

Making Sense of Networks: Exploring How Network Participants Understand and Use  
Information From Social Network Analysis

John David Moore

Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State  
University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy  
In  
Public Administration and Public Affairs

Robin H. Lemaire, Chair  
Max O. Stephenson Jr., Co-Chair  
Karen M. Hult  
Stephanie L. Smith

(May 3, 2021)  
Blacksburg, VA

Keywords: collaboration, networks, sense-making

# Making Sense of Networks: Exploring How Network Participants Understand and Use Information From Social Network Analysis

John David Moore

## ABSTRACT

Many of today's complex public issues are best addressed by multi-sectoral multi-organizational responses that include different types of organizations working together (Kettl, 2008; O'Toole, 1997). Social network analysis (SNA) of interorganizational networks has emerged as a useful tool for network managers to understand the structure and function of the complex networks in which they seek to manage (Human & Provan, 1997, 2000; Provan & Milward, 1995; Provan, Sebastian, & Milward, 1996; Provan, Veazie, Staten, & Teufel-Shone, 2005).

The output of an interorganizational SNA typically provides a range of information to network managers including network plots. The network plots provide visual representations of different aspects of the network by showing the kinds of ties between the actors in the network.

The information from network analyses can help network managers encourage systems thinking, see the different roles played by organizations, or identify links to outside resources among many other uses, but "will only have practical value to communities if it can be effectively presented, discussed, *accepted*, and *acted on* by community leaders and *network participants* [emphasis added]." (Provan et al., 2005, p. 610). However, little is currently known about if or how the information embedded in network plots is accepted or acted on by network participants.

The visual representations of the network (network plots) provided to network participants following a SNA are often open to a range of interpretations that may or may not align with the findings of the analyst or the intended use by network managers, raising many interesting questions. Little is currently known about how differently situated network participants might interpret the same network plots differently. Nor do we understand what factors might influence different individuals or organizations to come up with different interpretations.

After conducting a SNA and presenting it to network participants, I conducted interviews with a range of different representatives from participating organizations. I used a particular form of semi-structured interview, a situated micro-element interview from Dervin's Sense Making Methodology (SMM) (Dervin, Foreman-Wernet, & Lauterbach, 2003). I then analyzed the interview transcripts using standard qualitative coding methods (Bailey, 2007) to see if themes emerged that addressed the research questions.

I found that most informants had trouble extracting information and meaning from their examination of the plots without that meaning and interpretation being provided by the expert analyst. I posit some potential explanations for why that might be so in the case I studied. I then turn to some interesting methodological considerations that emerged from taking the perspectives of network participants seriously.

Finally, I synthesize the subject area and methodological findings into a refined framework for sense-making around network plots and offer propositions and potential approaches for future research.

# Making Sense of Networks: Exploring How Network Participants Understand and Use Information From Social Network Analysis

John David Moore

## GENERAL AUDIENCE ABSTRACT

Many of today's complex public issues are best addressed by multi-sectoral multi-organizational responses that include different types of organizations working together (Kettl, 2008; O'Toole, 1997). Social network analysis (SNA) of interorganizational networks has emerged as a useful tool for network managers to understand the structure and function of the complex networks in which they seek to manage (Human & Provan, 1997, 2000; Provan & Milward, 1995; Provan, Sebastian, & Milward, 1996; Provan, Veazie, Staten, & Teufel-Shone, 2005).

The output of an interorganizational SNA typically provides a range of information to network managers including network plots. The network plots provide visual representations of different aspects of the network by showing the kinds of ties between the actors in the network.

The information from network analyses can help network managers encourage systems thinking, see the different roles played by organizations, or identify links to outside resources among many other uses, but "will only have practical value to communities if it can be effectively presented, discussed, *accepted*, and *acted on* by community leaders and *network participants* [emphasis added]." (Provan et al., 2005, p. 610). However, little is currently known about if or how the information embedded in network plots is accepted or acted on by network participants.

The visual representations of the network (network plots) provided to network participants following a SNA are often open to a range of interpretations that may or may not align with the findings of the analyst or the intended use by network managers, raising many interesting questions. Little is currently known about how differently situated network participants might interpret the same network plots differently. Nor do we understand what factors might influence different individuals or organizations to come up with different interpretations.

After conducting a SNA and presenting it to network participants, I conducted interviews with a range of different representatives from participating organizations. I used a particular form of semi-structured interview, a situated micro-element interview from Dervin's Sense Making Methodology (SMM) (Dervin, Foreman-Wernet, & Lauterbach, 2003). I then analyzed the interview transcripts using standard qualitative coding methods (Bailey, 2007) to see if themes emerged that addressed the research questions.

I found that most informants had trouble extracting information and meaning from their examination of the plots without that meaning and interpretation being provided by the expert analyst. I posit some potential explanations for why that might be so in the case I studied. I then turn to some interesting methodological considerations that emerged from taking the perspectives of network participants seriously.

Finally, I synthesize the subject area and methodological findings into a refined framework for sense-making around network plots and offer propositions and potential approaches for future research.

## **Dedication**

I dedicate this dissertation to my wife, Ronda Moore, and my children, Jesse Moore, Emma Moore and Abigail Moore. I greatly appreciate their perseverance and sacrifice on this long journey. I also dedicate it to my parents, who believed in me long before I believed in myself.

## Acknowledgements

First, I would like to acknowledge Dr. Max Stephenson Jr., my mentor and colleague since 2003. His intellect and humanity have been an inspiration. I deeply appreciate the community of curious minds he has cultivated at the Institute for Policy and Governance where I am employed. His willingness, as co-chair of my committee, to give my chapters a first read-through has taught me much about clear writing and strong arguments—though admittedly, I still have much to learn.

Next, I would like to thank Dr. Robin Lemaire, my chair and the subject matter expert for my dissertation topic, for her many hours of work on the Social Network Analysis (SNA) that was the object of my study. I could not have done the study I did if she had not been willing to assist in creating a network analysis for me to study. I am fortunate she chose to come to Virginia Tech for her first academic appointment. I was stuck and likely would not have restarted my studies without access to such a leader within the field of my interest. It is hard to believe it has been seven years since we first met and discussed working together on SNA studies of some of the networks in which I was involved. I also appreciate her holding my feet to the fire to raise the level of scholarly engagement in my writing and for her expansive knowledge of the literature with which I have been trying to engage.

Next, I would like to thank Dr. Karen Hult for agreeing to serve on my committee. I was a student in one of her classes in the Spring of 2007 when the 4/16 shooting brought an abrupt end to the semester. I appreciate her willingness, years after the fact, to allow me to complete that course. It was in that same course where she exposed me to Flyvbjerg's ideas about phronetic social science which have had a profound influence on how I see my work. I appreciate her for hanging in there with me.

Dr. Stephanie Smith was a late addition to the committee because a previous member had departed the university. I appreciate her for jumping in at the last minute.

I would also like to acknowledge the support of my other colleagues at the VT Institute for Policy and Governance, Mary Beth Dunkenberger, Liz Allen, Laura Nagel, Dr. Melony Price-Rhodes, Karen Boone and Heather Parrish. I could not have been successful in my funded project work while continuing my studies without their support.

I would also like to acknowledge the greater community at the Center for Public Administration and Policy, especially as it existed at the start of my studies many years ago. I was privileged to have taken classes from Dr. John Rohr, Dr. Gary Wamsley and Dr. Larkin Dudley. Although they were recently retired, Dr. Charles Goodsell and Dr. Orion White were still active and inspiring members of CPAP's intellectual community. High Table, "Madeiras," Thomas-Conner and the Blacksburg Manifesto all made the place unique and special and contributed greatly to my enthusiasm for an academic life.

I would also like to acknowledge the many nonprofit and public agency partners and collaborators that have been a part of the networks I have studied, including Smart Beginnings, the Giles Early Education Project, NRV Cares, New River Community Action, Total Action for Progress, the Western Virginia Workforce Development Board, the New River Valley/Mount Rogers Workforce Investment Board and the United Way of the Roanoke Valley. Additionally, I would like to acknowledge the contributions of every member of the network that I studied in this dissertation and their willingness to share their information and participate in the network study. I would especially like to

acknowledge the key informants who sat with me for long complex interviews. I hope I have represented their sense-making well.

Lastly, though I have also dedicated this work to them, I want to acknowledge the support of my wife and children toward helping me complete this process. There have been many lost weekends and nights when my attention was taken by the dissertation process. I could not have done it without their understanding and support.

## Table of Contents

List of Tables .....	x
List of Figures .....	xi
Chapter 1: Introduction .....	1
Background .....	2
Purpose of Study .....	3
Guiding Questions .....	5
Conceptual Frameworks .....	8
Research Approach .....	11
Chapter 2: Relevant Frameworks.....	15
Part I: Phronetic Social Science.....	15
Part II: Network Management in Public Administration.....	16
Framework for network change.....	25
Definitions.....	26
Ideal types or scenarios.....	30
Part III: The Sense-Making Methodology .....	40
Chapter 3: Methods.....	48
Part I: Case Selection .....	48
Case selection background.....	49
Geographic delimitations.....	50
Study timeline.....	50
Part II: Collection of Relationship Data.....	51
Part III: Network Analysis.....	57
Part IV: Network Plots.....	58
Part V: Key Informant Selection and Recruitment.....	66
Part VI: Interview Methodology.....	70
Part VII: Interview Questions/Protocol .....	74
Part VIII: Analysis and Coding of Interview Data .....	74
Transcription.....	74
Open coding.....	74
Focused coding.....	76
Theoretic coding.....	77
Chapter 4: Subject Area Findings.....	86
Question 1a: Do Participants Make Sense of Network Plots?.....	86
Question 1b: Do They Do So in Ways That Could Influence Collaborative Actions? .....	100
Question 2a: If So, How Do Participants Make Sense of Network Plots? .....	102
Sense-making strategies.....	104
Network, organization and individual perspectives.....	107
Past, present and future orientations.....	109
Question 2b: What are the potential implications for network managers?.....	111
Question 3a: If Not, Why Not (or How So)? .....	114
Question 3b: If Not, What Do Participants Think of Network Plots? .....	118
Question 3c: What Are the Potential Implications for Researchers and Analysts?.....	118

Question 4: What Factors Might Influence an Individual’s Sense-Making?.....	123
Situation movement state.....	123
Alignment with cognitive social structures.....	124
Individual versus group processes.....	128
Network change models.....	128
Chapter 5: Methodological Findings .....	132
The Sense-Making Methodology.....	132
Boundary Setting and Sense Making.....	133
Relationship Types and Sense Making.....	136
Unconfirmed Ties and Sense Making.....	138
Survey Response Patterns .....	142
Builder.....	143
Informer.....	144
Floater.....	144
Skipper.....	145
Completer.....	146
Mixer.....	146
The Egocentric View and Sense Making.....	151
The completing realist.....	153
The mixing realist.....	154
The low reality poser.....	156
Above it all.....	157
The wall flower.....	158
The ghost.....	159
Out to lunch.....	160
Wrapping up.....	161
Chapter 6: Synthesis and Conclusions.....	163
Limitations .....	163
Single case study.....	163
Atypical approach to analysis design.....	163
Non-representative informants.....	164
Non-response bias.....	164
Unstructured interviewing approach.....	165
Summary of Insights.....	165
Question 5a: What Existing Theories From the Literature Might Further Elaborate the Process? .....	175
Question 5b: What New Theories Could Be Developed or Tested? (Future Research).....	177
How to interpret and use Figure 35.....	178
The information extraction threshold.....	182
The information acceptance threshold.....	185
The movement state threshold.....	189
The collaborative disposition threshold.....	193
Future Methodological Research Directions .....	195
Response patterns.....	195
Egocentric plots.....	197

User roles.....	199
Approaches to tie confirmation.....	199
Implications and Concluding Thoughts.....	201
References.....	205
Appendix A: Institutional Review Board Documents—Survey Phase.....	214
Appendix B: Institutional Review Board Documents—Interview Phase.....	255
Appendix C: Summary of Field Notes Concerning Sense Making Methodology Objects and Elements.....	287
Appendix D: Hypothetical Example of Sense Making Methodology Interview.....	290
Appendix E: Sense Making Methodology Interview Questionnaire.....	293

