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# E-PARCC

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## **Strategic Network Management in a Community**

### **Collaborative: A Simulation**

#### **Assessing Connectivity in Public Health Collaboratives**

A major challenge facing state and local public health agencies is how to partner with other organizations, agencies, and groups to collaboratively address goals in population health while effectively maximizing sharing resources between partners involved. Today's public health efforts require multi-agency partnerships between both governmental and non-governmental sectors to achieve this mission<sup>1-4</sup>. These partnerships are created by an understanding that the antecedents of poor health are multi-factorial and thus require a multi-systemic approach<sup>5</sup>. The need for effective and efficient partnerships spans many domains of public health, from chronic disease prevention (e.g. diabetes) to public health preparedness (e.g. natural disasters, bioterrorism)<sup>6</sup>. Public health now includes not only health care providers, insurers, purchasers, public health departments, community-based organizations, and academic institutions, but also entities that operate outside the traditional sphere of health care, such as faith-based and other non-health community-based organizations, schools, businesses, and other non-health governmental agencies. Today, public health collaboratives (PHCs), made up of

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three or more organizations (versus partnerships of only two organizations), are frequently established to leverage resources and maximize the synergies that many agencies bring to the table.

### **Why Current Efforts Are Not Sufficient**

Engaging in partnerships with multiple community systems is intrinsic to improving a public health system<sup>7</sup>. However, the process by which public health departments have engaged partners in PHCs to address the multiple influences of these systems has varied, with few ways to measure and evaluate the success of these partnerships and how organizations interact with one another. Public health leaders, and partners involved in collaboratives, are eager to understand how to quantify and analyze the collaboratives in which they are involved so that they may determine whether efforts to focus resources on partnership or collaborative development are working. For example, a key question concerns how to assess the quality and value of convening many partners together to form a public health collaborative. It is important to understand how PHCs are linked to health outcomes, how public health departments (HDs) can maximize resources to develop these collaboratives, how networks are used to build public health constituencies, and how they can remain accountable to their funders and stakeholders. Thus, a deeper understanding of how to assess the strength of a collaborative, what motivates and moves constituents to action on public health issues, and benefits from particular relationships in a collaborative is required<sup>8</sup>. This evaluation is critical in order to improve how PHCs are addressing health issues in their communities<sup>9</sup>.

### **The Purpose of the Simulation**

This simulation allows participants to analyze and interpret social network data representing a public health community collaborative. By taking on specific roles, participants can think analytically and strategically about decisions they might make as a member of the community collaborative. The simulation will utilize a methodology called social network analysis (SNA) as a means to measure and evaluate the collaborative activities of a diverse group of community partners. By the end of the exercise, each participant should have a better understanding of how to think about the role that managers play in networks of interorganizational actors.

## **Directions**

All participants should have a copy of the accompanying Excel file titled “PARTNER Simulation.xls”. Each participant will choose a role to play in the simulation and consider the concerns that person’s role is trying to address, using the PARTNER tool (which is embedded in the file). PARTNER (Program to Analyze, Record, and Track Networks to Enhance Relationships) is a social networks program designed for use by public managers<sup>10</sup>. Each participant will answer a set of 5 similar questions that describe the positions of the different members of the collaborative (Part 1). Then each participant will develop a strategic response to address the specific motivation they are seeking to accomplish (Part 2).

## **Social Network Analysis (SNA)**

Social Network Analysis is the study of the structural relationships among interacting units and the resulting effect on the network. There are several things we should consider about SNA. First, the fundamental property of the method is the ability to determine how connected actors in a network are to one another. SNA provides a way, through mathematical algorithms, to measure the number and lengths 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<sup>11</sup>.

Some of the important terms and concepts used in this simulation should be described. First, a *node* is any person, place, or thing that either gives or receives

