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Evaluating Networks Using PARTNER: A Social Network Data Tracking and Learning Tool

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Abstract

Today, cross-sector partners are working together and utilizing a systems approach to solve and tackle complex social problems facing their communities. While building cross-sector organizational networks has become a best practice in solving complex problems, there is little guidance or evidence on how it can be accomplished without overburdening resource-stressed systems. Social network analysis (SNA) is one method for evaluating networks using a quantitative approach to measure the strength of connections, how organizations position themselves in a network, leverage resources, and assess the quality and impact of exchanges within the network. The PARTNER Tool (Program to Analyze, Record, and Track Networks to Enhance Relationships) leverages concepts of network science and SNA to provide a validated survey, measures, and analysis tool for network evaluation. The PARTNER methodology assesses the strengths (and gaps) among member relationships, how members perceive trust and value in partnerships, the creation of member relationships and how they have evolved, and identifies needs and gaps based on agreement on outcomes and success at reaching network goals. This chapter provides specific steps to implement the PARTNER Tool Methodology, including customizing the validating survey, administration of the online survey, analyzing the results using the PARTNER evaluation framework, and translating the data to actionable strategies. Real-world examples are presented to highlight the benefits that can be

achieved by leveraging network science with a focus on developing evidence-based strategies that yield significant results and allow cross-sector organizations to document their collective progress over time.

Introduction

Bringing cross-sector partners together to create coordinated and efficient networks is widely accepted today as best practice in solving complex problems and making systems change. Also, funders are increasingly requiring evidence of collaboration among a set of organizational partners before awarding and providing funds for program activity. From early childhood system building to clinical/community partnerships for better health and well-being to environmental coalitions focused on sustainability, to collaborative efforts to prepare and respond to emergencies, cross-sector inter-organizational networks have become one of the most common approaches to solving some of the complex problems today.

Nevertheless, there is a shortage of guidance on how to do so without further overburdening an already resource-stressed system. The idea that successful cross-sector interorganizational networks must continuously increase the number of partners and meetings can overwhelm the effort. Alternatively, identifying measures of partnership that include looking at the quality of relationships, the exchange between member organizations, and various options for "networking" can help networks manage relationship budgets (i.e., the time and resources spent managing relationships to achieve the collaborative's goals).

Drawing on the system sciences, social network analysis (SNA) is a particularly useful method to measure the strength of connections in a network, evaluate how organizations are positioned within a network, the ways that resources are leveraged, and assess the quality and impact of the exchanges among them to identify gaps that can be filled and strengths that can be leveraged. In addition, network visualizations (often referred to as network mapping, or systems mapping) can be displayed to illustrate partners and the links between them, providing an additional method of understanding and discussion. From a network science perspective, SNA provides a mathematical approach to measure the connections between members of a network, as a tool to indicate patterns. When this science is translated into practice, community-based networks of cross-sector partners can use the data for evidence-based strategies and action steps, and to document progress over time.

In this chapter, we will outline how to evaluate networks using a network science approach. Specifically, we will demonstrate how to use a social network analysis methodology and the PARTNER (Program to Analyze, Record, and Track Networks to Enhance Relationships) Tool to evaluate cross-sector inter-organizational networks. PARTNER is a

methodology that includes a social network analysis validated survey and analysis tool used in over 4,000 communities in all fifty states and over forty countries, to help networks identify needs, leverage resources efficiently, evaluate the strength (and gaps) among member relationships, and ensure that networks have the capacity to address the needs of their community (www.partnertool.net). We begin with background on network science as a framework for evaluating networks, followed by a short primer on social network analysis methodology, then describe the steps to implement the PARTNER tool and evaluation framework to evaluate networks, and finish with examples of translating the data into practice.

Social Network Analysis as a Method to Evaluate Cross-Sector Networks

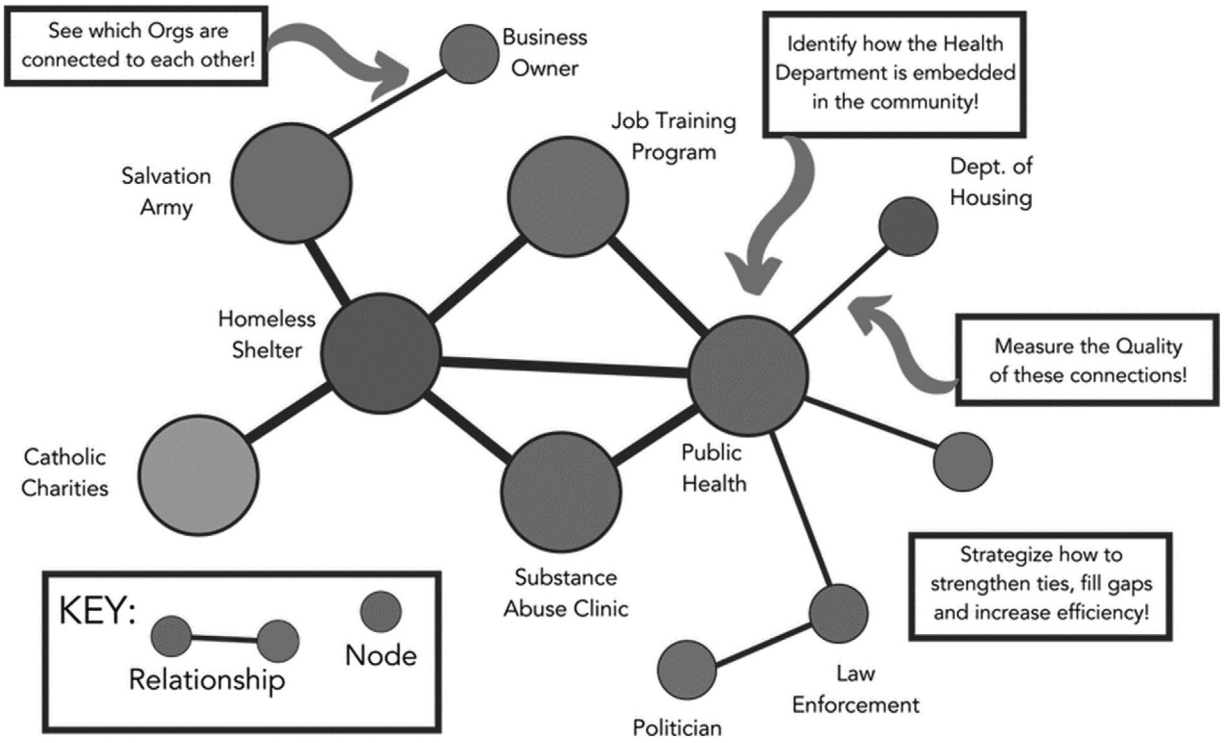
What Is Social Network Analysis?