## List of Tables

Table 1	Summarizing the Phronetic Social Science Guidelines .....	17
Table 2	Type of Tie.....	54
Table 3	Relationship Intensity .....	55
Table 4	System of Representations Used in Network Plots.....	58
Table 5	Popularity of Plots for Interview Discussion (Out of 11).....	67
Table 6	Interviews Targeted and Obtained .....	69
Table 7	Repeated Level 2 Triangulations and Probes.....	73
Table 8	Interview Questions and Number of Times Used.....	75
Table 9	Coding of What Informants Saw in Plots .....	78
Table 10	Coding of Suggested Uses of Plots .....	80
Table 11	Coding Missing Relationships and Other Problems With the Study .....	83
Table 12	Perspectives of Informants.....	84
Table 13	Sense-Making Strategies of Informants.....	85
Table 14	Is It Sense-Making? .....	90
Table 15	Distribution of Categories of Use Statements.....	91
Table 16	Sense-Making Strategies With Examples.....	95
Table 17	Strongest Examples of Collaborative Actions Arising From Network Plots.....	102
Table 18	Collaborative Challenges .....	105
Table 19	Participant Recognition of Study Limitations.....	116
Table 20	The Situation Movement State.....	124
Table 21	Builder Response Pattern .....	144
Table 22	Informer Response Pattern.....	144
Table 23	Floater Response Pattern.....	145
Table 24	Skipper Response Pattern .....	146
Table 25	Completer Response Pattern .....	147
Table 26	Mixer Response Pattern .....	147
Table 27	Distributions of Response Patterns Grouped by Dominant Response Pattern .....	148
Table 28	Organizations With Robust Ties.....	150
Table 29	Emerging Insights and Potential Implications .....	166

## List of Figures

Figure 1	Theoretical framework.....	6
Figure 2	Framework for network change.....	26
Figure 3	Static network at equilibrium (balanced fit). ....	31
Figure 4	Network change (general model).....	32
Figure 5	Endogenous network adaptation (in emergent networks).....	33
Figure 6	Endogenous network evolution (in emergent networks). ....	35
Figure 7	Exogenous network redirection. ....	36
Figure 8	Exogenous network enhancement.....	37
Figure 9	Exogenous network restructuring. ....	39
Figure 10	Network awareness (general model).....	40
Figure 11	Sense-making illustration.....	42
Figure 12	Any confirmed tie at the program level. ....	59
Figure 13	All confirmed relationships (organizational level). ....	60
Figure 14	Most robust confirmed relationships (organizational level). ....	60
Figure 15	All four relationship-type plots side by side. ....	61
Figure 16	Confirmed information sharing.....	61
Figure 17	Confirmed coordinated referrals. ....	62
Figure 18	Confirmed integrated services. ....	62
Figure 19	Services fragmentation with removal of TAP and Salvation Army (and RADAR, a nonrespondent). ....	63
Figure 20	Confirmed shared resources.....	63
Figure 21	Resource fragmentation with removal of TAP and Goodwill (and RADAR, a nonrespondent). ....	64
Figure 22	Broader information sharing network.....	64
Figure 23	Broader resource sharing network. ....	65
Figure 24	Gap priorities. ....	65
Figure 25	Linked gaps.....	66
Figure 26	Robust relationships with response patterns identified.....	149
Figure 27	The completing realist.....	153
Figure 28	The mixing realist. ....	155
Figure 29	The low-reality poser. ....	156
Figure 30	Above it all.....	157
Figure 31	The wall flower. ....	159
Figure 32	The ghost.....	160
Figure 33	Out to lunch.....	161
Figure 34	A revised model for sensemaking in networks. ....	177
Figure 35	Refined framework for sense-making in networks.....	179
Figure 36	Concepts for mapping.....	181

## Chapter 1: Introduction

Many of today's complex public issues are best addressed by multi-sectoral multi-organizational responses that include different types of organizations working together (Kettl, 2008; O'Toole, 1997). The field of network management has evolved to help public network managers address the complexities of managing in multi-organization environments (Agranoff & McGuire, 2001).

Social network analysis (SNA) of interorganizational networks has become a useful tool for network managers to understand the structure and function of the complex networks in which they seek to manage (Human & Provan, 1997, 2000; Provan & Milward, 1995; Provan, Sebastian, & Milward, 1996; Provan, Veazie, Staten, & Teufel-Shone, 2005). The output of an interorganizational SNA typically provides a range of information to network managers including identification of network structures (bridges, gaps, isolates, etc.), whole network variables (such as density and centralization), findings that connect the study to the larger scholarly literature, recommendations from the analyst, and the network plots. The information from network analyses can help network managers encourage systems thinking, see the different roles played by organizations, or identify links to outside resources among many other uses, but "will only have practical value to communities if it can be effectively presented, discussed, *accepted, and acted on* by community leaders and *network participants* [emphasis added]." (Provan et al., 2005, p. 610).

However, little is currently known about if or how the information embedded in network plots is accepted or acted on by network participants, which provides a challenge for network managers seeking to improve performance through enhanced collaboration

by network participants. This study contributes to the literature on network management by exploring what sorts of information network participants extracted from their examination of network plots, what it meant to them, and how they thought they might use it.

## **Background**

As the implementation and administration of public programs has moved from hierarchical and bureaucratic structures to complex forms of cross-sectoral organizational collaboration, public administration researchers have increasingly turned to network analyses of interorganizational relationships to understand governance and implementation processes (Lecy, Mergel, & Schmitz, 2014). As the use of network approaches has increased, there have also been increasing calls for public administrators to be cognizant of the networked implementation environments in which they function (O'Toole, 2015). The emerging field of network management draws from a range of scholarly literatures to provide alternatives to bureaucratic or market-based management approaches that include management strategies (Kickert, Klijn, & Koppenjan, 1997), management processes (Agranoff & McGuire, 2001; McGuire, 2002), managerial networking (Meier & O'Toole, 2005), collaborative governance (Ansell & Gash, 2008; Emerson, Nabatchi, & Balogh, 2012), and executive functions (Lemaire, 2012) among other approaches.

A purpose-oriented network is “a network comprised of three or more autonomous actors who participate in a joint effort based on common purpose” (Carboni, Saz-Carranza, Raab, & Isett, 2019, p. 210). Managing in purpose-oriented public networks requires network managers to understand the interrelations between operating

context and a network's performance toward its purposeful goals, the "dialectics between engineered and emergent network processes and structures, and the interplay between individual, organizational, dyadic and network [interests]" (Nowell & Kenis, 2019, p. 192). The outputs of SNA, while focused on the structural aspect of the overall network, also provide touchstones for developing a deeper understanding of the network dynamics emanating from those interrelations, dialectics and tensions. Numerous studies have shown that the findings and recommendations from network analysis can be used by network managers to improve network performance (Gulati, Lavie, & Madhavan, 2011; Herranz, 2010; Kenis & Provan, 2009; Lemaire & Provan, 2018).

### **Purpose of Study**

However, more work is needed, particularly around the ways networking behaviors shape performance, the tensions between management at the network and organizational scales, and the factors that shift network dynamics (O'Toole, 2015). Another area where more work is needed is improved engagement between researchers and practitioners which builds theory grounded in the experience of practitioners (Isett, Mergel, LeRoux, Mischen, & Rethemeyer, 2011). Network plots are one output of the SNA that is both engaging and accessible to the practitioners within the networks that are the objects of SNA's analysis. However, T. A. Scott and Ulibarri (2019) caution against the use of network plots and argue that they are neither legitimate evidence, nor a finding of SNA. Though they rightly point out that network plots can be unintelligible, unsightly and can take many potential layouts, they also claim that "while network visualization can sometimes be suitable for demonstration, it is certainly not suitable as a basis for robust theoretical inference" (T. A. Scott & Ulibarri, 2019, p. 94). And yet the process of

conducting SNA often requires that network participants provide researchers/analysts with information about their relationships, which also sometimes requires that those researchers/analysts provide network relationship data back to those network participants, usually in the form of various network plots. Making inferences from those plots may not be robust science, but I suggest that network participants routinely make inferences from such plots, likely in ways poorly understood by researchers and with unknown consequences for network dynamics.

The purpose of this study was to gain understanding about what information network participants extracted from their examination of network plots, what that information meant to them, and how they thought they might use it—a process I frame theoretically as sense-making (Dervin, Foreman-Wernet, & Lauterbach, 2003). Because network participant’s sense-making around network plots has the potential to connect operating context to broader network goals, to differentiate between emergent and engineered responses, and to highlight tensions between individual, organizational and network interests, this research will contribute to new understandings about the network dynamics emanating from those interrelations, dialectics and tensions in purpose-oriented public networks (Nowell & Kenis, 2019). More specifically, because my study explores how a novel information source, the network plot, influences the thinking of network participants in ways that could lead to changes in networking behavior that in turn could change network dynamics, it contributes to better understandings around some of the remaining gaps in the research on networks and networking identified by O’Toole (2015). My focus is on the perceptions and sense-making of network participants rather than those of network managers or researchers. As such, because this research builds

theory grounded in the experience of practitioners, it has the potential to improve engagement between researchers and practitioners as called for by Isett et al. (2011). Finally, the research will enhance the value of SNA for communities by focusing the attention of network managers on potential processes for the results of SNA to be “effectively presented, discussed, accepted, and acted on by community leaders and network participants” (Provan et al., 2005, p. 610).

### **Guiding Questions**

The visual representations of a network (network plots) that researchers/analysts or network managers sometimes provide to network participants following a SNA are often open to a range of interpretations that may or may not align with the findings of the analyst or the intended use by network managers, raising many interesting questions. While it is well-understood that education and incentives do not always lead reliably to behavior change (Strassheim, 2019), it is possible that the social nature of information contained in a network plot also provide motivations for change that enhance the usefulness of information. In that case, can considering the information in network plots induce network participants to engage in different collaborative activities or jockey for an improved position in the network that might influence network performance? Or, because of their ambiguity and complexity, might there need to be processes of community presentation and discussion to unlock the potential generative powers of the information in the network plots? There is little in the literature that speaks to whether network participants might use the information in network plots to advantage themselves or their organization’s interests over the interests of the network.

Little is currently known about how differently situated network participants might interpret the same network plots differently. Nor do we understand what factors might influence different individuals or organizations to come up with different interpretations. Are there certain types of plots or ways analysts present the plots that make them more or less difficult to interpret or which lead to different interpretations of the information contained therein? At this point, we just don't know.

Addressing these many questions would likely require multiple studies of different designs. As a starting point for probing these questions I have developed a basic theoretical and conceptual framework which led directly to my specific research questions (See Figure 1).

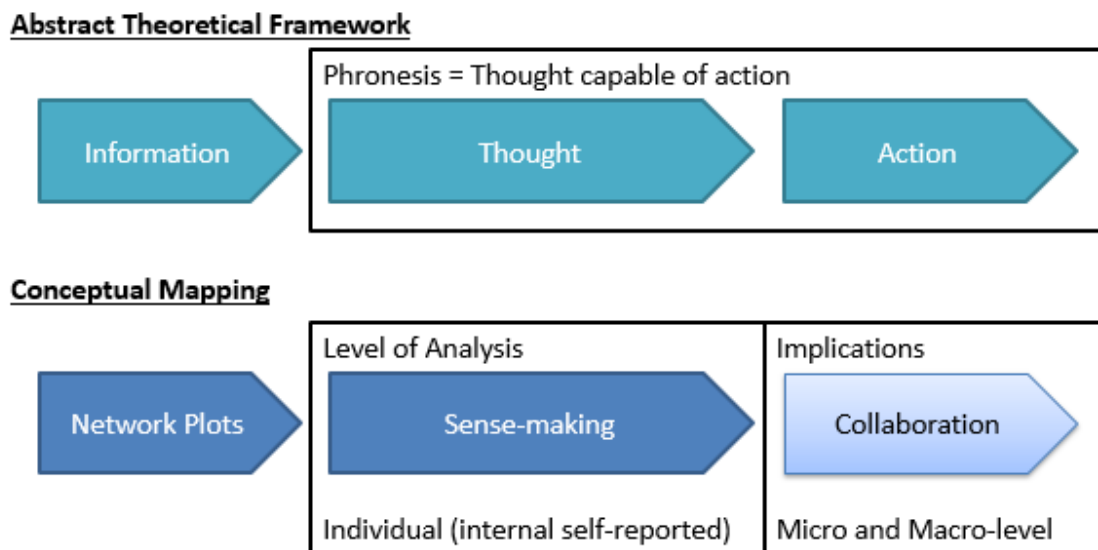


Figure 1. Theoretical framework.

At the most abstract level, my study examines thought that arises from an encounter with previously unknown information, which could lead to action. Thought and action are connected and inseparable through phronesis, which is defined as thought capable of action (Flyvbjerg, 2001). As seen in the diagram above, I take that abstract

theoretical framework and map onto it the concepts specific to this study—the information is the network plots, the thought is the sense-making by network participants, and the potentially resulting action is collaboration.