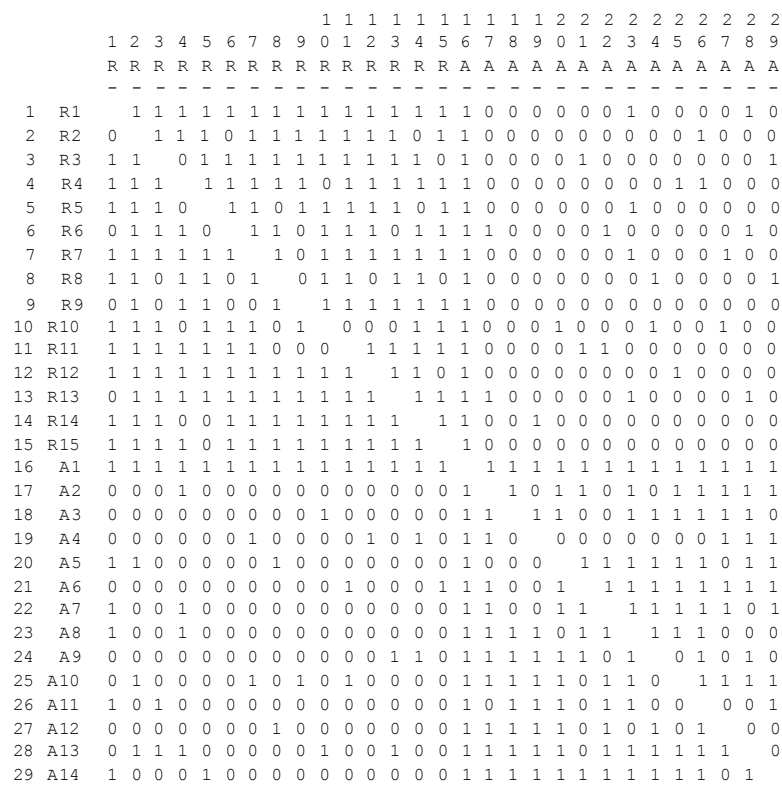


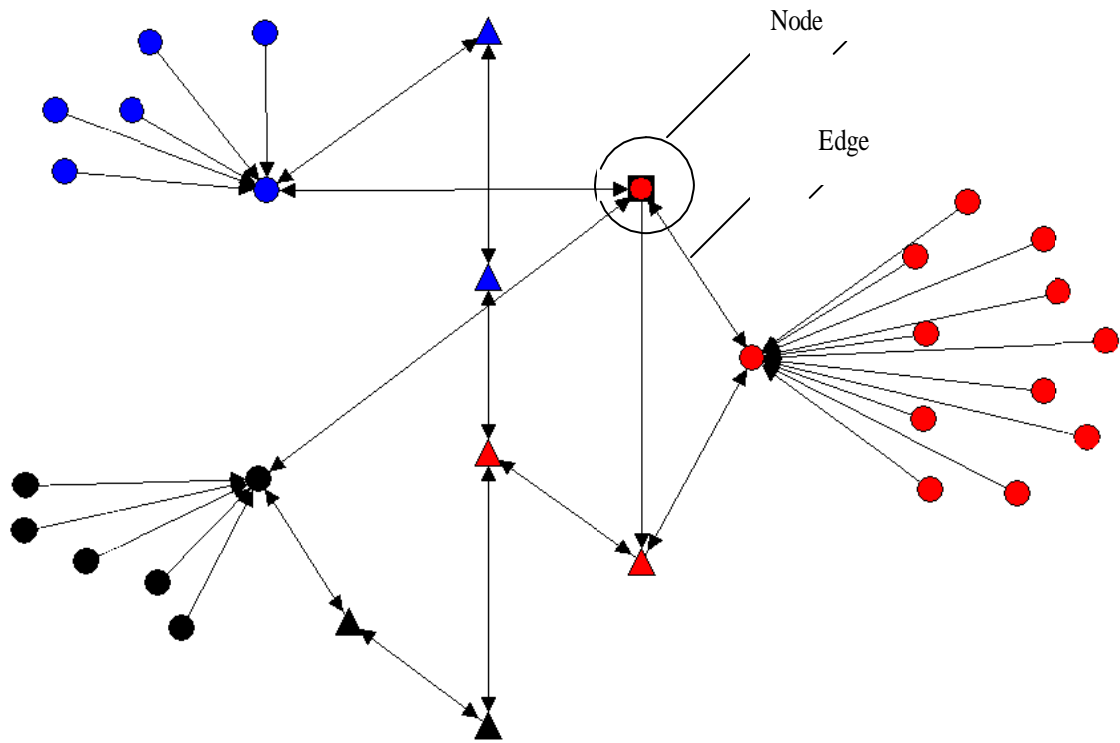
Figure 1. Sociomatrix

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*<sup>11</sup>.