SNA is the study of the structural relationships among interacting actors and the effect on the network (how those relationships produce varying effects). A network is an interconnected group or system. For this chapter, networks refer to a formal partnership created between three or more people or organizations to achieve mutually desired objectives, referred to as cross-sector inter-organizational networks.

The fundamental property of this methodology is the ability to determine how connected actors in a network are to one another. SNA collects data on who is connected to whom, how those connections vary and change, and focuses on patterns of relations based on the interconnectedness of nodes (which can be defined as people, organizations, or anything that you conceptualize as in the evaluation design). In a network map (see Figure 4.1), the nodes represent people, place, organizations, or other actors and the lines between nodes indicate the relationships that connect them and are defined by you in your evaluation design. SNA provides insights into individual or organizational connections and relationships, the nature of those relationships, and the role those relationships play in sharing knowledge and influencing behavior and outcomes.

SNA provides a way, through mathematical algorithms, to measure the number, strength, and quality of ties in order to index these tendencies. We can make assumptions about networks that tell us more about the network than we would know by just understanding the formal structure of the network. For example, if a network has few or weak ties, with long paths between them, then we might assume that the network has low solidarity, a slow response to stimuli, and a tendency to fall apart. On the other hand, we can assume that more or stronger ties with shorter paths might be more robust networks, more able to respond quickly and effectively. This might not always be true, but these kinds of assumptions are the kind that we can conclude using SNA.

Figure 4.1. Example of a PARTNER tool network map.



Throughout this chapter we focus on how SNA can be used as a tool for evaluation, with a focus on the PARTNER Tool (www.partnertool.net), and how the results can be used to both report to stakeholders, funders, and partners, as well as methods to translate the data into action steps and strategies to improve and strengthen networks.

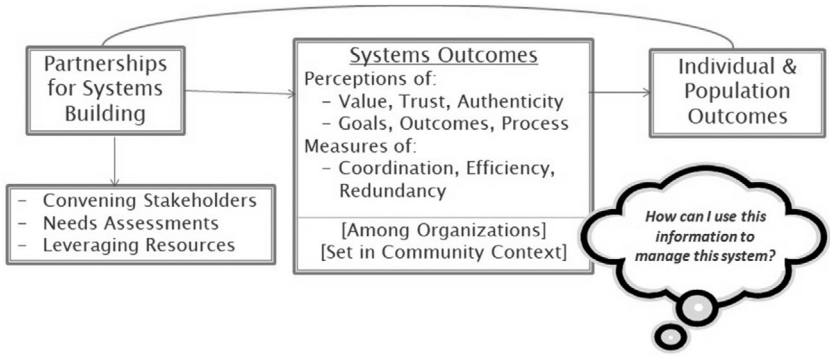
SNA as a Method to Evaluate Networks

SNA is a method that can be used in many types of contexts. It can be used to understand the interconnectedness between people, organizations, or even a whole system of different types of actors that interact to affect an outcome. For this reason, SNA can be a useful tool in evaluation to understand the impact of efforts to intentionally build networks of people and organizations to impact an outcome. Examples of the types of questions that can be answered using a SNA include (among many others):

- What organizations are part of the network, and how are they working together?
- What are the benefits and challenges of participating in the network?
- Are more diverse networks more effective? Does more diversity in a network make it more difficult to manage (goals, outcomes, perceptions)?
- How vital is collaborative decision making in networks?
- When there is more disagreement among reported outcomes and perceptions of success, does the network perform less effectively?
- What is the role that powerful/influential members play in networks?
- What value do partners bring to networks?
- How should organizations invest resources to build and strengthen new partnerships?
- How are cross-sector partnerships leading to health and well-being outcomes?
- What kinds of resources are organizations leveraging collaboratively?

An important aspect of using SNA versus other types of methods of evaluating networks is the focus on outcomes related to the types and processes of networked relationships among people and organizations. SNA is different from other types of evaluation that focus on the characteristics of individual people or organizations and how those factors impact behaviors and outcomes. Outcomes in a social network analysis differ from, but also complement, other types of outcomes. Network (or systems) outcomes are different from population or client outcomes; rather, they make up the intermediary outcomes that reflect the way that organizations interact, share resources, and implement work. These are often also known as process outcomes (see image below) and emphasize the process that makes networks successful. In Figure 4.2 below, the center box demonstrates the types of measures and outcomes generated from a SNA. We are often trying

Figure 4.2. PARTNER tool SNA evaluation framework.



to understand the connection between taking a network approach to solving a problem (like bringing partners together, leveraging resources, etc.) and how that leads to individual and population outcomes. However, that does not examine the process that is the primary outcome of building a network of partners to solve a problem. SNA lets us more systematically and accurately understand how the process of building a network leads to individual and population outcomes. This framework identifies the types of measures an evaluation can get when using the PARTNER Tool, with a focus on measures of perceptions among partners around value, trust, authenticity, goals, outcomes, and processes, by applying measures of coordination, efficiency, and redundancy.

Some Basic SNA Concepts

While there is no room in this chapter to provide a full explanation of how to perform a SNA, the next section provides some key terms and concepts that can provide the foundational understanding of SNA to determine if this is an appropriate method for your evaluation needs.