The information source whose implications I explored was the collection of network plots associated with a social network analysis of programmatic and organizational relationships in a regional system of nonprofit and public sector human service agencies that some network managers hoped would evolve into a purpose-oriented network with new broad goals relating to poverty alleviation and family self-sufficiency. I modeled the thought component of phronesis as the self-reported sense-making of the individual participants involved in the network analysis. The sense-making I use in this conceptual mapping is the sense-making methodology developed by Dervin, which consists of ways of thinking about new information that can be used in constructing/deconstructing bridges over gaps that inhibit action (Dervin, 2015). My study explored if and how sense-making emerged for participants from examination of the network plots. Also, within the conceptual mapping, sense-making may or may not lead to the potential action of interest, which is collaboration. By better understanding the collaborative choices that emerge from participants' sense-making resulting from contemplation of the network plots, this study contributes to a better understanding of how network activities, structure and performance could be influenced by participants' reactions to the information introduced to the network through the distribution of the plots from a network analysis.

Mapping these specific concepts onto the abstract model in Figure 1 yields the primary research questions. The primary research questions addressed in this study are as follows:

1. Do network participants make-sense of network plots in ways that could influence their collaborative actions?
2. If so, how do network participants make sense of network plots and what are the potential implications for network managers?
3. If not, why not? In those cases, what do participants think of the network plots and what are the potential implications for researchers and analysts?
4. What factors may influence the sense-making of individuals and how might it vary?
5. Based on the results of the investigation, what existing theories from the literature might further elucidate this process or what new theories could be developed and tested?

### **Conceptual Frameworks**

As I detail in Chapter 2, my approach for addressing these issues draws on three distinct frameworks from different scholarly literatures--one analytic, one topical and one methodological.

I drew analytic inspiration from the framework of phronetic social science (Flyvbjerg, 2001) which promotes methodological guidelines such as focusing on values, placing power at the core of analysis, getting close to reality, emphasizing little things, looking at practice before discourse, studying cases and contexts, asking “how?,” joining agency and structure and dialoging with a polyphony of voices. Though inspired by this

framework, I did not attempt to conduct pure phonetic social science in this research. Instead, phronetic social science influenced the type of study that I wanted to do. I sought to do a qualitative case study in which I looked at practice, considered context, asked how and value questions, emphasized little things and drew from many voices. Although I do not expect my study to make a contribution to the growing body of phronetic social science research (Flyvbjerg, Landman, & Schram, 2012), it was key in my selection of Dervin's Sense-Making Methodology (Dervin et al., 2003) as a means of gathering information from informants to address my research questions.

The topical field to which my study contributes is the growing literature on public network management (Agranoff & McGuire, 2001; Bryson, Crosby, & Stone, 2015; Isett et al., 2011; O'Toole, 2015), more specifically to the body of network management research under the Provan School for which SNA is an important analytic tool (Provan & Kenis, 2008; Provan & Lemaire, 2012; Provan et al., 2005). Although my study looks at a single point in time, I examine thought capable of action, potentially influencing network participants' subsequent collaborations and other network activities which reshape network structure, both with consequences for network performance. For this reason, the framework within network management to which my study contributes is an evolving understanding of network dynamics (Ahuja, Soda, & Zaheer, 2012; Gulati & Gargiulo, 1999; Gulati et al., 2011; Provan, Huang, & Milward, 2009; Rho, 2013). I draw on a range of ideas from the network dynamics and collaborative governance literatures such as integrating levels of analysis (Berry et al., 2004), connecting collaborative processes and outcomes (Ansell & Gash, 2008), distinguishing between antecedents and consequences of network action nested within contexts (Emerson et al., 2012),

connecting agency and structure (Ahuja et al., 2012), and incorporation of exogenous factors (Kenis & Provan, 2009). Though I draw from these various sources among others, in Chapter 2 I develop my own simplified nomenclature and framework in which I can delineate the contributions of my study. In future research, I may then be able to connect my findings and frameworks to developments in network dynamics conceived by Nowell and Kenis (2019) as an “architecture of complexity of purpose-oriented networks” (p. 191).

Consonant with the philosophical perspectives of phronetic social science research, I adopted Dervin’s sense-making methodology (Dervin et al., 2003) as my methodological approach for gathering data from informants to address the research questions.

In the most general sense, sense-making (that which is the focus of study in the Sense-Making approach) is defined as behavior, both internal (i.e. cognitive) and external (i.e. procedural) which allows the individual to construct and design his/her movement through time-space. Sense-making behavior, thus, is communicating behavior. Information seeking and use is central to sense-making (as it similarly is seen as central to all communicating) but what is meant by these terms is radically different than what is typically meant in the positivistic tradition. (Dervin, 1983, p. 3)

I selected this methodological framework because it 1) focuses on the cognitive processes that mediate between information and action, 2) was designed to capture the system user’s perspective independent of the system designer’s perspective, 3) provides safeguards against the researcher introducing their own conceptual frameworks and biases, and 4) provides a concrete approach for unearthing significant moments that precede collaborative action and inaction (Dervin et al., 2003). Finally, one of the more intriguing implications of using this methodology for the proposed research is the opportunity to build on Dervin’s insight that time-space bound measures (specifically

situated movement states) “account for more variance in information uses than either across time-space and a priori time-space measures” (i.e., demographics or assigned roles; Dervin et al., 2003, p. 263). Because this particular flavor of sense-making is not well known within public administration, I provide a brief overview of its components and their alignment with the goals of this study in Chapter 2 before moving into a description of its methodological approach to interviewing in Chapter 3.

### **Research Approach**

To address these research questions, I conducted a single case study of a prospective network of human service sub-networks in Roanoke, Virginia in the fall of 2016. The study focused on the United Way of the Roanoke Valley of Virginia’s family self-sufficiency initiative, which is intended to facilitate collaborative action that will lift 10,000 families in that region out of poverty by 2030. Following development and dissemination of a social network analysis of the interorganizational relationships involved in the initiative, I collected data using semi-structured interviews of network participants using Dervin’s Sense-Making Methodology (Dervin et al., 2003), specifically her sense-making situated micro-element interview, to learn how participants make sense of the network plots. I then followed a standard social science approach of qualitative analysis of interview transcripts including open coding, focused coding, and theoretic coding to identify potential themes (Bailey, 2007).

In Chapter 3, I begin by describing the case selection process and potential limitations arising from this case. I then describe the collection of relationship data, the conduct of the network analysis and the creation of the network plots that are the information source studied in this research. Next, I discuss the process of selecting key

informants for the interview process and elaborate on the SMM interview methodology and the resulting questionnaire and questioning process. Finally, I present the coding and counts across interviews that emerged from the process of open, focused and theoretic coding.

In Chapter 4, I take the themes that emerged from the interviews and apply them to each of the research questions. In general, I found only weak or mixed support for the notion that examination of network plots by network participants, by itself, led to sense-making capable of leading to collaborative actions. The dominant theme that emerged, by far, was a sense of something missing or a sense of confusion, both of which seemed to limit the network participant's sense-making and their perception of the usefulness of the plots. I offer a range of possible explanations for why this might be so in the case I studied, including the size or density of the network presented, the exogenous role of the United Way in seeking to restructure the purpose of existing networks, the boundaries of the network as defined by the United Way, lack of participatory processes in defining the network and the network relationships—sometimes possibly resulting in tie confusion, and finally the way unconfirmed ties are represented and not represented in the network plots.

In Chapter 5, I take up some methodological considerations that emerged by taking the perspectives of network participants seriously. First, I discuss how the sense-making methodology itself helped and hindered the process of obtaining data from informants and how the roster of questions may have led to the prevalence of certain themes that emerged during analysis. Next, I draw on some of the observations shared by informants to reinforce the importance of participatory processes in establishing network

boundaries and relationship types and which ultimately enhance the usefulness of SNA for communities (Provan et al., 2005). Next, I turn to two findings related to the collection and presentation of network data—survey response patterns and tie confirmation. Several distinct patterns in the way different survey respondents filled in the survey instrument could contribute to autocorrelation which would possibly bias the representations of some network plots. For some plots, confusion around perceived “missing ties” that were sometimes unreported and sometimes unconfirmed seemed to confound the sense-making of some informants. Taking this perspective seriously, I explore the potential utility of a different type of multiplex, first-order, ego-centric network plot that explicitly shows all confirmed and unconfirmed ties of different types for each organization in the network.

In Chapter 6, I consolidate the insights and potential propositions from both the subject matter and methodological findings. I develop many of these into a layered model of sense-making that incorporates the study findings with insights from Weick’s (1995) framework for sensemaking in organizations. I posit some theoretical propositions that might better elucidate the role of network plots as an information source that influences network actions. Lastly, I suggest approaches to potential future research that may further illuminate some of the methodological concerns I identified.

Given the increasing use and usefulness of SNA in understanding networks, it is reasonable to expect that more and more network participants will begin to have access to the novel information contained in network plots. In this study, I provide a start for better understanding how network participants make-sense of network plots in ways that could influence their collaborative choices. I develop propositions for future research that could

further expand that understanding. Continuing to build on these insights may help network managers understand the implications of providing network plots to network participants following SNA. The findings reinforce the importance of several aspects of SNA design, implementation and dissemination and offer a few potentially important new insights that researchers and analysts may consider in seeking to make network plots more “sensible” to network participants. Continuing and expanding this work may help researchers and analysts understand the potential impacts of their choices in how networks are represented visually in network plots and underscore the importance of participatory processes throughout the lifespan of the analysis if SNA is to have practical value for communities.

## **Chapter 2: Relevant Frameworks**

This chapter provides a review of three distinct frameworks I use in this study—one analytic, one topical and one methodological—each of which comes from a different scholarly literature. The analytic framework which inspires the type of study I sought to conduct is Flyvbjerg’s phronetic social science. The topical framework from which I draw and to which I seek to contribute findings is that of network management within public administration. Finally, Dervin’s Sense-Making Methodology, in addition to providing the methodological approach, provides a theoretical framework for connecting the analytic tenets of phronetic social science to the practice of using network plots as an information source by honing in on the information user’s perspective.

### **Part I: Phronetic Social Science**

In the spirit of “ontological disclosure” (Wamsley, 1996), I drew analytic inspiration from the framework of phronetic social science (Flyvbjerg, 2001). The argument behind phronetic social science is that social science has lost relevance by trying to emulate the natural sciences in seeking to produce explanatory and predictive theory. Instead, Flyvbjerg argues, social science should focus its core strengths which are to “contribute to reflexive analysis and discussion of values and interests” (Flyvbjerg, 2001, p. 3).

To operationalize this goal, phronetic social science promotes methodological guidelines such as focusing on values, placing power at the core of analysis, getting close to reality, emphasizing little things, looking at practice before discourse, studying cases and contexts, asking “how,” joining agency and structure and dialoging with a polyphony of voices. Though inspired by this framework, I did not attempt to conduct pure phronetic

social science in this research. Instead, phronetic social science influenced the type of study that I wanted to do; a qualitative case study in which I looked at practice, considered context, asked how and value questions, emphasized little things and drew from many voices. Table 1 summarizes a chapter from Flyvbjerg's (2001) "Making Social Science Matter" that describes his phronetic social science guidelines, many of which I have incorporated into this research, while others remain aspirational for future directions this research could take.

Although I do not expect my study to make a contribution to the growing body of phronetic social science research (Flyvbjerg et al., 2012), I see it as an important additional lens into network management and network analysis. It strongly influenced the type of study that I wanted to do, which was a qualitative case study in which I looked at practice, considered context, asked how and value questions, emphasized little things and drew from many voices. My respect for phronetic social science guidelines was also key in my selection of Dervin's Sense-Making Methodology (Dervin et al., 2003) as a means of gathering information from informants to address my research questions.

## **Part II: Network Management in Public Administration**

Organizational networks are increasingly used to implement policy and achieve strategic objectives in communities as an alternative to integrated bureaucracies comprising single organizations (Ulibarri & Scott, 2017). The transition to implementing human services through networks is occurring in both the public sector and nonprofit sectors, which are increasingly intermeshed in their operating environments (Bryson, Crosby, & Stone, 2006; Bryson et al., 2015).