An important part of SNA is the way that data is coded. Most SNA data is dichotomous, with a 1 representing the presence of a relationship and a 0 denoting the absence of the relationship. All of this data is entered in a sociomatrix. The sociomatrix can represent directional, or nondirectional, ties, as well as binary or weighted values. All of these details are determined by the researcher based on the research questions. It is from these sociomatrices that we can determine measures such as centrality, density, structural equivalence, and strength of ties, just to name a few. Once all of the data is entered into the software program (here, PARTNER), in addition to the calculations it allows you to make, it also creates a visual map of your network. Figure 1 shows an example of a sociomatrix and Figure 2 below shows an example of a network map.

connections. An *edge* is the 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



**Figure 2. Network Map**

## Simulation

### The Community Collaborative

In this urban community, a number of organizations have been working both individually and in partnerships with one another for years to address the social and economic needs of the community's growing homeless population, led in large part by the efforts of the local public health department. These organizations include the Salvation Army (SA), Veterans Affairs (VA), the Local Public Health Department (LPH), Catholic Charities (CC), the Department of Housing (DOH), a local homeless shelter (LHS), a Job Training Program (JTP), a Drug and Alcohol Clinic (DAC), the Local Law Enforcement Agency (LEA), a Representative from the State Legislature (RSL), and one prominent business owner (PBO). The beneficiaries (the homeless population) receive housing, health and mental health services, job training, drug and alcohol services, as well as case management in order to foster self-sufficiency and reintegration into the community. Recently, the group has decided to formally organize as a community collaborative in order to

apply for funding, identify ways to leverage resources, identify gaps in services, and identify methods for demonstrating progress made by the group. In a first step at organizing a formal group, the public health department administered a network survey to see who has been working with whom, what kinds of resources each organization has to offer the collaborative, the level of trust among the organizations, and the perceived value of each organization by the others. The results of the data collection have been compiled in the accompanying “Partner\_Simulation.xls” file.

### **Simulation Exercise:**

As the group begins to form, each organization has the opportunity to assess the information gathered and available in PARTNER. As in most community collaboratives, the various organizations have decided to work together as a formal group for various reasons. Each organization’s motivations will result in various decisions made regarding their participation. For example, some organizations may be interested in gaining/leveraging resources, some may be interested in learning how to deal with homeless populations in the community, some may have an interest in advocating for the rights of homeless people, and others may be trying to identify the location of this hard-to-reach population. In this simulation, each participant will take on the role of an organization/person interested in the collaborative. They will use PARTNER to describe their own and others’ positions in the network and then each participant will address an issue using a strategic management approach.

The simulation has two parts. The first part asks the participant to “describe the network” from their positions and the second part asks the participant to “address a strategic management decision.”

### **Simulation Roles:**

This simulation has six roles. One role is that of a grant writer whose job it is to assess the extent of connectivity among the network members in order to demonstrate collaboration. The other five roles are members of the collaborative whose motivations will drive their strategic management options. These include: Public Health Department, Veterans Affairs, Job Training Center, Local Law Enforcement, and the Homeless Shelter. The six roles are described in more detail below.

All participants will begin by answering the same 5 questions about their specific role (Part 1). [Directions for using PARTNER to answer the questions are included in this set of questions.] Then, each participant will address the specific issues described in the role they choose.

Important Note: To use PARTNER, you will need to **ENABLE MACROS** in your Excel file. To do this, simply go to *Tools -> Macro -> Security*. **Set your Macros to “Medium.”** Then **close Excel entirely** (not just the workbook that is currently open) and reopen the “Partner\_Simulation.xls” file. You should see a message that asks you whether you would like to **ENABLE MACROS**. **Choose to enable your macros**. If you still have problems, try the process again, but it is important that you close Excel entirely before reopening the file.

**Part 1: Describing the Network: To begin, all participants should follow the directions below to describe the network. Each set of directions is followed by questions that each participant should answer.**

*To begin, follow the directions below:*

**1) Visualize the Network**

- f* From the “Partner\_Simulation.xls” file main page (titled “Introduction”), select the button that says “Create Network Maps.” [Alternatively, you can click on the “Partner Tool” on the menu tab for the same command.]
- f* Choose “Select All” under “Choose what groups to show.”
- f* Select “Different Colors” under “Show group affiliation with.”
- f* Select “Show Names of Organizations.”
- f* Select “Display Network” at the bottom of the menu.

*You can slide the “Min/Max” bar at the top of the page to make a smaller map.*

*You can also continue to select “Display Network” to reconfigure the map until it is most clearly laid out.*

This map displays the members of the collaborative. The edge between each node represents those that work together on something related to homelessness at least once a year or more.