Types of Network Analysis

There are two types of network analysis. The first is *a complete network analysis*, which captures the relationships between a complete set of bounded actors. For example, all organizational members in a community that is involved in an early childhood network. This approach provides insights into different patterns of interaction within defined groups. The benefit is that you can get a picture of the entire network, including both direct and indirect ties between members. The limitations are that it is very time-intensive because all respondents are asked about every other member in the network, and it requires a very clearly defined, bounded network.

The second is *egocentric or personal network analysis*. This differs from complete network analysis in that it allows you to sample people from a population, asks only about the relationship a respondent has with their alters (no roster of names is provided). For example, this could be a sample of parents who are asked about the personal support networks they use to care for their kids. This approach focuses on individual personal or organizational networks (many stand-alone connections, which may or may not overlap with one another). This approach provides insights into events or factors that affect individual entities across different settings, the people (or types of people or organizations) in networks that provide resources, support, or influence on the individual. The benefit of this approach is that it can be less labor-intensive than a whole network analysis because an entire network does not have to be engaged. The limitations include not getting a full picture of the network because only information on the direct ties to the respondents was collected (vs. direct and indirect ties captured in the whole network approach).

Network Measures

In general, SNA focuses on the following types of network characteristics and the nature of various types of relationships between members.

SNA Key Terms

Some of the important terms and concepts used in this section are described here. First, *a network* is defined as any interconnected group or system and can be made up of individuals, organizations, or both (multi-modal network). A *node* is any person, place, or thing that either gives or receives connections. An *edge* is a line that shows the connections in a network map; it lies between two nodes. If a node is *adjacent*, then it is connected to another node with at least one edge. A *geodesic* is the shortest path between any two nodes. *Triples* are any three nodes and the connections between them. When we talk about the *length of a tie*, we do not mean an actual distance, but the number of edges between two nodes. For example, if it takes two steps to get from node X to node Y, then we would say that the distance is two. If that is the shortest path between those two nodes, then we would say that is also the geodesic distance.

The Science of Networks and Its Applications to Evaluation

Throughout this book, examples of collaboration are described, emphasizing the growing attention to this approach in practice. While there is much about very intuitive collaboration, and it almost feels like we should know how to engage in collaboration based on our own human experiences, it is remarkable how often we find ourselves uncertain of the best approaches. An appeal of network science is that it provides a way to bring data to

the art of collaboration and offers several theories that help to make sense of the complexity of collaboration. Perhaps the most critical network science principle is the "Strength of Weak Ties" theory, published by Mark Granovetter (1973). In seeking to understand how people got jobs, Granovetter's hypothesis that people are more likely to get jobs through their social connections was proven correct. Surprisingly, he also found that those jobs were not acquired through people we are most strongly connected to, but rather through those whom we are connected to through our "weak ties." Our strong ties are to people with whom we share much commonality (in network science terms this is called "homophily," meaning "birds of a feather flock together"). Our strong ties, for example, are to people with which we often spend most of our time—people who share common access to resources, share in our belief systems, have shared interests, and like to do the same things as us. In contrast, our weak ties are to people who are different from us—they know things we do not know about, they do things that we do not do, they have access to knowledge and resources we do not. Consequently, Granovetter found that our weak ties were better at helping us find jobs than those to whom we are most closely connected.

This concept—the Strength of Weak Ties—is fundamental to network science, and the strong desire we all have to build bigger networks of relationships. It explains the advantages of working across diverse boundaries and building networks of people and organizations that are different from ours. However, it also leaves us with a complicated idea—that more connections are better. This is unattainable given that we cannot exponentially grow networks without incurring costs attributed to that approach.

An Alternative Strategy—Filling Your Network With Holes. While the appeal to create a more diverse network is strong, we are equally challenged with the reality that we have limited relationship budgets—that is, limited resources to build and manage diverse networks. We know that networks have advantages, but there is a limit on how many relationships we can manage before we lose the collaborative advantage altogether. Ron Burt, who focuses on creating a competitive advantage in careers, organizations, and markets via network strategies, recognized this dilemma and published a theory that offers a solution that emphasizes reducing redundancies in a set of network relationships (Burt, 1992). This strategy, in turn, creates intentional "holes" in the network, while maintaining key connections to leverage the collaborative advantage while strategically managing resources committed to building relationships.

These two theories are only a simple example of the broader field of network science. In today's social structures, there is a propensity to value the act of increasing connectivity, both in our personal lives and across our professional and organizational boundaries. This approach emphasizes the idea that more networking is better networking; that focusing on collaborating across sectors will bring a specific type of collaborative advantage that can have positive personal, professional, and societal impacts.

However, as promising as this seems, it can be resource-intensive. Given the uncertainty of just what benefit networks bring to these outcomes, it can become a relentless effort of building connectivity in an endless cycle of "more is better." Without a strategy toward "less can be more," it can all be for naught.

Using SNA in evaluations, we can begin to flush out these nuances of collaborating, and apply concepts of network science to both reporting the progress of programs and interventions, and also to help network leaders, members, funders, and other stakeholders identify ways to continuously improve how they work with one another to achieve common goals. The information can help plan and implement relationship building, and resource leveraging among network members, assess the quality, content, and outcomes of partnerships, monitor change in networks over time, and develop strategies and action steps to fill gaps and leverage strengths in networks.

PARTNER—A Tool for Network Evaluations

While using SNA as an evaluation tool sounds ideal in many cases, it remains a problematic method to learn and implement. However, there are tools designed to make using SNA easier for evaluators. One such tool is PARTNER. PARTNER is the Program to Analyze, Record, and Track Networks to Enhance Relationships (www.partnertool.net). It was first funded and launched in 2008 by the Robert Wood Johnson Foundation as an online tool to build the capacity of the public health sector to measure and monitor collaboration among organizations (Varda, Chandra, Stern, Lurie, 2008). PARTNER provides the measures, analysis, and visualizations to evaluate networks related to how members are connected, how resources are exchanged, levels of trust and perceived value among network members, perceptions of success, key players and their impact on the network, and to link outcomes to the process of collaboration. These are captured using the PARTNER validated nineteen-question survey (Visible Network Labs, 2018) that links to a full evaluation analysis and is based on the PARTNER network evaluation framework.

