were established: shared, lead organization, and network administrative organization (NAO). While these designations of governance types have been widely accepted and studied in Public Management, (for an overview see Bryson, Crosby, and Stone 2015) they remain bounded to the network organizational form. Since the establishment of Provan and Kenis' (2007) three governance types, little scholarship has moved beyond this frame to consider the potential phenomenon of a network exiting or evolving out of the network organizational form altogether.

Organizational theory, notably the examination of mechanistic versus organic systems of management (Burns & Stalker, 1961), is illuminating in this context. While Burns and Stalker (1961) were examining organizational structure, this research also considers networks as a possible system of management. As rational choice and contingency theories suggest, there is no one ideal type, which in the context of complex social problems suggests that perhaps there may not only be one ideal type of solution over time—such that networks are only one of many possible organizational forms. Contingency theories recognize that organizations can, and should, move back and forth between mechanistic or organic management systems forms in response stability or change (Burns & Stalker, 1961; Drazin & van de Ven, 1985; Gresov, 1989).

Mechanistic systems rest on specialization and hierarchies to maximize decision-making processes and respond to a stable external environment (Burns & Stalker, 1961). Organic systems are more appropriate during change by harnessing an on-going commitment to adjustment and re-definition of the task (Burns & Stalker, 1961). As such, the fit of a network form of governance as an organic approach can be considered using the system lens within contingency theories (Drazin & van de Ven, 1985). Networks are a response to complex problems and systems, and a way to integrate the multitude of contingencies and structures required for multiple organizations to collaborate. And, network organizational forms may adapt and evolve towards more mechanistic organizational forms when the issue at hand is more stable and has a lower task uncertainty (Drazin & van de Ven, 1985; Ring & van de Ven, 1994).

Although network theories have engaged with the concept of evolution, again there is limited consideration of the possibilities of the actions and activities of a network moving between organizational forms (Koliba et al., 2010). As discussed below, this research recognizes that many PONs cannot be considered in a vacuum because human resources are shared between groups in the form of members who engage in meetings and initiatives. In other words, the actors in a network domain are often a finite group of people who serve in multiple networks. Thus, each person is an essential tie that provides structural and functional connections, as well as a potential resource that can be overtaxed by engagement in multiple networks over time (Nowell et al., 2019).



Network evolutionary trajectories: Establishing a typology

To begin to examine the phenomena of networks themselves evolving within a network domain, this research aims to establish potential evolutionary trajectories of a PON over time. Using a qualitative analytical inductive approach, a typology of network evolutionary trajectories is discussed below. This typology emerged from the data, being established based on the presence of forms and functions of networks changing organization forms over time across three network domains.

Data

This research leverages a secondary longitudinal population-level dataset that includes all health-oriented networks in three counties in a southeastern state from 2012-2017. The data for this analysis is a subset of a population of 74 networks and their members taken over two time points. Data for this article is a subset of a larger data collection that also included network data, survey data, and interview data. The data collection at the first time point was part of a state-funded initiative to establish more effective community-based health and wellness collaborations. Time 1 data collection was able to achieve a 100% response rate from all identified health-oriented networks in the counties included in the study, and Time 2 data collection achieved a 97% response rate. The list of networks was cross-validated by county informants as well as an exhaustive web search to ensure comprehensiveness.

PONs in this dataset are defined as three or more organizations that meet on a regular basis and have a health or wellness focus to their work. This definition of a network served as the inclusion criteria for data collection for the duration of the study. Each participating network was asked to provide a current list of their members and associated organizational affiliations. Data was collected from network coordinators who serve in a wide variety of roles from formal, paid positions, to rotating, less formal, voluntary leadership. The included PONs exhibit governance approaches ranging from member-led, organization-led, and network administration organization (Provan & Kenis, 2007), and each coordinator serves in a network-recognized leadership position. Network coordinators were asked to participate in a semi-structured phone interview.