**Questions: Describe the network, including who is working with whom. Who do you most commonly work with on the issue of homelessness? [Grant writer does not answer the last question.]**

**2) Assess frequency of interaction**

- f* Without changing the settings you just specified, click on the “Frequency” tab at the top of the menu.
- f* Step through each option, followed by selecting the “Update Network” command.

As lines disappear, you can get a sense of the “frequency of interaction” among partners. The lines that do appear tell you who works together at least “every few months”, “every few weeks”, etc.

**Questions: Which organizations have the most frequent interactions? Which have the next most frequent interaction? What can frequency tell you about the strength of the relationship? Who does your organization most frequently work with on issues related to homelessness? [Grant writer does not answer the last question.]**



### 3) *Identify existing resources*

- f Return to the “General” tab.
- f Select “Don’t Show” under the “Show group affiliation with:” option.
- f Select “Display Network.”
- f Now go to the “Resources” tab.
- f Choose “Each organization’s most important contribution.”

The color of each node specifies what each organization believes is its most important contribution. You can step through the specific contributions to see what each organization brings to the collaboration.

**Questions: What is your organization’s most important contribution? How can that contribution be leveraged and/or benefit the larger group? [Grant writer answer: How can resources be leveraged?]**

4) *Assessing the Strategic Value of Partners:* Organizations are valued in PHCs when they bring a combination of power/influence, involvement, and resource. The “overall” score represents the average of all three scores. These characteristics are described as:

- 1) *Power and Influence:* Collaborative members bring value to their PHC largely through their power and influence in the community. Such members hold prominent positions in the community, have influence as a change agent, and/or exhibit leadership.
- 2) *Active Involvement:* Actively involved members not only participate in scheduled meetings, but actually accomplish tasks they agreed to take on.
- 3) *Resources:* Valued partners bring resources to the collaborative, such as money, food and physical space for meetings, staff time, data, and educational materials. Some of the more intangible resources valued include knowledge, information, and feedback. Finally, community connections to other members is included on the list of valued resources.

- f Click on the “Value” tab.
- f Step through the different options for “Overall Value,” “Power/Influence,” “Level of Involvement,” and “Resource Contribution.”
- f Click on “Update Network” after each choice to see the nodes change in size.

As the nodes increase in size, the value (as perceived by the other members of the collaborative) of each characteristic increases. In other words, large nodes mean more value.

**Questions: Which organizations are considered most powerful/influential, have the most level of involvement, and are having the most resource contribution? Are there certain valuable nodes that are “vulnerable” that is, not well connected that could be better connected through new ties? Along which dimension, if any, is your organization most valuable? [Grant writer does not answer the last question.]**

5) *Assessing Trust Among Partners: Trust is considered the key to good collaboration:* Trust is a dimension deemed critical to PHCs. Trust is described here as:

- 1) Being reliable and following through,
- 2) Sharing a common mission with the group, and
- 3) Willing to engage in open, frank discussion even when disagreement exists

*f* Select “Erase.”

*f* Go back to the main page of the file titled “Introduction.”

*f* Select “Analyze Network Scores.”

*f* Select “Calculate All Scores” and “Show/Remove Scores’ Explanations.”

*f* Close the menu box by clicking on the “X” in the upper right corner.

These scores give more information about the network. The first box lists “whole network” scores – that is, scores that represent one total for the network. The second box lists scores by each organization. As you scroll, left to right, you can see the various individual scores. By sorting each column as “descending,” you can see which organizations have the highest to lowest scores.

**Question: What is the whole network score for trust? What does it mean? What is your own score for the three dimensions of trust? Are you very trusted by others, or not trusted as much? [Grant writer does not answer the last 2 questions.]**

## **Part 2: Address a Strategic Management Decision**

In the following section, the various motivations of each role are described. Each participant is asked to make strategic decisions based on their motivations, using information from the PARTNER program. In addition, the network map in Appendix 1 can be used by each participant to draw new ties or otherwise visually describe their strategies.

## Grant Writer

Funding to support programming for homelessness is available through HUD, SAMSA, and HRSA; however demonstration of “collaborative efforts” among community organizations is a required competency in any of the funding proposals. The grant writer will use PARTNER to demonstrate the level of connectivity among members by describing the following:

Network Membership: Diversity is considered a strength of community collaboratives.