PARTNER offers many benefits for measuring your network including:

- Scoring your network. A set of indicators (scores) helps users to identify baseline measures of progress, areas where improvement can be made, and potentially even progress over time.
- Visualizing your network. In addition to scores, visualizations of your network can be a powerful representation for you and your partner organizations regarding how connected you truly are, where gaps exist among relationships, and how you might allocate or shift resources to strengthen particular relationships.

- Sharing results with network members, funders, and other stakeholders. Results can be easily shared with members of your network in addition to others, such as community stakeholders and funders. By assessing scores and visualizations of your network activity, you can demonstrate the functionality of your network. For existing funders, these results highlight where and how funding has been used to strengthen partnerships. For potential new funders, a tool like this can concretely show where resources should be allocated to maximize collective benefit.

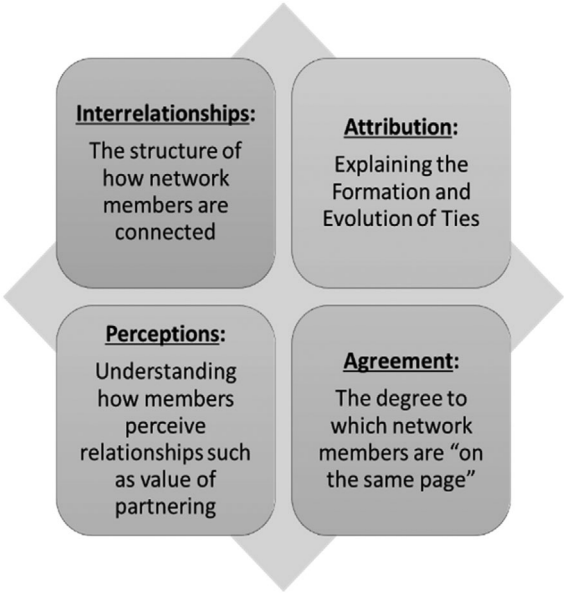
Consider the example of childhood obesity: Suppose that the public health department, along with a group of interested stakeholder organizations, has a goal to reduce childhood obesity by ensuring that more children are screened for associated health risk factors (level of physical activity, access to nutritious meals in school). To achieve this goal, the network has attempted to create new and diverse connections throughout the community to work collectively to achieve the goal. However, after getting results from implementing the PARTNER Network Survey, it is determined that partnerships with the local school district and the Department of Parks and Recreation could be improved (e.g., these relationships exhibit low trust). Given the network's goals, it uses these findings to spend more time improving relationships with those members of the network. The network can then track how changes in these relationships are associated with improvements in these health risk factors (e.g., developing plans with Parks and Recreation for more safe play areas; working with schools to offer healthy meal options in the school cafeteria).

PARTNER Network Evaluation Framework

The PARTNER Tool and Network Evaluation Framework (Figure 4.3) was developed by the team at Visible Network Labs through research and evaluation of over 150 community networks across the United States and Canada, and through several qualitative studies to understand the needs in community for measuring collaboration (Varda et al., 2008). The four areas of measurement included in the Evaluation Framework include Attribution, Perceptions, Agreement, and Interrelationships. These are built into all PARTNER research and evaluation designs, are foundational in the PARTNER network survey, and are used to guide analysis and assessments. All four of these dimensions help to understand more about the structure of a network, assess the strength and quality of a network, and provide data to inform network leadership (the process of making decisions). Below we describe each of these dimensions and how they can be applied in evaluation to understand the strengths and weaknesses in a network approach.

– *Interrelationships*: The actual relationships among members, including the intensity, quality, and content of the relationships, tells us about the

Figure 4.3. PARTNER evaluation framework.



structure and strength of the network. The PARTNER Network Survey uses standard social network methodology and measures to assess the interrelationships of the network. With these, we can then assess how attribution, perception, and agreement are associated with the structure of the network.

- *Attribution*: Many networks are facilitated and organized by a primary organization, sometimes called a Lead Organization, a Network Administrative Organization, or a Backbone Organization. Others are governed by a group of organizations. Regardless, we often want to know how the growth and development of relationships in a network are started and fostered over time. The PARTNER Network Analysis tool (customized) can assess how the growth of relationships in a network is attributed to an intervention or intentional network approach.
- *Perceptions*: An important piece of information for any network leader to understand are the perceptions that members hold of one another, as well as perceptions of the network itself. The PARTNER Network Survey collects data on both of these aspects. Specially, we learn about the perceptions network members have of one another in terms of the value of the partnership (measured as power/influence, resource contribution, and time commitment) and trust (measured as mission congruence, reliability, and communication).

– *Agreement*: The extent to which members of a network agree on the way the network is functioning is a key component to network leadership. Whether the members report that the network is or is not achieving its outcomes is as important as whether or not they agree on these assessments. The degree to which a network's members agree on these assessments is an indicator for a network leader of whether the network is functioning well or not.