To meet the needs of this research's inductive approach, all informants were asked to share details about the story of how their network began, with an emphasis on the motivations and impetus for the group to convene. Informants were also asked to explain the process of how the network was formed. Additionally, all network leaders were asked if the network was originally part of another group and could be considered as a spin-off or beginning as part of another network in the community. Any coordinators of networks that were identified as no longer meeting regularly in 2017 were asked additional questions to determine the nature of the change to their network over time. Coordinators of discontinued networks confirmed that the group was no longer meeting regularly in a network organizational form. Next, these coordinators were asked to discuss the nature of the changes to their group, what factors may have led to this change, and if any aspects of the network were still functioning in the community in a different organizational form.

Methods

Data from the 2017 network leader interviews were analyzed using a qualitative analytical inductive approach to create a codebook of characteristics and definitions of a network's survival, death, or transformation to a different organizational form. This codebook was established from the emergent definitions provided by network leaders across all 58 cases in this subset of the data. As a potential evolutionary trajectory was described within an interview, it was defined and added to the codebook. Over the course of the interview process, the cases of evolutionary trajectories coalesced into three main categories: survival, death, and transformation. Survival is defined as the presence of the network across



data collections, while death is defined as the absence of the network at the second data collection. The category of transformation also included three sub-categories that are described below.

Within the category of transformation, possible organizational forms include: 1) merging within another existing network, 2) program, service, or hierarchy in the form of an organization, and 3) spinning-off in a new direction by redefining mission and approach while retaining many of their original members in a new PON. This codebook was then applied to all networks in the dataset to create a typology that includes definitions for survival, death, and most importantly transformation. Application of the codes was verified through peer checks with peer researchers involved in other data collection from the same project. All peers agreed on the appropriateness of coding. Table 2 below illustrates this study's sample and the number of evolutionary outcomes assigned based on the codebook that was developed.

Outcome	Number of networks
Survival of network	43
Death of network	6
Transformation of organizational form	
Merger	4
Program	3
Spin-off	2

Table 2: Network organizational form evolutionary typology

Findings: Defining network trajectories over time

Network survival and death are the most intuitive evolutionary outcomes to define. For the purposes of advancing suggested definitions of organizational transformation, the definitions of network survival and death are expanded upon below with supporting examples from this study's data. PONs in this study are defined as three or more organizations that meet on a regular basis and have a health or wellness focus to their work. Consistent with this inclusion criteria, if a network has continued meeting from 2012 to 2017 and the mission has remained focused on community health or wellness, the network is considered to have survived. In this study, 58% of networks fit this definition. Networks that have discontinued meeting regularly are considered to have died. Meeting discontinuation was verified with the most recent past coordinator or facilitator of each network group. In this study, 8% of networks fit this definition. In addition to verifying that the group has ceased its activities, the coordinators provided a detailed description of the nature of the end of the network's meeting and activities.

Survival

Of the networks included in the sample, a little more than half survived from 2012 to 2017. Survival is defined by a network continuing to meet on a regular basis to address issues of community health and wellness. While this trajectory does align with current assumptions about the momentum and presence of networks over time, survival of networks in a community-system exhibit patterns of dynamic stability regarding membership and leadership turnover. Across the three counties included in this analysis, there was a variety of expansion, contraction, and maintenance of members and organizations involved in their network domains. As discussed above, human resources and the nature of shared membership can be an important frame and subsequent mechanism for understanding the nature of network survival over time.

Coordinators of networks that have continued from 2012 to 2017 were asked to discuss how and why their membership changed over time. One network coordinator shared, "Our membership has almost completely turned over...due to aging of the workforce and changing jobs," while another noted that, "Three of our big leaders have retired. Nothing is static, there's always change." A third coordinator also

described how her network has not only survived, but expanded its presence in the community by saying, “We have new engagement with increased social capacity and network...communication of successes and plans has increased reach and built more connections.” These comments from network coordinators suggest that member turnover, even when the network has survived over time, comes as both a threat and an opportunity. There can be a positive influx of new energy to sustain networks, as well as significant challenges in developing new leadership and member commitment.