*The grant writer should look at the “Group Key” from the first visualization they produced to describe the different sectors represented within the collaborative. This is found in the “Partner\_Simulation.xls” file main page (titled “Introduction”), “Create Network Maps” -> “Select All” under “Choose what groups to show” -> “Different Colors” under “Show group affiliation with” -> “Show Names of Organization” -> “Display Network.” These include the nonprofit, public, and private sector. The grant writer should explain why diverse sets of organizations can improve the collaboratives’ ability to succeed. (Hint: Utilize the “Strength of Weak Ties”<sup>12</sup> argument.)*

Frequency of Interactions—Frequent interaction is not always necessary for good connectivity: The frequency with which members of a collaborative are expected to interact with each other is another dimension of measuring PHC connectivity. While most research to date concludes that frequent interactions among organizations improve collaboration, not everyone agrees, given a scarce amount of available resources for collaboration and network theories that suggest otherwise. The required level of communication among members depends on varying factors. The simple assumption that more frequent interaction makes for better collaboration is not adequate. Therefore, when thinking about measuring connectivity in PHCs, it is important to consider how different types of relationships between members warrant varying expectations for levels of interaction. For example, as a relationship becomes more trusted, less communication may be necessary to maintain successful levels of interaction.

*The grant writer should discuss how the varying levels of frequency of interaction can demonstrate a sufficient level of interaction (for example, is it necessary for Law Enforcement to participate at a high level of frequency) and also suggest areas for improvement.*

Density: The density score can be found in “Analyze Network Scores” -> “Calculate Network Scores.” Density can tell you how “connected” the network is. The more dense a network, the more resilient it can be. Additionally, information can flow more easily through the network when everyone is more densely connected.

*The grant writer should explain what the density score means and how the funding can help improve the score. (Hint: Look at explanation of score.)*

## Public Health Department

The public health department currently plays a key role in the collaborative. While the dominant view among each member is that health departments should play a strong coordinating function in PHCs, they also feel strongly that public health should not be expected to stay in the coordinating position forever. Many feel that the role of health department is not static and that, over time, they eventually should be able to assume a role as equal partner so that the collaborative can function with a more decentralized configuration. While the motivation of the public health department is to continue to promote work on homelessness, they are hopeful to transition out of the coordinating position and shift this responsibility to another key member of the group.

### *Key Player Roles: Degree Centrality*

The network score called “Degree Centrality” (found under “Analyze Network Scores” -> “Calculate Individual Scores” -> “Centrality Scores”) tells us who has the most number of connections to others. After arranging the scores in columns as “Descending”, the Public Health Department can see who has the highest “degree centrality” scores.

*The public health department should describe who the current members are with high degree centrality scores and who might be the natural replacement for the public health department, based on the least amount of resources to put an organization in that position.*

### *Leadership Based on Trust:*

Trust is an important element to community collaboration. The “total trust” score (found under “Analyze Network Scores” -> “Calculate Individual Scores” -> “Trust Scores”) tells us how much, overall, each organization is trusted by the others.

*The public health department should describe, based on the “Total Trust” score, which organizations would best be suited to lead the collaborative? Which organizations would be least suited, based on this score?*

## Local Law Enforcement

Local law enforcement's motivation for involvement in the homeless collaborative is to understand the extent of the homeless population, their needs, and how to better handle homeless people found on the streets. Local law enforcement is hopeful that they can learn from case management professionals about how to distinguish types of possible mental illness and learn about alternatives for treatment (as an alternative to taking homeless people to jail). The goal of Local law enforcement is to increase their connectivity (number of connections and frequency of interaction) with organizations that have knowledge in this subject. They are particularly interested in homeless veterans.

*Increasing Connectivity:* Local law enforcement is trying to decide who would be the best organizations to connect with to meet their goals. While their intentions are good, they don't have many resources to commit to this endeavor. They are hopeful that by connecting to just a few others, they can improve their overall connectivity to the group.