Table 1

*Summarizing the Phronetic Social Science Guidelines*

<b>Guidelines</b>	<b>How those guidelines influenced my approach</b>
Focusing on values	<ul style="list-style-type: none"> <li>• Balances instrumental rationality with value-rational questions such as Where are we going? Is it desirable? What should be done?</li> <li>• Rejects relativism by seeking “better” interpretations which build validity claims on previously valid interpretations, while also rejecting interpretations that can be shown to be invalid.</li> </ul>
Placing power at the core of analysis	<ul style="list-style-type: none"> <li>• Poses questions of power and outcomes by asking: Who gains and who loses? Through what kinds of power relations? What possibilities are available to change existing power relations? And is it desirable to do so? What kinds of power relations are those asking these questions themselves a part?</li> <li>• Asks not only “Who Governs?” but what “governmental rationalities” are at work when those that govern govern?</li> <li>• Understands power conceptions as having six features. It is:               <ol style="list-style-type: none"> <li>1. both productive and positive and not only restrictive and negative</li> <li>2. a dense net of omnipresent relations not localized in institutions</li> <li>3. ultradynamic, not just appropriated, but reappropriated in relations of strength, tactics and strategies.</li> <li>4. inseparable from knowledge, truth and rationality. Power is knowledge and knowledge is power.</li> <li>5. focused on process in addition to structure; how it is used, not just who has it.</li> <li>6. studied by engaging small questions, not just big ones.</li> </ol> </li> </ul>
Getting close to reality	<ul style="list-style-type: none"> <li>• Eschews “So what?” results.</li> <li>• Stays close to the group being studied from data collection, through data analysis, feedback and publication.</li> <li>• Encourages researchers to consciously exposes themselves to reactions from their surroundings, including negative ones.</li> </ul>
Emphasizing the little things	<ul style="list-style-type: none"> <li>• Asks little questions and gets thick descriptions.</li> <li>• Engages with minutia in search of “important problems” because small questions often lead to big answers.</li> <li>• Takes its point of departure in local micropractices</li> </ul>
Looking at practice before discourse	<ul style="list-style-type: none"> <li>• Recognizes that language can conceal practice.</li> <li>• Disciplines discourse analysis with analysis of practice.</li> <li>• Focuses on practical activity (actual daily practices) and practical knowledge in everyday situations.</li> <li>• Seeks to record events.</li> </ul>

Guidelines	How those guidelines influenced my approach
	<ul style="list-style-type: none"> <li>• Requires researcher initially take no position as to the truth-value and significance ascribed by participants.</li> <li>• Encourages researcher to attempt to understand the roles played by practices studied in the total system of relations.</li> <li>• Understands dubious rationalities in context and does not dismiss them.</li> <li>• Follows Nietzsche’s admonition that researchers should be “curious to a vice, investigators to the point of cruelty, with uninhibited fingers for the unfathomable, with teeth and stomachs for the most indigestible...collectors from morning till late, misers of our riches and our crammed drawers.”</li> </ul>
Studying cases and contexts	<ul style="list-style-type: none"> <li>• Focuses on particular circumstances and concrete examples.</li> <li>• Understands practical rationality through cases in context.</li> <li>• Judges in a way that is always context dependent.</li> </ul>
Asking “How”?	<ul style="list-style-type: none"> <li>• Focuses on dynamic questions “How?” rather than structural question “Why?”</li> <li>• Seeks both understanding and explanation.</li> <li>• Seeks how best to get an honest story honestly told.</li> <li>• Understands that narrative is our most fundamental form of making sense of experience.</li> <li>• Recognizes that narrative inquiries cannot start from explicit theoretical assumptions.</li> </ul>
Joining agency and structure	<ul style="list-style-type: none"> <li>• Focuses on actor level and structural level and the relation between the two.</li> <li>• Encourages the “the internalization of externality and the externalization of internality.”</li> <li>• Connects macrolevel factors and actor’s choices.</li> <li>• Seeks out information for answering questions about what structural factors influence individual actions, how those actions are constructed, and their structural consequences.</li> </ul>
Dialoging with a polyphony of voices	<ul style="list-style-type: none"> <li>• Includes many voices with none, including the researcher, claiming final authority.</li> <li>• Welcomes new interpretations for discussion.</li> <li>• Employs a variety of perspectives as a substitute for objectivity.</li> <li>• Understands that validity comes from dialog.</li> </ul>
Summarized from Chapter 9 – Methodological guidelines for a reformed social science (Flyvbjerg, 2001).	

Use of networks, rather than single organizations, has become particularly prevalent in the field of human services where policymakers and funders task diverse groups of organizations with service delivery to achieve collective goals (Provan & Lemaire, 2012).

Managing across inter-organizational networks, which are sometimes conceived as a hybrid of market and hierarchy (Powell, 1990), to achieve a shared result can be a fundamentally different enterprise than managing within a bureaucracy or executing transactions in a market. Managing a network requires a different set of skills that may be outside of many public manager's experiences (Goldsmith & Eggers, 2004; Markovic, 2017; McGuire, 2002; Weber & Khademian, 2008), especially because managers cannot exercise the same command and control functions over other actors in interorganizational networks as they can over employees within organizations. For example, managers in network contexts must put more focus on people-oriented behaviors than task-oriented behaviors (Silvia & McGuire, 2010). Managing in networks often adds layers of complexity to managers' tasks because they must simultaneously manage within a bureaucracy and across a network (O'Toole, 2015), which invoke different rationales, motives and authorities (Hjern & Porter, 1981). Networks exist simultaneously at the individual, organizational and interorganizational/network scales and rely on different but interrelated foundations. Individual interpersonal networks build from actor similarity, personality, proximity, and environmental factors; intra-organizational/interunit networks build from interpersonal ties, functional ties, and organizational processes and control mechanisms; and interorganizational networks build from motives, learning, trust, norms and monitoring, equity and context (Brass, Galaskiewicz, Greve, & Tsai, 2004). Scholars have recognized many uses that network research has for leaders and managers, including needed competencies, process tools, governance structures, resource channels and evaluation methods, as well as important open questions relating to accountability, transparency, cross-sector platforms, trust and the role of adaptive systems (Kamensky,

2020). While the *practice-turn* in interorganizational network research has arguably begun, it is still in the very early stages, meaning that researchers and scholars still have little understanding of how network participants that are not leaders or managers operate in interorganizational network contexts (Berthod, Grothe-Hammer, & Sydow, 2017).

Over the last 25 years, several dominant frameworks have emerged that still guide scholar's understanding of network management. The emerging field of network management has evolved to meet the needs of network managers seeking to balance the competing demands of managing at these multiple scales. To do so, network management draws from a range of scholarly literatures to provide alternatives to bureaucratic or market-based management approaches that include management strategies (Kickert et al., 1997), management processes (Agranoff & McGuire, 2001; McGuire, 2002), managerial networking (Meier & O'Toole, 2005), collaborative governance (Ansell & Gash, 2008; Emerson et al., 2012), and executive functions (Lemaire, 2012) among other approaches. In *Managing Complex Networks* (Kickert et al., 1997) offered a useful typology of strategies for network management that looked at network level and game level managerial activities aimed at *influencing* ideas and interactions within the network context rather than controlling them. Agranoff and McGuire (2001) proposed a set of management processes (or behaviors) for networks—activation, framing, mobilizing and synthesizing—that offered an alternative to the textbook POSDCORB of management. *Activation*, perhaps the most important of these processes, requires network managers to be able to identify actors to incorporate into the network to help secure network objectives; *framing* requires network managers to have an understanding of the roles of network participants so that they can be arranged and integrated; *mobilizing* requires

network managers to recognize differing levels of agreement and commitment to network goals held by network participants; and finally, *synthesizing* requires network managers attend to the collaborative environment by conscientiously building relationships and removing blockages to cooperation (McGuire, 2002). Effective managers in networks must know who the key actors are in their networks and routinely engage with a wide variety of those players (Meier & O’Toole, 2005). Lemaire (2012, 2020) and Lemaire and Provan (2018) use social network analysis of a goal-directed human service network (Provan, Fish, & Sydow, 2007) to underscore the importance of Barnardian (Barnard, 1938) functions of a network executive such as “providing a system of communication, securing essential effort and formulating and defining purpose” (Lemaire, 2012, p. 27).

Within the three traditions in network research, the political science tradition tends to focus on policy change and agenda setting, the sociological (social network analysis) tradition tends to focus on aspects of network dynamics, and the public management tradition tends to focus on management behavior and network performance and outcomes (Berry et al., 2004). To understand how networks change as a result of the interplay between managerial networking and network management, an area of increasing importance within public administration, likely requires a combination of these approaches (O’Toole, 2015; O’Toole & Meier, 2004). Over the past 20 years, the “Provan School” has done much important work to bring together these streams to begin to address the complex interrelationships between context, structure, management and effectiveness. The work of the “Provan School” is extensive—too extensive to cover here in its entirety—however, a brief overview of some of their work is helpful in showing the contribution it has made by using SNA to connect network dynamics to performance

though the conscious efforts of network managers. Human and Provan (2000, 1997) looked at connecting structure and strategy with internal network outcomes. Provan and Sebastian (1998) looked at the multiplexity of ties and overlapping cliques (elements of structure) and examined their effects on external network effectiveness. Kenis and Provan (2009) extended this early work to more thoroughly examine antecedents and initial conditions of network formation to begin building theory on evaluation and accountability in network setting. Isett and Provan (2005) examined networks longitudinally to begin forming theory of how the sector of participating organizations (public, private or nonprofit) affects the evolution of network structure. Provan and Kenis (2008) developed three general models of network governance (participant-governed, lead organization and network administrative organization) and then began developing predictors of which forms would be most effective in different contexts. Provan and Huang (2012) and Huang and Provan (2007) have taken an ongoing longitudinal look at the effects of resource tangibility on the interactions of network members. Social Network Analysis in conjunction with other analytical techniques such as Qualitative Comparative Analysis (QCA) can help identify theoretically possible causal connections between elements of network structure and factors leading to improved network performance, such as network members' perceptions of congruence between organizational and network purpose (Lemaire, 2020; Raab, Mannak, & Cambré, 2015).

In addition to the research findings coming from these various studies, many of the studies also produced visual representations of the network being analyzed in the form of various network plots. The output of an interorganizational SNA typically provides a range of information including identification of network structures (bridges,

gaps, isolates, etc.), whole network variables (such as density and centralization), findings that connect the study to the larger scholarly literature, recommendations from the analyst, and the network plots.

The visual representations or plots are metaphors (Keast, Mandell, & Agranoff, 2013) and analogy that are not evidence or proof, but they can be means of communicating perceived network structure and for activating new network activities to address perceived shortcomings in network structure when researchers or analysts provide them to network members. Network plots are an output of the SNA that is both engaging and accessible to the practitioners within the networks that are the object of SNA's analysis. However, T. A. Scott and Ulibarri (2019) caution against the use of network plots and argue that they are neither legitimate evidence, nor a finding of SNA. Though they rightly point out that network plots can be unintelligible, unsightly and can take many potential layouts, they also claim that "while network visualization can sometimes be suitable for demonstration, it is certainly not suitable as a basis for robust theoretical inference" (T. A. Scott & Ulibarri, 2019, p. 94). Making inferences from those plots may not be robust science, but I suggest that network participants routinely make inferences from such plots when they have access to them, likely in ways poorly understood by researchers and with unknown consequences for network dynamics. When provided back to the members of a network being studied, the information from network analyses can help network managers encourage systems thinking, see the different roles played by organizations, or identify links to outside resources among many other uses, but "will only have practical value to communities if it can be effectively presented,

discussed, *accepted, and acted on* by community leaders and *network participants* [emphasis added]” (Provan et al., 2005, p. 610).

Analysts have tremendous discretion in how they represent network data visually, both numerically and graphically, which influences its effectiveness in communicating information from the network analysis (Brandes, Kenis, Raab, Schneider, & Wagner, 1999). The network plots from a SNA can “provide network members the opportunity to see the structure of the network and evaluate how it compares with what they expect or want, and then to develop interventions on how to strengthen the network” (Lemaire & Raab, 2020, p. 181-182).

Cognitive social structures (CSS) are defined as an individual’s perceived cognitive representations of social networks (Krackhardt, 1987). Most network actors have difficulty in accurately perceiving their social networks, especially at a distance from relationships of which they are not a part (Krackhardt & Kilduff, 1999). Divergence between an individual’s cognitive perceptions of networks and more concrete representations provided by SNA are an increasingly important topic for CSS research (Brands, 2013; Burt, Kilduff, & Tasselli, 2013). Therefore, introducing network plots from SNA to participants in a network has the potential to set up tensions between participants’ individual CSS and the more tangible collective representations provided by researchers/analysts and network managers, which could influence participants’ subsequent network actions and activities.

A “purpose-oriented network” is a broader conception of what might previously have been labeled as a “goal-directed network” which recognizes that goal consensus is a variable attribute of networks rather than a defining characteristic (Nowell & Kenis,

2019), which is an important distinction in the network I studied for this research. Managing in purpose-oriented public networks requires network managers and participants to understand the interrelations between operating context and a network's performance toward its purposeful goals, the dialectics between engineered and emergent processes and structures, and the multi-level tensions between individual, organizational and network interests (Nowell & Kenis, 2019). The outputs of SNA, while focused on the structural aspect of the overall network, also provide touchstones for developing a deeper understanding of the network dynamics emanating from those interrelations, dialectics and tensions. Numerous studies have shown that the findings and recommendations from network analysis can be used by network managers to improve network performance (Gulati et al., 2011; Herranz, 2010; Kenis & Provan, 2009; Lemaire & Provan, 2018), but thus far little attention has been paid to how the network plots influences the CSS of network participants in ways that could influence their actions directly, with consequences for network performance.