Death

Among those networks that ceased meeting regularly, one subset is considered to have died. When a PON dies, it also does not retain any type of other organizational form or function in the network domain. The transformation typology in the section below describes another type of trajectory where networks may have discontinued but remained in the network domain in a different organizational form. Past coordinators of the networks that were discontinued offered their narrative about the reasons for the group no longer meeting. Of major consideration was the challenge of leadership, whether provided by paid staff or members. One coordinator shared that, “we asked for someone to step up [as new coordinator] and no one did.” Another leader noted that,

“The staff had to be pulled off project because there was no state money to support it. There were staffing resources that changed. Committees were not meeting as much when staffing resources went down. When [the new governor] came in, sustainability had to be changed and taken out of project.”

Overall member engagement was also a challenge for networks that died. A coordinator shared that the “group was dwindling and there was push back from those in power in community.” Another coordinator described engagement challenges due to the “number of people engaged was not as great. There was a lot of organizer turnover and trouble with making items actionable.” In networks that died, there was also tension with both leadership issues and member engagement together. One coordinator described this occurrence by saying,

“[A new person] became chair and we lost people in the transition because there was some conflict between members. [The past coordinator who founded group left], and when you don't have a funding source and no strong leadership there was no focus. We were spinning in circles and fewer and fewer people [attended meetings] every time.”

These findings themselves highlight the need for an external view of networks and consideration for the dynamics that can lead a network to survive or cease meeting. To date, case study research into the nature of network changes over time has recognized that a group may experience life-cycle changes (Gray, 1985; Lowndes & Skelcher, 1998; Provan & Kenis, 2007; Straub et al., 2007), but there are few studies that examine network dissolution or transformations in organizational form. Two studies that do examine the dynamics of networks disbanding focus on single-sector alliances or consortiums with narrow, contextual goals (Hu, Guo, & Bies, 2016; Provan, 1984), not multi-sector networks striving to address complex, community-wide wicked problems. The presence of network death in multi-sector network domains exemplifies the need to further understand how and why a network may no longer exist in a network form. Additionally, a portion of networks in this research took on a different organizational form than a PON. These organizational form transformations are discussed below.

Transformation

If some aspects or activities of the network changed in the three ways described below, the cases were included in the transformation typology analysis. Fifteen percent of networks were defined as

transforming by merging with a current network, becoming a program of another organization or agency, or spinning-off a new PON. One important finding to also note is that no transformations of PONs in this study show evidence of internal reorientations or recreations of their collaborative governance processes (Ansell & Gash, 2007; Emerson et al., 2012; Ulibarri et al. 2020). Rather, networks studied here fundamentally changed their organizational form instead of simply re-negotiating the collaborative processes to remain a network. It is important to note again that all networks included in this study are defined as purpose-oriented with “some degree of shared purpose, some degree of membership of three or more actors, some degree and form of joint effort, and some form of governance” (Carboni et al., 2019; Nowell & Kenis, 2019, p. 194). Thus, transformations here are considered a conscious choice of the members of the network to establish a new organizational form, rather than simply adjust internal processes.

Table 3 below provides definitions of the organizational form of each type of transformation, as well as a visual representation. In these representations, blue squares represent networks, red circles represent organizations, and green triangles represent subcommittees or task forces of networks.

Transforming by merging with an existing network: The majority of transformations in this sample represent a network that discontinues meeting under its current name and function and begins meeting as part of another network that already exists in the network domain. Importantly, when a network transforms by merging with another, a meaningful aspect of its former identity and mission is retained as it begins its new form as a subcommittee, working group, or task force of a pre-existing network. For example, a group focused on addressing issues of diabetes in both adults and children transformed into a support group aspect of another PON in the same network domain:

“About the support group with [the other community network], we have that going and we help with that. We have also developed a diabetes food list and best things to donate to help people with diabetes and being mindful of sodium and things like that is distributed through [the other network].”

In another example, a former PON that was focused on community issues of nutrition and access to opportunities for physical activity became a specific task force of another already-functioning PON. In this instance, network members were willing to merge despite losing the name and mission of the original group to gain resource efficiency:

“We wanted to maximize peoples' time because that is not an unlimited resource. We had two groups that really were overlapping in a lot of ways. It was an intentional, well-thought process. Could we be more efficient and effective in our use of staff time, dollars, and resources by merging these two groups? Yes! And so we did.”