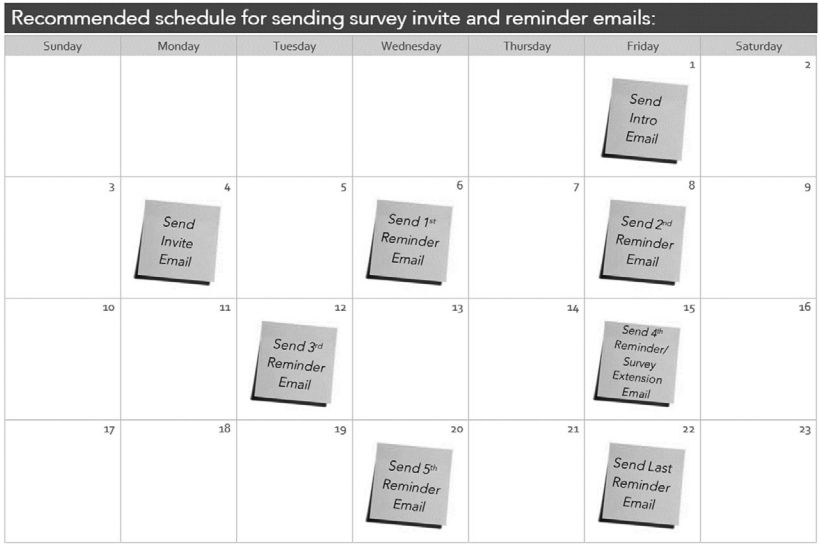
PARTNER Quality Improvement Methodology

With the data you get from PARTNER, you can address each piece of this network evaluation framework and use that information for reporting, communication, and dissemination. However, while SNA gives you the information you need to describe your network, but it is difficult to use that information to know if your network is "good" or performing well. There is no statistical test to indicate if behaviors in your network are statistically significant (although there are many advanced SNA methodologies that you can use to run these kinds of analysis on your network—not covered in this simple SNA primer). This can be frustrating when you have worked hard to get your network data, but it does not mean that you cannot apply innovative approaches to understanding your data in a similar way.

We have developed the PARTNER Quality Improvement (QI) Methodology to use in cases when there is the time, buy-in, and resources to go in-depth with network members on their perception of their ideal networks, as compared to the current status of the network. The PARTNER QI Methodology enables the evaluator to develop action steps and recommendations based on how far the network is from their overall performance and action goals.

The first step in implementing the PARTNER QI Method, is to define the network's specific goals. It is useful to have a sense of what the "ideal" network would look like—who are the members, how do they connect, what kinds of qualities and characteristics do network members have both in terms of attributes and relationships? To implement the methodology, first, gather a subset of network members (in-person) to get them to identify their "ideal" network. We typically take a group through a network science intro session, so they are "thinking like a network scientist" (essentially thinking about their members as nodes and the relationships between them as measurable lines), and then ask them to construct their networks based on their ideal conceptualization of the members and relationships between them, while tracking constraints such as policy and financial challenges. This can be a drawing exercise, or we often use thumbtacks, foam boards, and rubber bands to let them build a network. The identification of goals such as these is best conducted as a collaborative effort, potentially by leveraging existing committees, groups, and initiatives that may already exist in leadership spaces to move local efforts forward. Once this process of goal

Figure 4.4. Suggested PARTNER survey administration schedule.



identification is complete, then it should be clearer what is missing from the network you are analyzing.

After an "ideal" network is described, the PARTNER survey can be launched, which will give you data to compare back to the ideal network (Figure 4.4). This PARTNER QI Methodology allows us to compare where the network currently is, from where the network wants to be, and develop a set of action steps based on that information. In this way, we can use the network to assess how "far" they are from reaching their network goals and use specific action steps to bridge the divide between the "ideal" network and the current network. Other tools for learning and conceptualizing action steps can be found at https://www.maxwell.syr.edu/parcc/eparcc/simulations/2008_1_Simulation/ and published in Varda (2011).

Using PARTNER to Evaluate a Network

In this section, we briefly explain the four steps you need to get started on your network evaluation using PARTNER.

Step 1: Enter Respondent Information

- Identify the members of the network to include in your list
- Enter respondent information online

Identifying Whom to Include in Your Network. The first step in using PARTNER is to bound the network to determine the members of your

network you wish to include in the survey. To get started, you first want to identify which organizations (or individuals if appropriate) are members of the existing network, including organizations, agencies, departments, programs, and initiatives that exist in your community or state. If your organization plays a role in the network, be sure to include it in the list if you want your organization be to a part of the results. For some, this is one of the hardest steps in the project. Some may know exactly who they will include in their respondent list, and others may find this step to be more challenging. Once you have determined which organizations (and/or departments or individuals) you will include in the survey, you enter all respondents' information into the survey tool online.

The organizations, agencies, departments, programs, and initiatives you choose to include as you bound your network will be the entities that will show up in the network maps representing the system in your community or state, and the specific contacts at each organization will be the ones who are responding to the survey answering on behalf of their organization. Because of this, it is critical that the process of bounding your network be both *collaborative* and *intentional*. The process is *collaborative* because you should reach out to the key members of your network and ask them which organizations they consider to be part of the network in your community. Next, think about who is not currently considered part of the system but maybe could or should be involved. If there is a backbone organization, it is important to seek input from them on their organizational partners as a first step because they have a "view" of who should be included, that other organizations may not have. The process is also *intentional* because you will want to be purposeful in who you include in the final list of organizations and respondents.

Step 2: Modify the PARTNER Survey

While you can create your own survey in the PARTNER tool, an advantage of using it is the ability to use the nineteen-question validated PARTNER Network Survey (or one of the many topical surveys available), designed specifically for cross-sector, inter-organizational network evaluations. All of the questions in the survey can be modified. When modifying the nineteen-question validated PARTNER Network Survey:

- Questions 1–9 ask about the network member or the network itself. These include resources contributed by members, perception of outcomes achieved, perception of success, and time spent in the network.
- Question 10 lists all of the network members that were included in the bounded list when the survey was set up. Respondents of the survey pick a subset of that list to answer questions about those specific partnerships.
- Questions 11 and 12 are "relational" questions that create the network visualizations and populate the dyad data. Specifically, these questions

define the "lines" in the network maps during analysis. For example, default question 11 asks "How frequently does your organization work with this organization on issues related to this community collaborative's goals?", and respondents are expected to choose a single answer on a scale of the lowest level of frequency (Once a year) to the highest (Every Day). Default question 12 asks about levels of collaboration and prompts each respondent to define their relationships with others as "none, cooperative, coordinated, or integrated."