**Framework for network change.** To locate the aims and contributions of this study within the broader network literature and to provide a vocabulary for discussing the applications and limitations of my findings, I have developed a flexible framework for modeling network change in purpose-oriented networks. In future chapters, I employ this framework and its related nomenclature to provide a roadmap for future research emerging from its findings and implications. I drew inspiration from the work of Ahuja et al. (2012) but have sought in addition to bring together several other strands of network scholarship to form my framework. In Figure 2, I present the various pieces of this framework and how they come together in different ways. My aim was to craft a

framework amenable to a qualitative approach to building scenarios and cases to understand network dynamics better, rather than a model for regression or other mathematical techniques for determining correlation or causation among the various factors in the framework. My intention was to develop a theoretical framework onto which I could map the specific concepts of this study, much as I do with the concept mapping in Chapter 1 (see Figure 1). Before discussing the individual elements of the framework, I next provide definitions of key concepts.

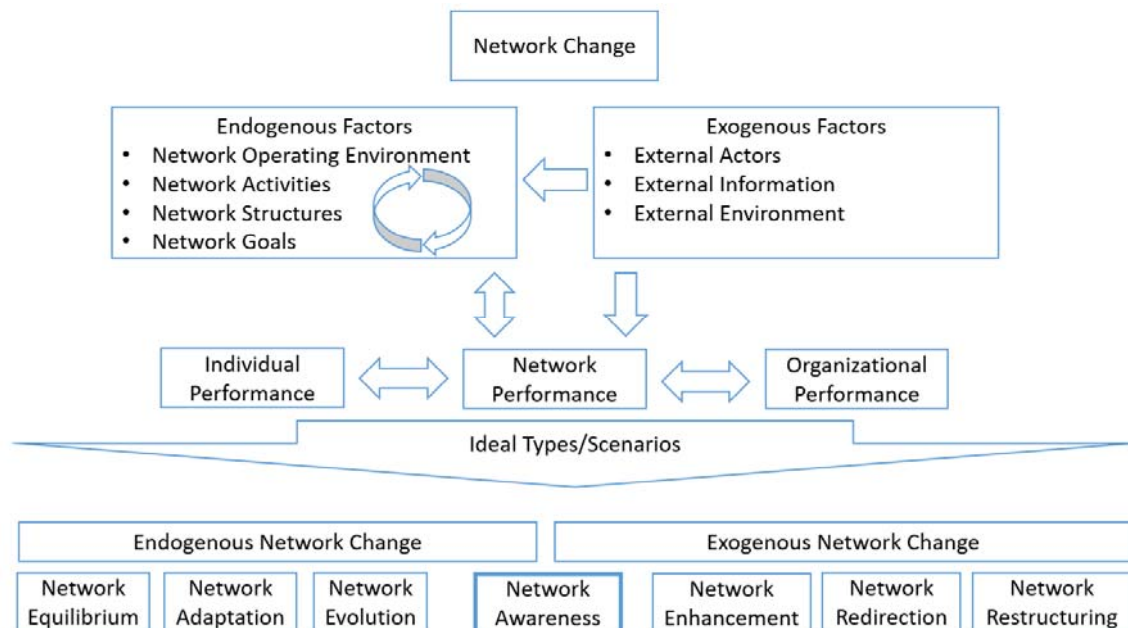


Figure 2. Framework for network change.

**Definitions.** The subsections that follow define key terms.

**Network dynamics.** Network dynamics is the overall function of a network across time (Ahuja et al., 2012), including changes in network structure, activity, and performance. These dynamics cross different levels of analysis which are all interconnected, including the network level, organizational/programmatic level and individual level (Provan & Milward, 1995), and which can be analyzed from egocentric

or whole network perspectives (Provan & Lemaire, 2012). Network dynamics may include factors beyond just a change in state such as the speed of change, buffers to change, acceleration/deceleration of change or even the momentum of change over time.

***Network change.*** Network change is any variation in the state of the network environment, activities, structure or performance between two time periods. Of particular importance is the change between the current state and a desired future state. Such shifts can have a range of different antecedents and consequences (Brass et al., 2004). I conceive of two types of network change based on the sources or antecedents of the change—endogenous and exogenous. My logic in making a distinction between endogenous and exogenous sources of change is that while exogenous actors and factors can influence the network, the participants within the network have relatively little influence over those exogenous factors.

***Operating environment.*** Networks exist within larger contexts, which I call the network operating environment. I regard the operating environment as the local task environment that is inexorably linked to the routine functioning of the network. Because network participants have influence over their operating environment, I treat changes in operating environments as an endogenous factor and a natural part of a network's evolution (Gulati, Wohlgezogen, & Zhelyazkov, 2012, p. 21).

***Exogenous network change.*** Exogenous network changes arise from external actors/participants or from the larger political, economic or social environment. With exogenous factors there is a clearer relationship between cause (exogenous factor) and effect (network change). Funders, both public and philanthropic, routinely seek to tap into existing networks of organizations to achieve broader community goals, sometimes

seeking to change those aims or enhance network capacities to attain them (Eschenfelder, 2011).

***Endogenous network change.*** Endogenous Network Change arises from network actors/participants themselves or from changes in the operating environment to which network actors react. With endogenous factors, the relations between cause and effect are less clear since there are many feedback loops between operating environment, network activities, network structure and network performance.

***Network performance.*** Network performance is the ability of a network's members to meet their shared goals. It exists alongside organizational and individual performance, which are persistently in tension, aligning at times and in conflict at other times (Provan & Milward, 2001).

***Network goals.*** Achieving network goals is one primary objective of network activities. Collective community-wide goals may emerge from networks, especially mature networks which recognize that larger community-wide factors influence their operating environments (Innes & Booher, 1999). Community-wide goals can also be established through public and private sector planning processes that involve a range of stakeholders, including public agencies, interested community members and leaders, affected populations, economic and political elites, and activists (Monroe & Butler, 2016).

***Network activity.*** Network activity is any sort of activity conducted between or among actors in the network. There are many models, frameworks and nomenclatures in the literature addressing different aspects of network activity. Network activity includes both political and community networking (Johansen & LeRoux, 2013; Meier & O'Toole,

2003). It can include a wide range of activities including activation, framing, mobilizing and synthesizing (Agranoff & McGuire, 2001; McGuire, 2002). Types of network activity can also form the basis of ties in a network such as the relationship dimensions explored in this study—sharing information, coordinating referrals, integrating services and sharing resources. These activities may form the basis of relationship types and intensities, which become an element of structure.

***Network structures.*** Network structures consists of actors (or nodes) and their relationships (or ties). When actors and relationships are combined to form the network, it yields a structure that has its own characteristics independent of the actors or relationships, such as density, centralization, structural holes, bridges, isolates, etc. For their part, actors have attributes such as the sector in which they work (public/private) and their programmatic focus (health, education, income), organizational size and other dimensions. Relationships may also exhibit a range of different types or intensities (Lemaire & Raab, 2020).

***Emergent networks.*** Emergent networks arise from consensus among network actors to establish network performance goals and a shared willingness to engage in a range of collaborative network activities intended to realize those aims (Provan & Lemaire, 2012).

***Mandated networks.*** Mandated networks are a special case of exogenous network change in which a network is created or repurposed by outside actors, usually funders or governmental agencies, who also play a dominant role in establishing performance goals, determining network participants and prescribing acceptable network activities. (Ospina & Dodge, 2005; Saz-Carranza, Iborra, & Albareda, 2016). More recent scholarship has

recognized that most networks, even mandated ones, contain a mix of both engineered and emergent structures (Nowell & Kenis, 2019) that are dynamic over time.

**Ideal types or scenarios.** Next, I propose a set of idealized cases or ‘ideal types’ that connect the pieces of the framework in different ways that may have bearing on how the information in network plots might be understood and used by network participants.

**Network equilibrium.** The network at equilibrium is a theoretical idealized case where network activities and network structure are aligned to meet network performance goals with little to no conflict with organizational or individual performance goals. Network activities are ongoing through a stable network structure to consistently meet performance goals. Network performance, defined as a network’s capacity to meet network goals, results from a combination of network activities implemented through a network structure (network actors within a set of network relationships) within a stable operating environment (See Figure 3).

However, network performance is not always the sole objective of network actors. In order for network activities to be performed by network actors, they often times must align with the organizational activities focused on the organizational performance needs of those participants. They may also need to align with individual activities linked to personal performance needs. Likewise, network structures are not necessarily optimized for network performance. Actors may seek particular positions within a network that further individual or organizational performance goals rather than network performance. While these competing objectives may be in a state of relative equilibrium or may exist in a state of change, even when in equilibrium, they are probably only rarely completely aligned, but at best persist in a state of balanced tension.

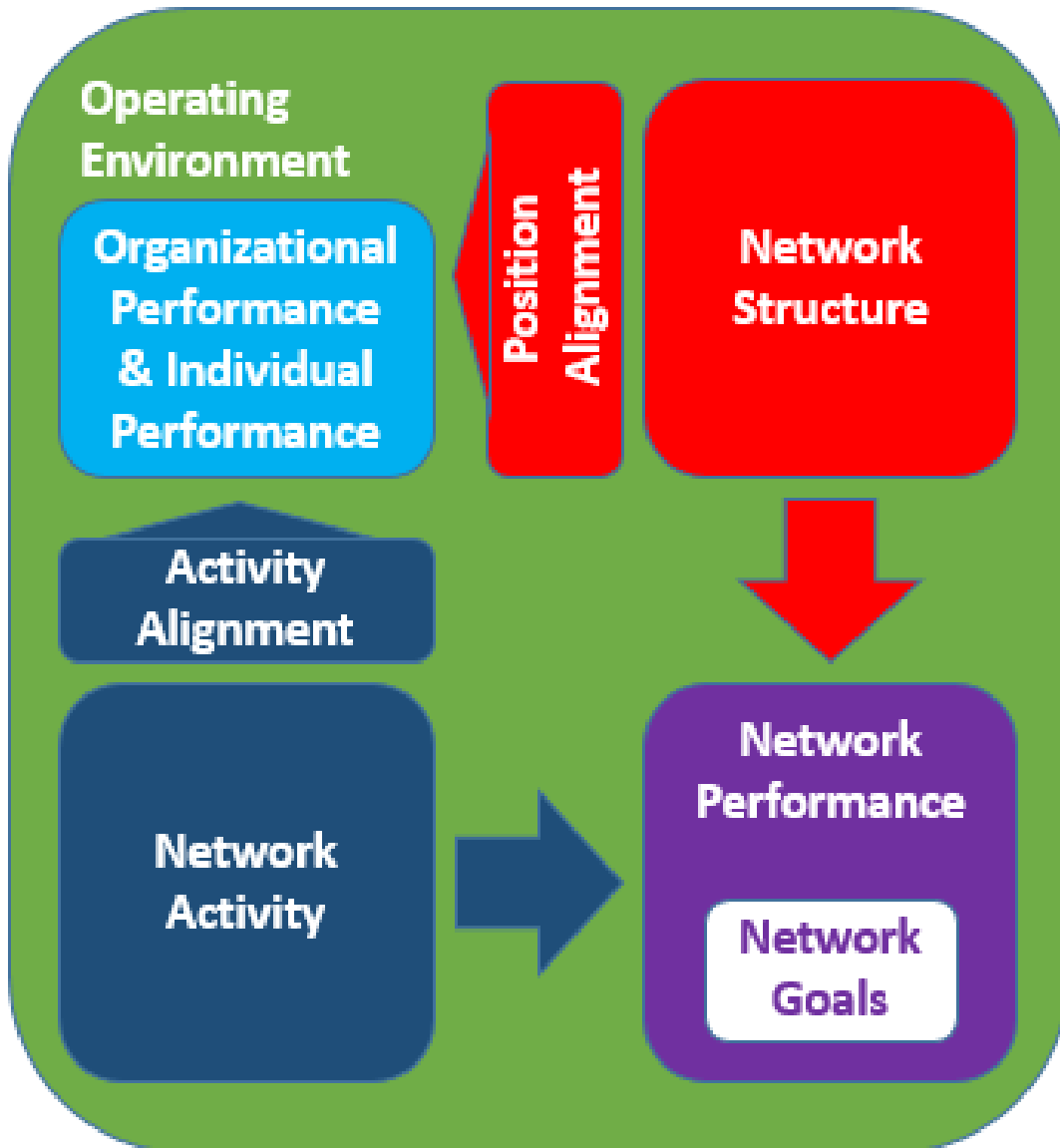


Figure 3. Static network at equilibrium (balanced fit).

*Network change (general model).* In the general model of network change, changes in network performance arise from changes in network activities and/or network structure (See Figure 4). Network performance could be improved or diminished as a result. These changes generate feedback from organizational and individual performance goals. Over time, network activities and network structure will find a new state of

equilibrium. Changes in network structure or activity themselves can arise from different sources and in different ways, which I describe in the following types on network change.