A final example of a network transforming by merging is when a PON to address elder abuse and victimization disbanded. Many members continued the work by engaging in a task force of another local PON that is more broadly focused on senior health issues:

“Yes, [the network] to address adult abuse statewide was competing and our members were more active there too. [Network that no longer meets had] members that were state level workers and were pulled to state initiative that has a local network in our community.”

Transforming into a hierarchical organizational form: Other networks' main activities and mission transformed into a program of a local organization or agency. In these examples, the work of the PON moved back into the hierarchy space, sometimes retaining original network members as partners or advisors. Ultimately, examples of transformations into programs are described as the collective action of a network group disbanding, but with its substantive activities becoming the responsibility of a single organization or agency. One example is of a local food advocacy PON discontinuing their meetings when the municipal government undertook efforts to support an ordinance to allow urban farms and farm

stands. While the policy change was one goal of the PON, their main aim was to financially support development of urban farms and distribution of local food:

“Once the [new guideline] was passed, the city started its own meetings and a program [for food advocacy]. And that is why we paused meeting, and eventually disbanded...Our initiative was now being handled by the city.”

Another transformation of a network into a program is evident in an end-of-life support coalition PON becoming a work group of the local nonprofit health care system:

“The [local health system] now has an End of Life work group that includes numerous people from the [transformed network] and the community. The work is continuing and it's important.”

In another community, a network that was focused on offering coordinated mental health support for adults transformed into a care review program of the local managed care organization. While the PON has discontinued meeting, some previous members have been retained in the care review program:

“We still continue on with care reviews. This is a venue for individuals who are experiencing challenges and barriers. They come to care review to see a team from the systems in the community...This is housed within the [local managed care organization], and it is a system of care initiative program.”

Transforming as a spin-off that creates a new PON: A final type of transformation is evident in a new PON, with a similar mission, spinning-off from a previous, discontinued PON. As in the example below, a spin-off is defined as a strategic and premediated action to develop a new network from some of the aspects of one that is no longer meeting. In one community, a group of physicians concerned about the opioid epidemic recognized that it was just one aspect of larger community issues surrounding those in crisis:

“Our group became the [community crisis group] as the Opioid Safety Task Force spin-off. The membership was very similar and the idea was to just move things forward in the [community crisis group].”

Discussion

The typology of network trajectories advanced above raises several important questions about the nature of network evolution when network domain conditions and dynamics are considered. Given that the phenomenon of changes in organizational form has been documented in this study, future research to advance theory should move beyond the internal focus of past network studies

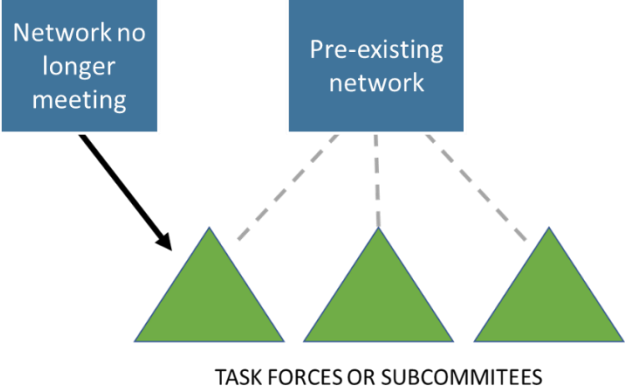
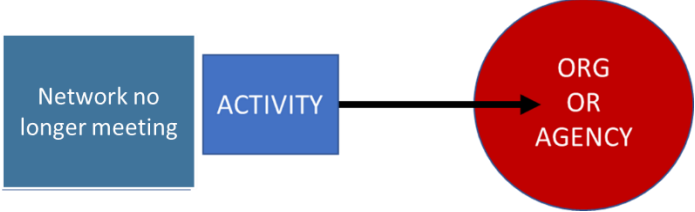
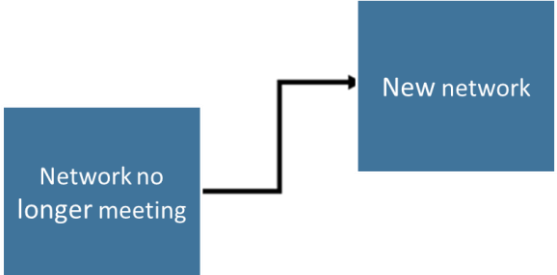
<p>Merger</p> <ul style="list-style-type: none"> • Form – Subcommittee, task force, or work group of a former network • Group is subsumed within a new advisory role with a new network in the same domain 	
<p>Hierarchy</p> <ul style="list-style-type: none"> • Form – Programmatic aspect or initiative of an organization or agency in the network domain • Specific, bounded activity within the hierarchy of an organization or agency 	
<p>Spin-off</p> <ul style="list-style-type: none"> • Form – New collective group meeting regularly as a network in the network domain • Focuses on an issue that was partially addressed in a former network in the network domain 	