- Questions 13–15 are the "relational" questions measuring value. Value is measured using three dimensions: power/influence, level of involvement, and resource contribution. Network members do not supply value in the same way, so collecting an understanding of the perceptions that members have of the value of other partners can lead to creating new ways to leverage existing partnerships. Respondents rate each of their partners on each dimension, using the scale: (1) not at all, (2) a small amount, (3) a fair amount, or (4) a great deal.
- Questions 16–18 are the "relational" questions measuring trust. Trust is measured using three dimensions: reliability, in support of the mission, and open to discussion. Measuring trust is important for capacity-building and is fundamental for an effective network, including having strong members who work well together, establishing clear and open communication, developing mutual respect and trust, and working toward a shared mission and goals. Respondents rate each of their partners on each dimension, using the scale: (1) not at all, (2) a small amount, (3) a fair amount, or (4) a great deal. Question 19 is a closing question that allows for additional questions or comments.

Step 3: Collect Data

- Send survey introduction, invitation, and reminders to respondents
- Have respondents take the survey

We recommend that respondents know about the survey in advance of being invited to take the survey. The PARTNER platform has an email system that lets you send introductory, invite, and reminder emails. The introductory email gives respondents a "heads up" so they will know the details about why they should take the survey, when to expect the survey, the anticipated time it should take to participate in the survey, and allows for an opportunity to ask any clarifying questions in advance. This helps to create buy-in from respondents before the survey starts. The average response rate of PARTNER surveys is between 65% and 75%, in part due to the methodology we use to administer the surveys. Following the introductory email, we recommend the following schedule to send out the initial invitation and follow-up reminders.

Response rate should be reported (either as a strength or a limitation) when reporting the results. We recommend reporting initial findings back to your network at various intervals as a method to encourage them to participate.

Step 4: Analyze Data and Communicate Results

- Use PARTNER to analyze results, including generation of network scores and visualizations; repeat analysis as appropriate
- Disseminate the findings to stakeholders including, for instance, network partners, existing and potential funders, and/or other community members

Use PARTNER to analyze results, including generation of network scores and visualizations. When you use the PARTNER Network Survey and the PARTNER evaluation framework, an analysis can be run simply by selecting from a menu of options in an online dashboard. You can complete the full analysis after you close the survey and are finished collecting data. The analysis functions are built into the PARTNER Data Dashboards, which you can access online. Analysis options include network visualizations (maps), network scores, and descriptive results and graphs of aggregated responses, as well as a report builder function. The user simply clicks a few buttons and the analyses will run. It is also very easy to download your PARTNER data and import them into other analysis and visualization tools (UCINET, NetDraw, Kumu, Gephi, SPSS, etc.) for your network analysis, network visualizations, or more in-depth network scores.

Disseminate the Findings to Stakeholders. Once you have completed your analysis, you will likely want to share findings with members of your network, existing and potential funders, and other community stakeholders. Your analysis will yield information on network scores, as well as, network visualizations depicting your relational data. You can also layer on to the relational network maps non-relational response options. This information can be inserted into a report, a briefing, or other type of presentation highlighting the progress and activities of your network.

Representing Members in the Reporting. Your network partners will likely be interested in how your network has been functioning, where there are gaps in the relationships, and how communication can be improved. Something you will have to consider is any potential sensitivities in sharing particular data on relationships between particular organizations, and whether you will label the nodes with the respondent names or not. If you opt not to share names, there are other ways to disseminate the data while retaining the anonymity of the network members. You can do this by sharing overall network scores (e.g., connectivity, density), network visualization that show the nodes labeled by type of organization or sector they represent can show members which organizations are collectively identified as

central to the network, and averages can be shared in ways that represent aggregated data that protects the identity of the members.

Existing and Potential Funders. The network scores and maps also can provide important information for funders, both existing and new. For example, if you have a multi-year grant from a funder, you may want to conduct the survey at key time points over the course of the grant (before the grant begins, at one point during, and at the end of the grant). This longitudinal data can show funders how collaborative relationships have improved over time, how strengthened relationships can be linked to better health indicators in the community, and where efficiency in working relationships has been streamlined. Using a network map, you can also emphasize to a potential funder where their funding could help strengthen a particular set of relationships to improve outcomes, like child health, in the community.

Other Community Stakeholders. Community leaders also may be interested in the activities of the network, particularly when strengthened relationships and new partnerships can be linked to improved community health. In addition, a network map presented in a community forum or other venue can show community leaders who are involved in addressing a particular issue. Let us return again to our example of childhood obesity. Suppose the analyses have helped your network improve particular relationships, and now the health department has connected with local business leaders to increase access to healthier food options. By explaining this new relationship, community stakeholders may be able to offer ideas on how to build on this health department-business partnership to address other related health issues. In addition, the findings can be a powerful advocacy tool for community leaders (e.g., church, government) to take to their constituents to show where partnerships can be beneficial.

Putting Results Into Action

Translate the Data to Action Steps and Strategies to Improve Network Outcomes

Reporting the outcomes of the network analysis is a key step in completing your evaluation. An additional advantage to having these data is the ability to translate the data into action steps and strategies to strengthen the network. Once you have collected data using PARTNER, a network leader can look at the data and think about whether new connections are desired between the existing partners in the network, whether ties already exist that can be leveraged for new initiative to work or to strategically share resources, and whether any connections are present that do not need to be (i.e., if there is redundancy in the network and the elimination of certain ties will free up space for new relationships to be created). For example, network visualizations help identify organizations that are at risk for being isolated

from other members, members that are isolated from other members (no connections to other members) or identify organizations are that are well-connected (key players) and can be leveraged for a specific activity.

For example, suppose that you are a relatively new network that would like to address the issue of childhood obesity in your community by targeting key risk factors that include reduced physical activity and access to healthy foods. However, your analyses reveal a trust score that is particularly low among members of the network, making it difficult to develop shared goals and processes. In addition, the network visualization shows that the schools, Department of Parks and Recreation, and grocery stores are not well connected to the health department and other organizations working on childhood obesity. Thus, you may want to use the trust score and the visualization as a rationale for spending your next year building and strengthening relationships, particularly with those isolated organizations that are key to your stated goals. In addition, these data may help you to problem-solve with partner organizations to identify why trust may be low. In addition, it may help to inform how working relationships with these organizations can be improved to address your goal of increasing child physical activity and access to healthier meal options.