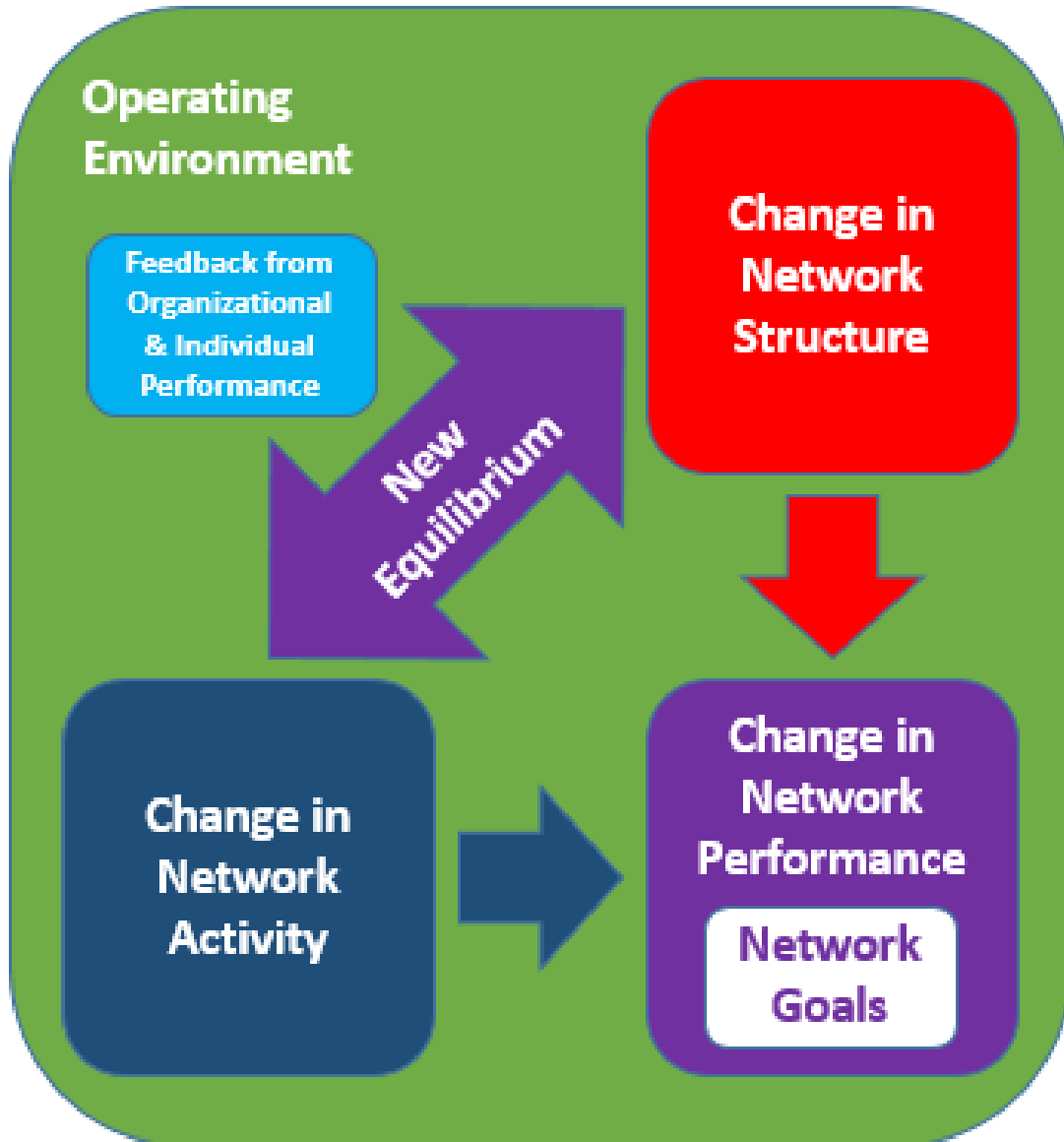


Figure 4. Network change (general model).

**Network adaptation.** Network adaptation is a special case of network change where changes in the operating environment induce a cumulative response of network participants to change network structure or activities to maintain network performance.

When there are changes in the operating environment, endogenous network actors can work together to adapt network activities and structure to maintain (or improve) network performance. In either case, changes in network activities and structure emerge from participating network actors, providing a general model of endogenous network adaptation (See Figure 5).

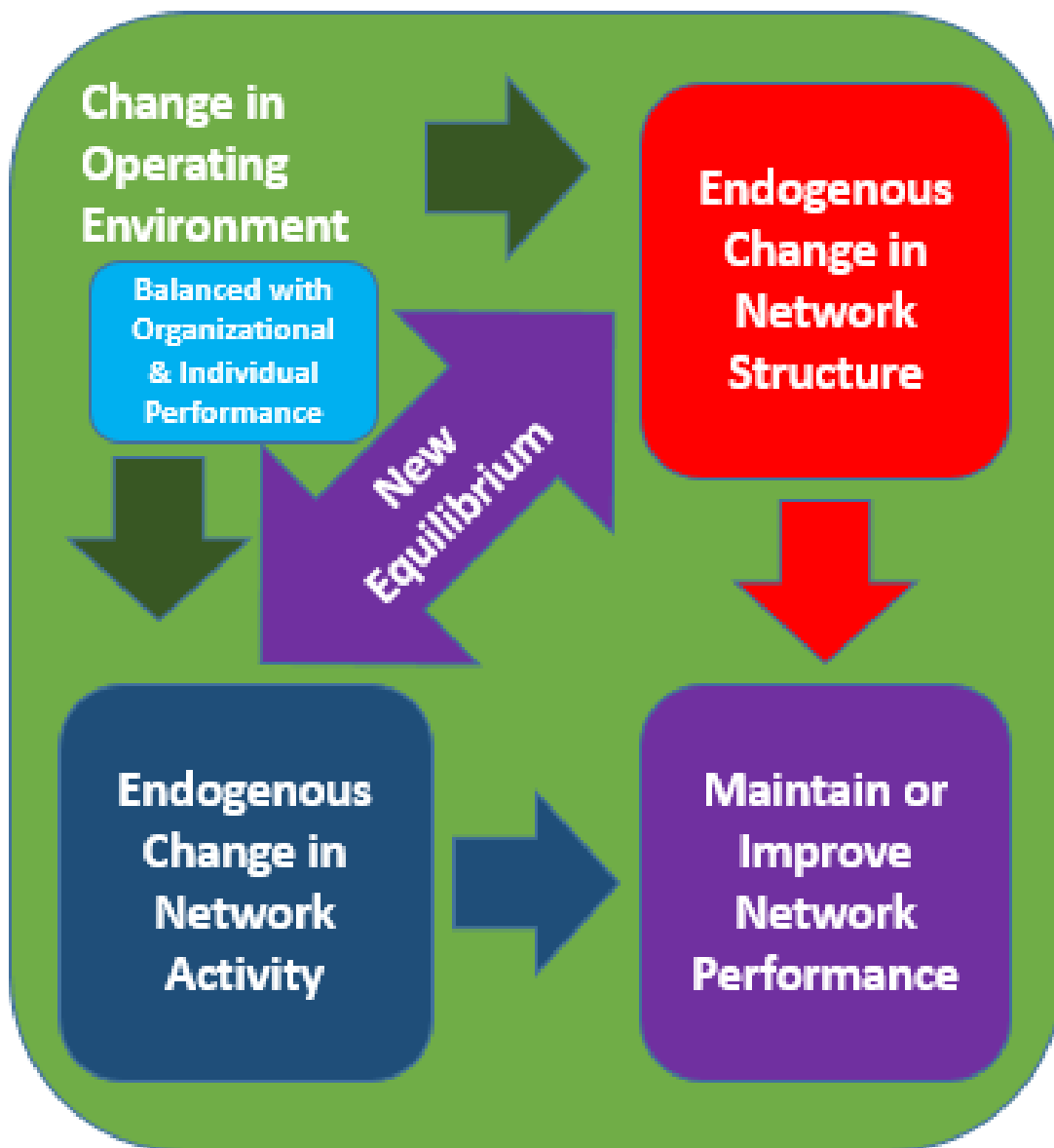


Figure 5. Endogenous network adaptation (in emergent networks).

**Network evolution.** Network evolution is a special case of network change where changes to network structure or activity arise from consensus among network participants to improve network performance, which in turn precipitates changes to network structure and/or activities. In similar fashion, actors can shift network performance toward new and different types of goals. Participants can develop a level of consensus to improve performance and/or also shift the goals of the network. In this case, changes in network activities and structures result from actors aligning to support new performance goals, providing a general model for endogenous network evolution (See Figure 6).

External actors can seek to influence network performance even though they do not directly participate in network activities. External actors may include higher level governmental institutions or philanthropic organizations funding network efforts. External actors can also include social movement leaders and/or individual activists. These external actors could seek to influence network performance in many ways. Governmental entities could pass down new regulations, philanthropic organizations could change funding priorities, and social movements or individual activists could advocate or even demonstrate for change.

**Network redirection.** Network Redirection is a special case of exogenous network change where external actors or forces promote a change in network goals to induce network participants to shift network activities and structures (See Figure 7). The change in goals is more than simply a change in the level of performance toward existing aims, but the establishment of new and different goals not previously considered integral to network performance. For example, external policymakers could take a system that provides child care to working mothers and give it a new goal of ensuring that fathers

delinquent on their child support payments are targeted with sanctions, resulting in major shifts to network structure and activities.



Figure 6. Endogenous network evolution (in emergent networks).

**Network enhancement.** Network Enhancement is a special case of exogenous network change where external (exogenous) actors or forces seek to influence or change network activities or structure directly to improve network performance. Improved

performance may be defined as more consistently meeting network goals or raising performance targets for established goals (See Figure 8). Such shifts could seek a higher-level attainment of existing goals or they could seek changes in those aspirations. In either case, such efforts can be described by the basic model of network change presented above in which shifts in network activities and structure lead to new levels of network performance.

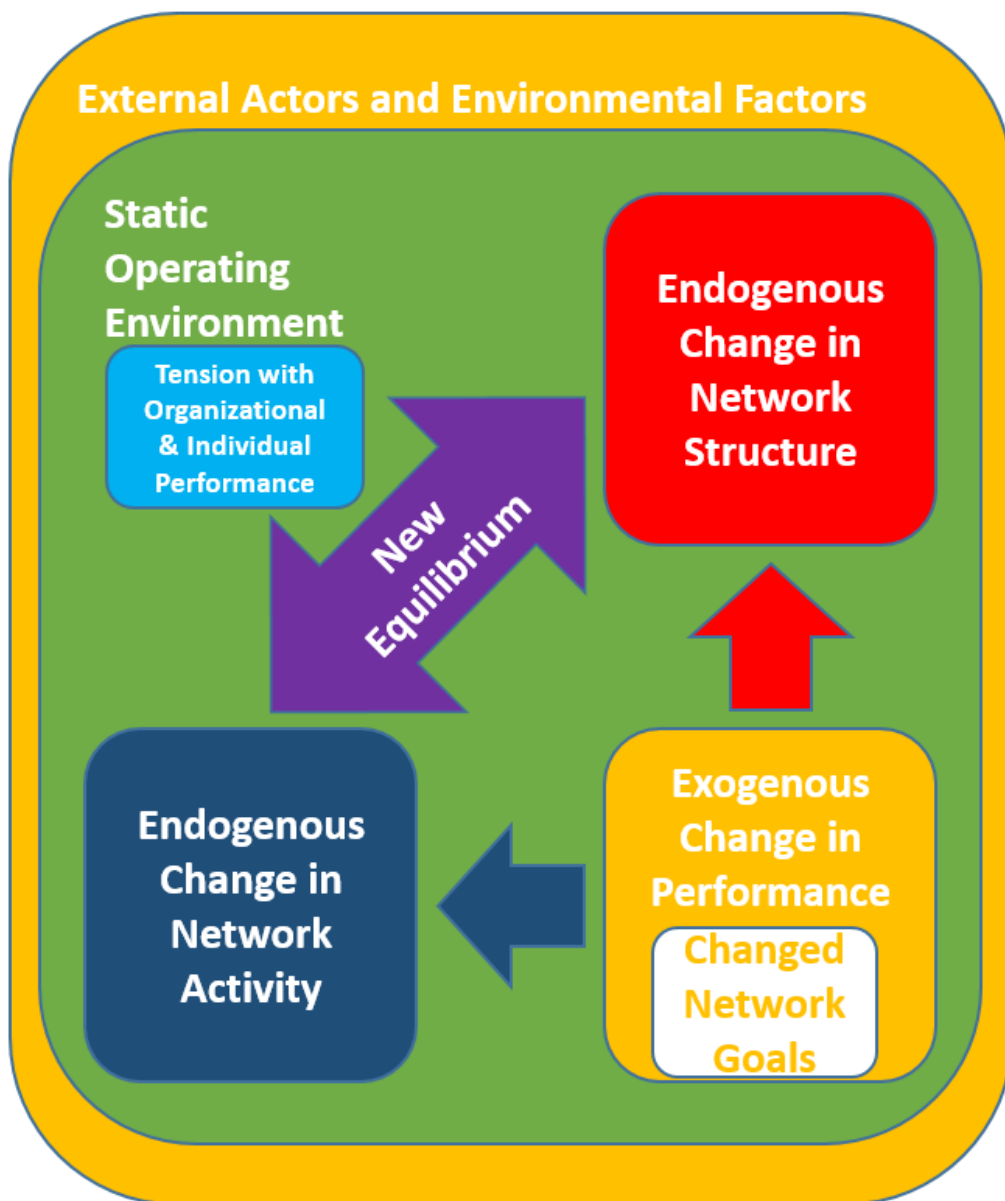


Figure 7. Exogenous network redirection.