Table 3: Typology of network transformation

Indeed, supported by the typology presented here, networks have transformed into other organizational forms like programs, becoming like a hierarchical organization, and networks have merged with others, remaining network-like but within the new structure and governance system of a different network.

The transformations present in this data challenge our field’s current focus on evolution that takes place solely *within* a network. Ego-centric and whole-network studies that examine evolutionary theories have proliferated, yet little attention has been paid to when, why, and how a network as an entity may change organizational form over time. Indeed, until recently, the assumption across some Public Management research has been that once a group of organizations comes together in a network form, that group will only survive or die over time. This research highlights how the network as a governance form is more fluid, answering calls for theory building at the network level of analysis (Isett et al., 2011; Nowell et al., 2019).

Findings from the development of a typology of network evolution and subsequent organizational forms demonstrate that networks can survive, die, or transform over time. The phenomenon of transformation highlights that, even in complex problem spaces, a network organizational form may not be the most sustainable, or most appropriate, approach over time. This broader view harkens back to past advancements in organizational theory which focused on the evolution of organizational form (Pfeffer & Salancik, 1978; Williamson, 1975, 1981). In this study, network members and the network domain shape

the form of collaborative approaches to be only as complex and effective as necessary based on a variety of endogenous and exogenous pressures.

Across all three organizational types, mergers, hierarchies, and spin-offs, the nature of the network domain was a key component. Data shows that mergers were facilitated by the presence of another network doing similar or overlapping community work, hierarchies were chosen when the network domain and problem space had adjusted such that the PON's focus could be better addressed through a specific activity or initiative, and spin-offs were a result of a specific aspect of a network gaining more traction or resources in its network domain such that the other activities were no longer effective. The qualitative analytical inductive approach of this research is suited to theory and concept development, but is limited to transferability and not generalizability (Nowell & Albrecht, 2019). Future research agendas should explore the mechanisms of network transformation that lead to different organizational forms, as well as develop potential propositions that can advance network evolutionary theories that focus on PONs in complex network domains.

Conclusion

This research suggests that networks nested within network domains may transform organizational form to respond to both internal and external pressures. The nature of these transformations and the associated theory building is an essential direction for future research. Continuing scholarship in this area could advance our understanding of the fluidity of network organizational forms by further clarifying other types of network domains, those created by shared funding sources or shared policy mandates for example.

As shown in the typology of survival, death, and transformation, networks as governance systems and structured entities themselves do undergo shifts in their organizational form over time. These changes can result in a PON's sustainability or its discontinuation. Most importantly, transformations can also take place that retain the elements of past networks into conditions more commonly defined as non-network arrangements. The nature of these shifts is nested within the context of networks not being insular or isolated, but rather meaningfully connected to other networks through shared membership in their network domain. Further research may also establish other important exogenous, systemic conditions that tie networks together in such a way that the network domain becomes an essential dynamic force for understanding PON evolution over time.

Recent calls by network scholars have issued the challenge to begin developing theory to examine networks as the unit of analysis and an outcome of concern in-and-of themselves (Carboni et al., 2019; Nowell et al., 2019; Raab & Kenis, 2009). To answer this challenge, this article establishes the phenomenon of network trajectories encompassing survival, death, and transformation. This research also advances a typology that focuses on the changing organizational forms and functions of these networks embedded within a larger network domain. In doing so, this continues an emergent research agenda that embraces the external view of networks and moves beyond the assumptions of networks existing in isolation.

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