*Local law enforcement can use the "resources" information to make this decision. They are specifically looking for organizations with "Expertise Other Than in Health", as well as "Expertise in Health." This can be found by going to the main page "Introduction" -> "Create Network Maps" -> "Show Names of Organizations" -> Resources Tab -> "Expertise Other Than in Health" and "Expertise in Health" (click "Update Network Map" to see each resource).*

*Local law enforcement has the resources to increase connectivity with two other organizations. Using the network graph in Appendix 1, they need to identify which two organizations can best improve their connectivity to groups with expertise they need. The goal is to connect with the two best organizations that are the most connected to others they need information from. In other words, they are trying to identify the "brokers" of information. Explain which organizations they should pick, and why. (Hint: Utilize "Structural Hole" argument<sup>13</sup>).*

## Homeless Shelter

The homeless shelter has many motivations for getting involved in a community collaborative. Number one on its list though is how to get more resources to increase the number of beds and services provided to homeless people while in the shelter or transitional housing. Second on the list is to find ways to increase public awareness and political support for the needs of the local homeless population. The goal is to increase connectivity with as many organizations as possible in the collaborative.

*Increasing Connectivity:* The homeless shelter is trying to decide who would be the best organizations to connect with to meet their goals. While its intentions are good, they don't have many resources to commit to this endeavor. The shelter is hopeful that by connecting to just a few others, it can improve its overall connectivity to the group.

Identify resources for more beds and case management services.

*To find out who has the resources they need, the homeless shelter can use the "resources" information to make this decision. They are specifically looking for organizations with "Funding or Fundraising," "In-Kind Resources," "Volunteer Staff," and "Expertise Other Than in Health." This can be found by going to the main page "Introduction" -> "Create Network Maps" -> "Show Names of Organizations" -> Resources Tab (click "Update Network Map" to see each resource). Which organizations might have the kinds of things that the homeless shelter can use?*

Increase public awareness and political support: The homeless shelter knows that it will need to tap into the resources of those that have a high level of power/influence.

*The homeless shelter needs to identify how many new connections they will have to foster in order to meet their goals. Organizations they hope to connect with will have high Value scores on power/influence. This can be found by going to the main page "Introduction" -> "Create Network Maps" -> "Show Names of Organizations" -> Value Tab -> "Power/Influence" (click "Update Network Map" to see each resource). The goal is to connect with as many organizations in order to reach this goal. Which organizations are the best to form connections to and why? What techniques can they use to form connections and educate these other members?*



## Veterans Affairs

The local VA has identified homelessness as one of its priority areas to address. While the number of homeless veterans increases in the community, the role of the VA in alleviating this problem has decreased in recent years. The VA has a number of services to offer to veterans, thereby freeing up community resources for non-veterans. However, the public has a low level of trust for the VA and is unaware of its services. By forming a partnership with the public health department, the VA has already begun to build a partnership on its way to becoming a stronger community presence around the issue of homelessness. The motivation of the VA is to extend their services to the larger population of homeless veterans and build trust throughout the collaborative.

*Extending Services:* The VA knows that it has to take small steps and not appear overbearing in forming new connections for resource sharing. As a first step, the VA has decided to reach out to those in the collaborative who are considered valuable for their “level of involvement.” They hope to educate these other organizations about their services and motivations, and increase the level of frequency of involvement between themselves and these members.

*The VA needs to identify which new connections they can foster in order to meet their goals. Organizations they hope to connect with will have high Value scores on “level of involvement.” This can be found by going to the main page “Introduction” -> “Create Network Maps” -> “Show Names of Organizations” -> Value Tab -> “Level of Involvement” (click “Update Network Map” to see each resource). The goal is to connect with as many organizations in order to reach this goal. Which organizations are the best to form connections to and why? What techniques can they use to form connections and educate these other members?*

*Building Trust:* Next, the VA wants to build trust among the larger community of organizations working on these issues. They believe that it will be easiest to build trust first with organizations that are from the same sector as they are (public sector). They want to identify other public sector organizations.

*The VA should look at the “Group Key” from the first visualization they produced to describe the different sectors represented within the collaborative. This is found in “Partner\_Simulation.xls” file main page (titled “Introduction”), “Create Network Maps” -> “Select All” under “Choose what groups to show” -> “Different Colors” under “Show group affiliation with” -> “Show Names of Organization” -> “Display Network.” These include the nonprofit, public, and private sector. The VA will want to first connect with organizations from the public sector. Using the network map in Appendix 1, illustrate how the network will change (where new ties will be formed) once they take this action.*

## Job Training Center

The job training center's purpose is to provide training in skills that can help homeless people attain permanent jobs in the community. They are anxious to connect to organizations that can provide client referrals as well as provide funding to support those individuals (the Job Training Center is a private organization). A barrier however is that they must have buy-in from decision-makers in the group to market their services to other organizations. Their strategic goal is to increase connectivity with organizations that have funding, data, and decision-making authority to put their plan in place.