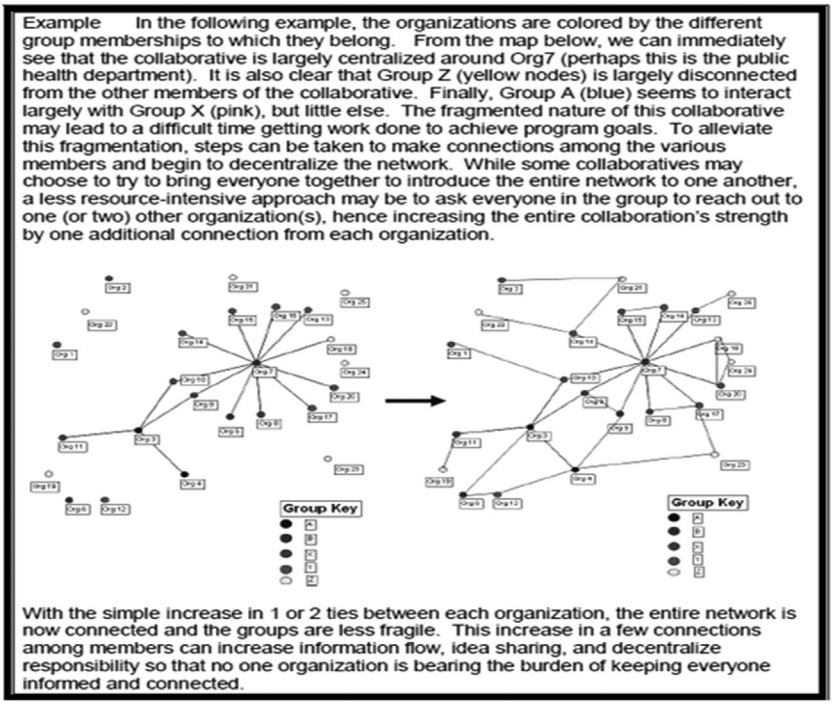
PARTNER data can also help efforts to strategize how to leverage available resources within the network. For example, let us say a state agency reports contributing funding to the network. However, the backbone entity is not directly connected to that state agency. The next step might be to identify a "bridging" organization that can make the connection between the two agencies. Another strategy may be to create subgroups within the network, thereby dispersing the central hub and allowing multiple opportunities for a "flattening" of the group. The PARTNER data can support the identification of organizations within the network with resources that can be tapped into for future leadership, facilitation, and/or coordinating roles.

Utilizing the Evaluation Framework

To demonstrate how to apply the evaluation framework to network data collected using PARTNER, examples of data from each of the four categories (interrelationships, attribution, perceptions, and agreement) and their interpretations are described here.

Track Interrelationships Within the Network. One way to assess the interrelationships among members in a network is to see the way a network map is structured when the data collected from the survey are visualized (see Figure 4.5 for an example). PARTNER enables you to visualize network members' connections through network mapping. By choosing from options in the PARTNER Data Dashboards menu, you can choose exactly how you would like to visualize your network. Options for looking at your network visually include the ability to display types of relationships (e.g., Frequency of Interaction or Level/Type of Interaction), strength of ties, and

Figure 4.5. Example of analyzing interrelationships.



direction of the relationship. You can also look at a valence of relationships along the metrics of value and trust. In the example below, two visualizations are laid out side by side to show contrasting network structures, and possible interpretations to help make sense of the visual.

Perceptions. In networks, the most accurate relationship between two members is the perception that each one has of each other. Yes, we can capture instances of interactions (like frequency) but the perception that one member has of another is the true relationship that they have—although almost always invisible to us. The PARTNER Evaluation Framework captures two measures of perception that can be used in both demonstrating progress and in developing action steps and strategies to strengthen the networks. These include perceptions of Trust and Value. See Figure 4.6 for an example of analyzing perceptions of value.

Attribution. Understanding how connections among members evolve over time, and what that growth can be attributed to is of interest to funders, stakeholders, and members (see Figure 4.7). There are several ways to attribute the network to process outcomes, and by asking a question that specifically gets network members to say whether their relationships were

Figure 4.6. Example of analyzing.

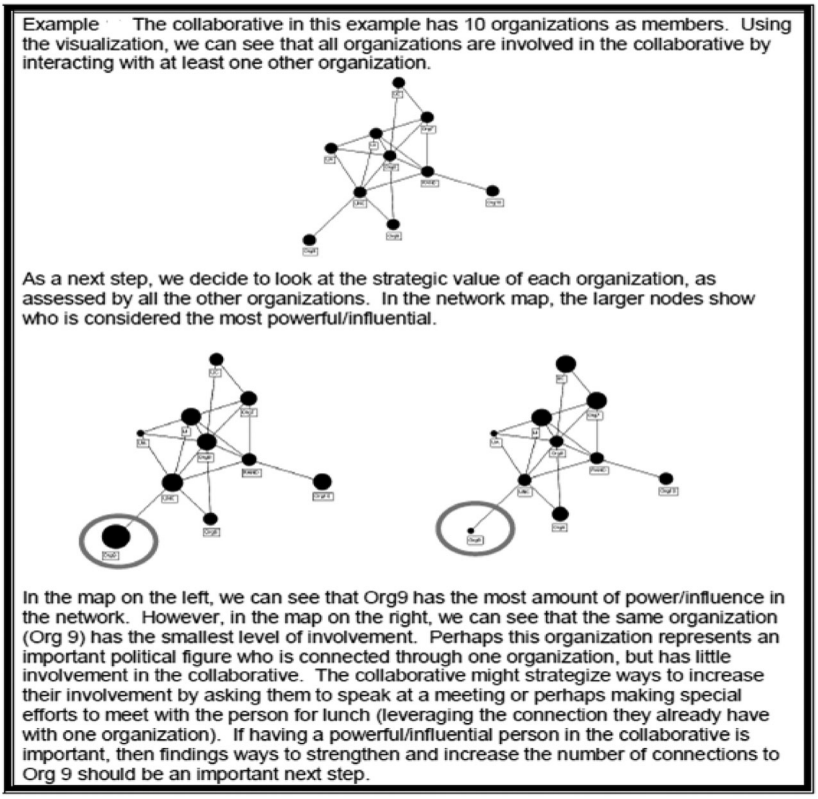


Figure 4.7. Example of using dyadic data to describe attribution.