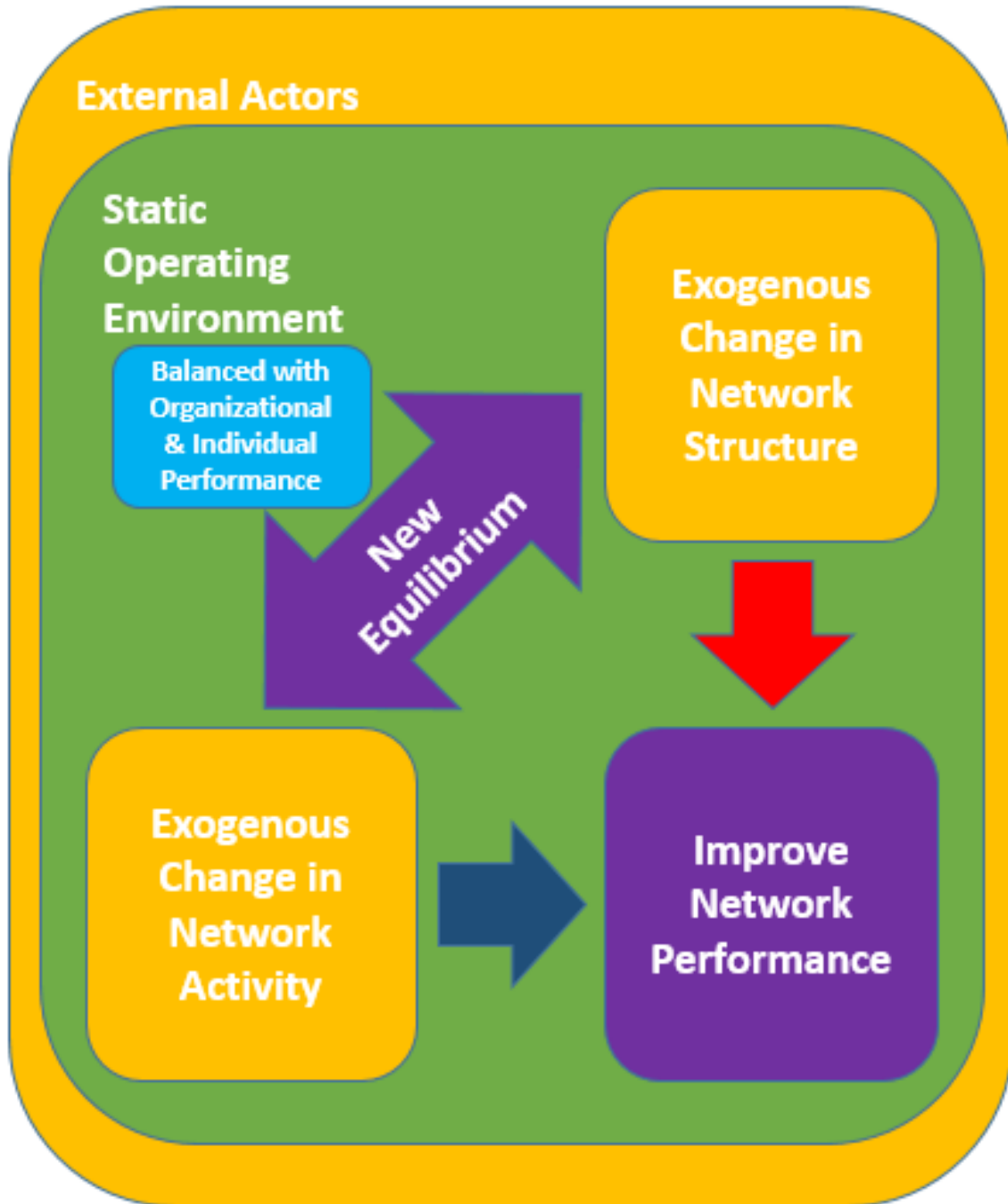


Figure 8. Exogenous network enhancement.

**Network restructuring.** Network Restructuring is a special case of exogenous network change in which external actors or forces seek simultaneously to change network activities, structure and performance. Although I name this case network restructuring, the changes are not simply limited to network structure, but potentially any aspect of

network dynamics. External actors may elect to press for more comprehensive changes in network activities, structure and performance goals at once through a process of exogenous network restructuring (See Figure 9). Such a strategy may reflect external actor frustrations with the prevailing levels of network actor motivation, direction, resources or focus. Such efforts also sometimes reflect external actor interest in joining smaller or informal networks into a new larger and/or more formal initiative, or it may reflect a desire to change or introduce new network goals that require a fundamental restructuring of network activities and structures.

I use these simplified ideal types or scenarios of network change in three ways— 1) to locate the antecedent and paths to changes in network performance based on the introduction of network plots, 2) to provide a vocabulary to discuss implications of this research in later chapters and 3) to delimit the bounds of potential findings.

I begin by constructing a scenario of network change from the introduction of network plots by external actors (See Figure 10). The effect of introducing network plots into a network by sharing them with network participants could vary based on the network change scenario—network equilibrium, endogenous network adaptation, endogenous network evolution, exogenous network redirection, exogenous network enhancement, or exogenous network restructuring. In every case, the dynamic interaction of network, organizational and individual performance may come into play. Network analysis and the production of network plots introduces new information to network managers and participants. By potentially reshaping the cognitive social structure of participants, this new information could influence network activities and structure because existing network participants may begin to “activate” (McGuire, 2002) new

participants to access resources. To understand how introduction of an information source, the network plot, can affect these determinants of network performance, one must first understand the sense-making processes of network participants.

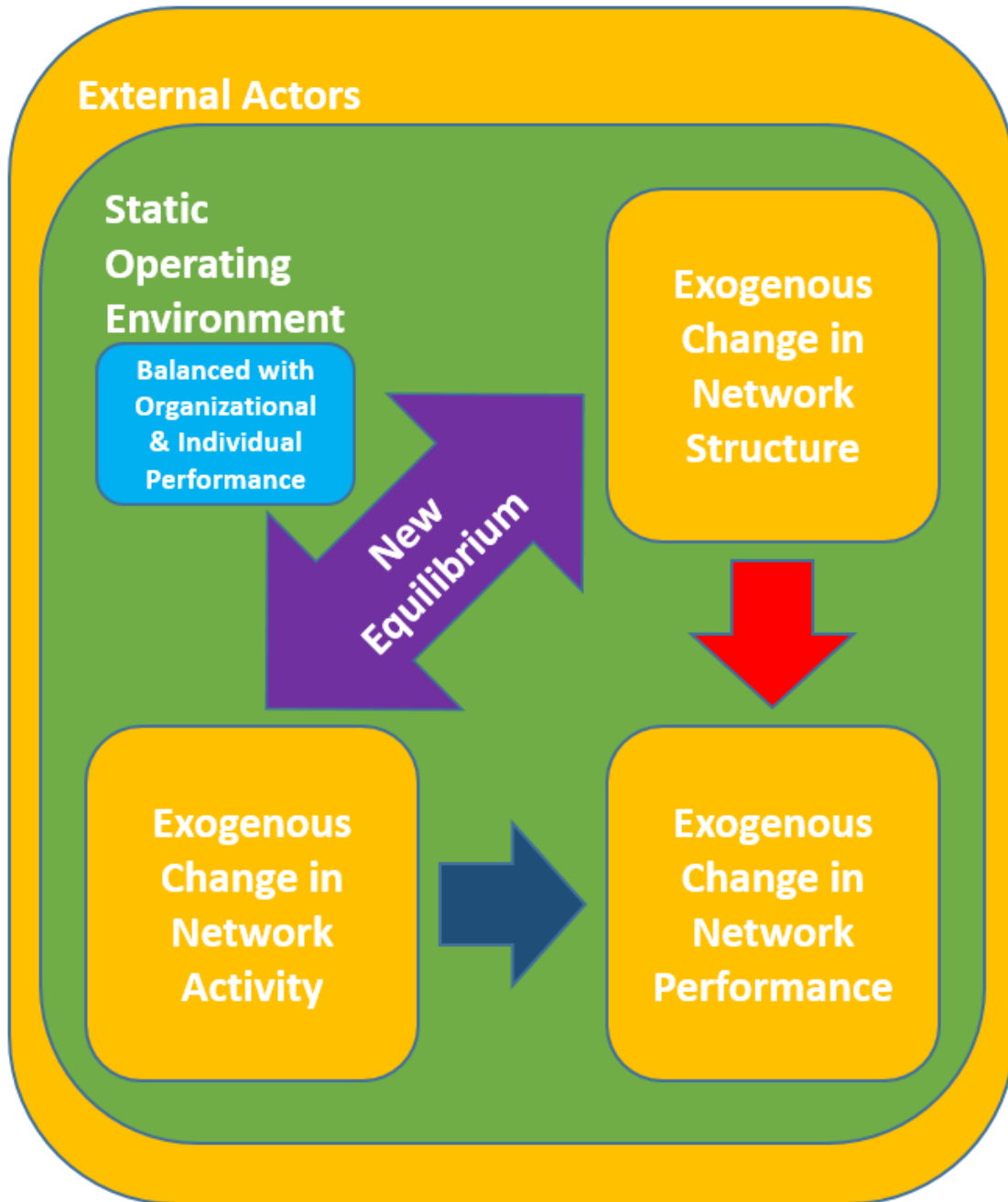


Figure 9. Exogenous network restructuring.

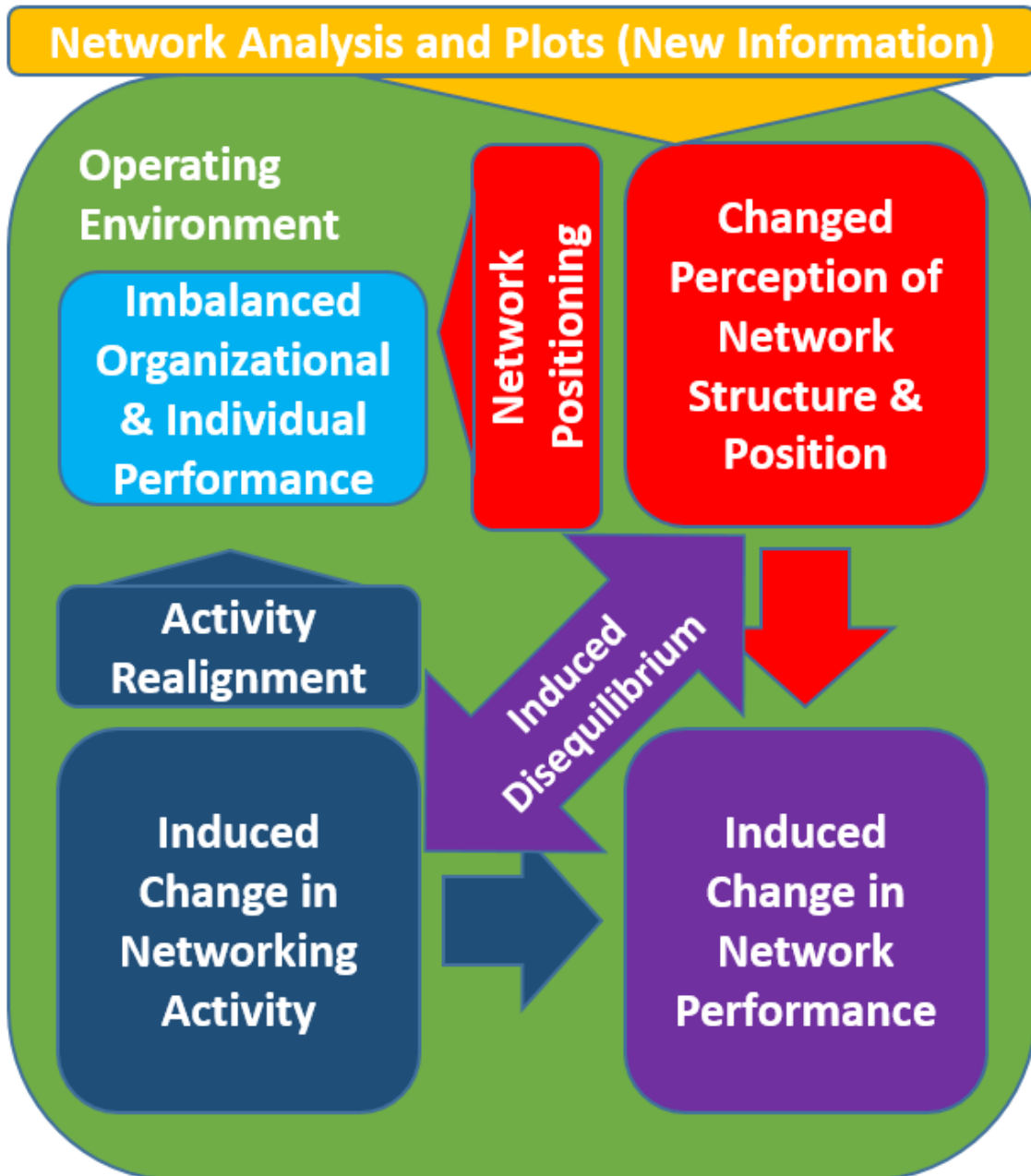


Figure 10. Network awareness (general model).