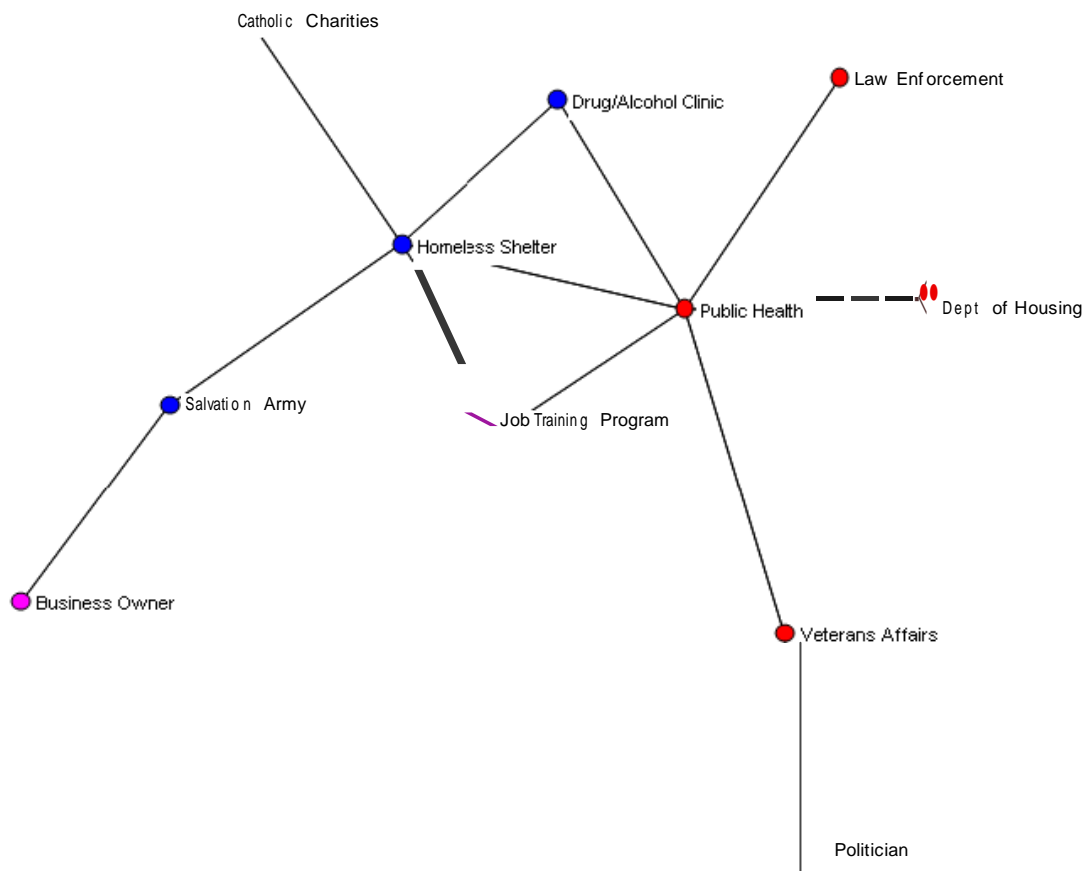
Increasing Connectivity: The job training center is trying to decide who would be the best organizations to connect with to meet their goals. They understand that their actions must be strategic, so as not to compromise their position in the collaborative.

*To find out who has the resources they need, the job training center can use the "resources" information to make this decision. They are specifically looking for organizations with "Funding," "Data," and "Decision-Making." This can be found by going to the main page "Introduction" -> "Create Network Maps" -> "Show Names of Organizations" -> Resources Tab (click "Update Network Map" to see each resource). Which organizations have all three of the resources that the job center is looking for in an organization? Which should the job center approach first, and why?*

Using Brokers: The job center next decides that it would like to set up one meeting to introduce itself to all of the potential organizations that might help it meet its goals.

*Among the organizations identified above, the job center wants to select the most trusted one and solicit them to host a meeting on the job center's behalf. Which organization would be best for this role? Is there an advantage to picking an organization that they do not already have a relationship with, or should they try to solicit someone new? To explore this, go to "Introduction", "Analyze Network Scores" -> "Calculate Individual Scores" -> "Trust Scores" and sort the scores in descending order.*

# Appendix 1. Community Network Map



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