In 2019, 36 organizations answered questions about how the Happy County Collaborative (HPC) has strengthened the early childhood system in our county. Here's what they told us.

How is HCC strengthening the system in Happy County?

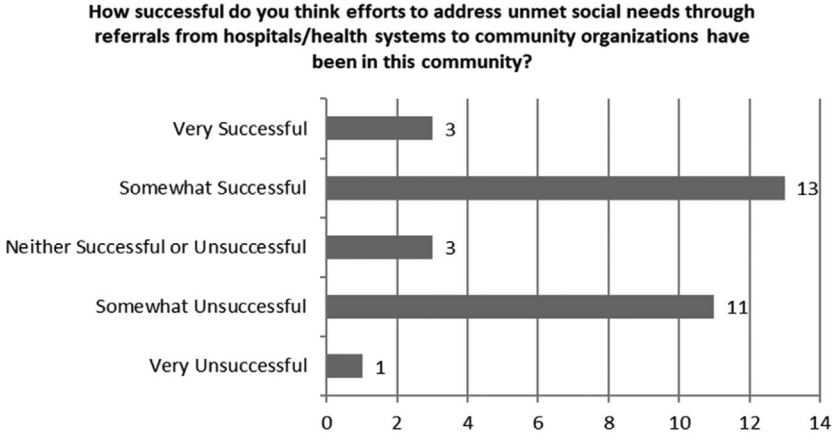
The 36 organizations *identified 591 partnerships among them*. Of these, they reported that:

- 63% (about 372) of these partnerships are attributed to activities related to HCC.
- 44% (260) of those partnerships were created through HCC activities
- 19% (112) of those partnerships were strengthened by HCC activities

How are partnerships strengthening the early childhood system in Happy County?

- These 591 partnerships resulted in *systems change*:
- 401 (68%) resulted in improved services or supports for young children and families
- 206 (35%) resulted in exchanges of resources
- 106 (18%) resulted in development of new programs
- 130 (22%) resulted in exchange of information
- 88 (15%) resulted in improved screening/referral/follow up processes
- 70 (12%) resulted in increased organizational capacity

Figure 4.8. Example of analyzing agreement.



developed "through the network" can help to explain whether the network itself can be attributed to the growth of those ties.

Agreement. Gauging the agreement among network members is an important element of evaluation. Almost as important as the answers they give on questions is the degree to which they agree on the answers. For example, in the PARTNER Default Survey, question 8 asks members to rate how successful the network has been at reaching its goals. This question has the most variance of any other question in the data. Members consistently disagree on the degree to which the network has been successful (see Figure 4.8). It is important if network members report that the network has not been successful, but it is also important if they all disagree on their responses. If all members report that the network has not been successful, that is actually a good place to be. When network members are on the same page about a response, it is much easier to create action steps that everyone can agree with. When there is disagreement, it is much harder to build a cohesive strategy. So, it is as important to assess the responses and take a deeper look at the levels of agreement about those responses (Table 4.1).

Questions to Consider When Reading These Data
Does the network have a common definition of success?
What are the differences between the groups and how they answered?
Can these results be improved?

Potential Strategies to Address Variations in Perception of Success
Have a discussion about success!
Develop goals that map on to definitions of success
Link organizations back to the outcomes and definitions of success

Table 4.1. Network Characteristics and Quality of Relationships Between Members

Network Characteristics	*Quality of Relationships Between Members*
* Centralization—extent to which there are key members of the network who you can reach many others through * Cliques—extent to which there are "mini-networks" within the larger network * Cohesion—extent to which the network remains connected even when some ties are severed * Connectivity—extent to which members are linked directly or indirectly * Density—extent to which many members are connected to one another * Distance—smallest number of connections separating one member from a particular other member * Homogeneity—how similar are members to one another * Size—how many members are in the network	* Duration—how long partners have been connected to one another * Frequency of contact—how frequently members connect with one another * Level of intimacy—level of intensity and depth between two partners * Multiplexity—extent to which members interact in different ways (e.g., socially, professionally, support exchanged) * Nature of ties or relationships between members—types of activities and relationships present between members of the network such as trust and perceived value * Partnership outcomes—types of outcomes that have been achieved or come out of members relationships with their partners * Reciprocity—in a directed network, the instances when partners are mutually linked (they picked each other as partners)

Conclusion

More cross-sector partners are coming together and utilizing a systems approach to solve and tackle complex social problems facing their communities. Yet, there is little guidance on how to measure the collaborative effort of these community networks. Evaluating networks using network science provides the theories, methods, and strategies that can be used to guide the study and practice of working in networks We demonstrated how to use a social network analysis methodology and the PARTNER Tool to evaluate cross-sector interorganizational networks. Specifically, the PARTNER Evaluation Framework helps networks evaluate the strength (and gaps) among member relationships, understand how members are perceiving their relationships, look at how member relationships were created and how they have evolved, and identify needs and gaps through level of agreement on which outcomes the network has achieved and how successful it has been at achieving its goals. Analyzing these specific measures help network members manage their relationship budgets (i.e., the time and resources spent managing relationships in order to achieve the collaborative's goals). When

network science is translated into practice, community-based networks of cross-sector partners can use data for evidence-based strategies and action steps, and to document their collective progress over time.

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