### Part III: The Sense-Making Methodology

In order for information to lead to action, it has to make sense to the human being receiving the information. How we, as human beings, make sense of information shapes our subsequent actions in response to that information. In order for the information in

network plots to lead to actions that change network structure or activity, participants must first make sense of the information. Making sense of information can vary significantly between different sense-makers. Graphical information such as network plots are particularly open to different interpretations shaped by the sense-making of different recipients. Network leaders, network analysts and each network participant may interpret the information in network plots differently and make sense of it in different ways.

To provide a theoretical framework and methodological approach for understanding the sense-making that may emerge from introduction of the network plot, I drew on Dervin's Sense-Making Methodology. Because this view of sense-making is not well known within public administration, I here provide a brief overview of its components and their alignment with the goals of this study before outlining the framework's methodological approach to interviewing in Chapter 3.

Dervin and her protégées have used the sense-making methodology (SMM) to study a wide range of information-seeking behaviors from the perspective of users, as opposed to designers, in different systems and contexts, including health care, library sciences, computer science, audience studies, advertising, gender studies and many other fields (Dervin, 2015, p. 61; Dervin et al., 2003).

Figure 11 is one of the more concrete expressions of this framework of sense-making.

Dervin has described the approach as follows:

The metaphor shows a human (M. Squiggly) moving through time-space, out of situational conditions, including history, experience, horizons (past, present, future), constraints, barriers, habits and skills. Squiggly carries an umbrella. It is described as including power structures and dynamics, organizational systems and

procedures, domain knowledge systems, cultures and communities. Collectively, these are labeled “context.” They are usually interpreted in research as structural arrangements within which individual agency operates. In SMM, even these seemingly static boundaries are conceptualized as gappy and open to phenomenological interpretation.

Squiggly is shown facing gaps (questions, confusions, muddles, riddles, angst). The bridges for moving onward are listed as ideas, cognitions, thoughts; attitudes, beliefs, values, feelings, emotions, intuitions; memories, stories, narratives. Sources (channels, media, people, institutions) are shown as potentially providing fodder for the bridges, although not unexpectedly, research has shown that when it comes to making sense, the most frequent source is named as an ever-evolving self. (Dervin, 2015, pp. 63–64)

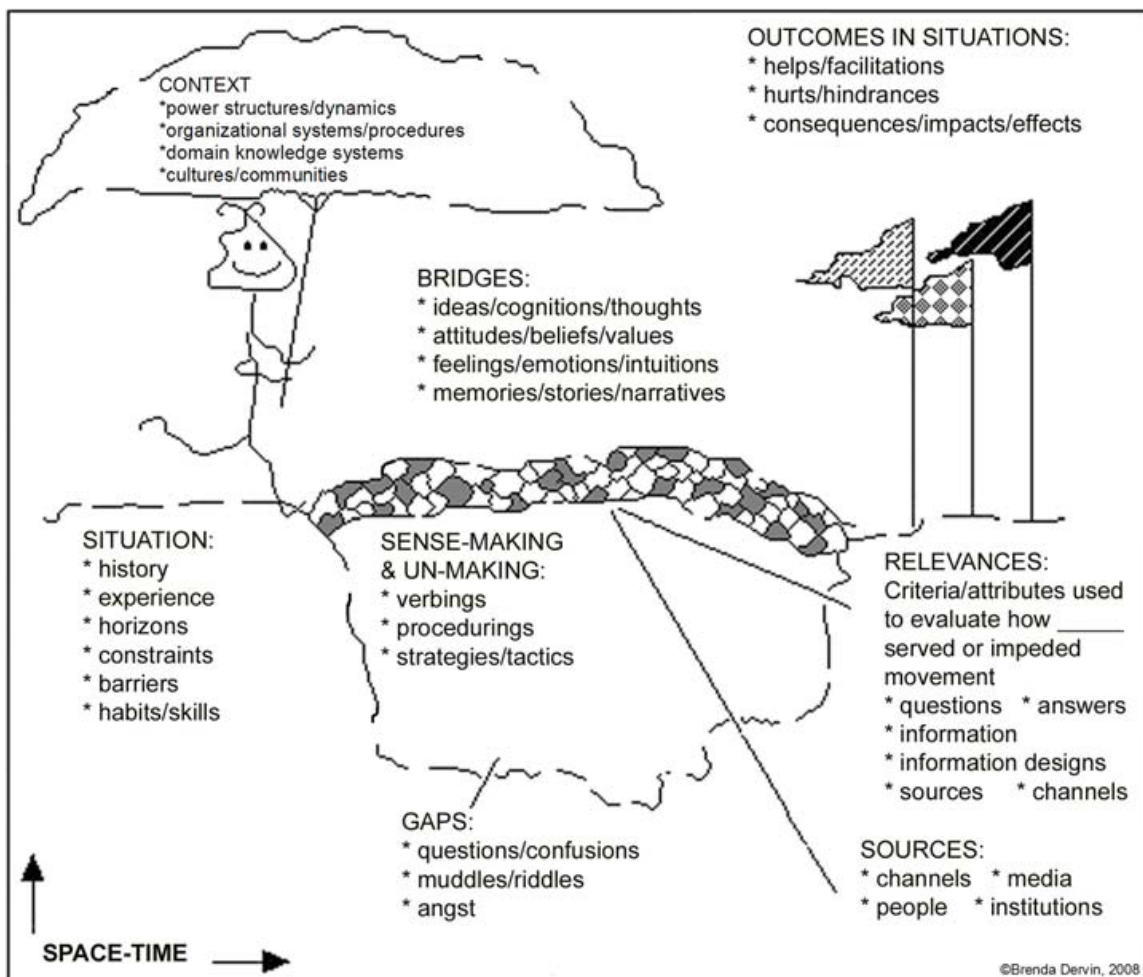


Figure 11. Sense-making illustration. From “Dervin’s Sense-Making Theory,” by B. Dervin, in M. N. Al-Suqri and A. D. Al-Aufi (Eds.), *Information Seeking Behavior and Technology Adoption: Theories and Trends* (p. 63), 2015, Hershey, PA: IGI Global. Copyright 2008 by Brenda Devin. Reprinted with permission.

To my engineer's mind, Dervin's complex framework can be difficult to parse, yet reducing it to its constituent parts also somehow diminishes its elegance—like trying to dissect a kitten to determine why it is cute. While Dervin's own descriptions of her methodology sometimes border on the flamboyant, they are also often poetic. I believe her own words can offer a better sense for what SMM is than any reductionist deconstruction could. For example, focusing on change and movement, Dervin has explained that SMM's foundational concepts

provide the framework for attending to movement and involve conceptualizing sense-makers as: a) moving through time-space so it cannot be assumed a priori that behavior (e.g. information behavior) will be habitual or static because circumstances (internal and external) may change; b) struggling with or aided by force, power, and energy, sometimes with forces blocking movement, sometimes aiding, sometimes from behind, sometimes by one's side, sometimes in front; c) facing gaps always phenomenologically experienced and sometimes presented as well with brutal force from external or internal sources; d) moving out of a situation with history and horizons, past, present, and future; e) moving sometimes in flexible and fluid ways, facing change, or chaos; f) moving sometimes in stable, constant, rigid ways or passing through time-space in inertia. (Dervin, 2015, p. 67)

Dervin has further described

SMM as a methodology [that conceptualizes] the human as a body-mind-heart-spirit living in a time-space, moving from a past, in a present, to a future anchored in material conditions, yet at the same time with an assumed capacity to sense-make abstractions, dreams, memories, plans, ambitions, fantasies, stories, pretenses that can both transcend time-space and last beyond specific moments in time-space. (Dervin, 2015, p. 64)

The metaphor (Figure 11) depicts, “the pervasive gappiness assumption. The road is filled with holes. Even the gap is gappy. The stones in the bridge have their own holes. The umbrella, meant to picture the most material aspects of sense-making and sense-unmaking, is itself filled with holes. And, Squiggly is deliberately squiggly” (Dervin, 2015, p. 65). In sum, the SMM theoretical framework, “consists in its simplest form as a

gappy road with each step starting in a situation, moving across gaps over bridges, and arriving at outcomes” (Dervin, 2015, p. 64).

There are several reasons why Dervin’s approach may help researchers understand how network actors may conceive of network plots.

SMM focuses on the cognitive processes that mediate between information and action. In the analysis presented here, network plots are the information source, sense-making is the mediating cognitive thought process and potential collaborative actions that (re)shape network structures and performance are the actions of interest that may arise from individual and collective sense-making. Understanding how information from network plots translates into action helps us understand the implications of introducing network plots to network participants.

Dervin designed SMM to capture the system users’ perspectives independent of the system designer’s perspective. The designers of collaborative human service policy implementation networks may be far removed from those who participate in these administrative arrangements. Their fundamental assumptions and priorities may also not match those of network participants, especially in mandated networks. The move toward more distributed and decentralized implementation structure for delivery of human and social services have long been the product of ideological assumptions and thinking and not of careful analyses of administrative feasibility or workability. The designers of such systems often give little attention to those charged with making those arrangements operate. Moreover, the way policy makers design and deploy distributed policy implementation structures across networks offer few opportunities for individuals and organizations with less power in the network to challenge an approach led by more

powerful interests. To address this distorted discourse, SMM finds “ways to bridge gaps across discourse differences without privileging one or the other” (Dervin, 2015, p. 60). Within SMM, “being able to hear another’s experiences requires facilitating ‘conscientization’ – bringing to consciousness deeply hidden struggles that society or social structures have a vested interest in silencing” (Dervin, 2015, p. 64).

SMM provides safeguards against the researcher introducing their own conceptual frameworks and biases. Researchers and policy makers often employ a language that can differ significantly from that of network participants, which runs the risk of imposing their theoretical frameworks onto the information provided from participants instead of allowing theory to emerge from the language of participants. “The intent of SMM is to try to yield research results from which researchers can make inferences and connections within their own discourse communities with more confidence that the results have not been pre-ordained by the imposition of discourse-enscribed expertise and/or societal power arrangements” (Dervin, 2015, p. 66). With this insight in mind, instead of asking my research questions directly, I employed SMM’s oblique, indirect and non-leading interview approach. I did so to reflect the fact that, “SMM assumes that the vocabularies of normative scholarly expertise are not user-oriented and are removed from the world of everyday experience” (Dervin, 2015, p. 65). SMM “requires moving from noun-oriented interviewing approaches to what SMM terms ‘verbings’” to address this concern (Dervin, 2015, p. 65). As will be seen in the selected interview questions (Table 9), aside from the critical entry that contains the researcher’s nouns to direct the interviewee’s attention to the object of interest, all SMM questions are verb-oriented, providing space for participants to choose their own nouns to describe their world and experience.

By engaging informants as co-researchers in this way, SMM opens possibilities for new processes of praxis-based learning among network researchers, analysts, managers and participants: “SMM has been developed not to capture ephemeral states of being, but rather fundamentally as a tool for dialogue that can be usefully built into societal, organizational, community, family, and all interactive communication processes” (Dervin, 2015, p. 75). This dialog can serve as a precursor to the collaborative action needed to elicit network change. Because the SMM philosophy privileges users, incorporating it into the discourse around collaborative action in networks may help generate a more authentic discourse.

Dervin’s sensemaking frame provides a concrete approach to gathering deep descriptions of the small yet significant moments that precede collaborative action *and* inaction. SMM focuses “on how humans communicatively make and unmake sense using many diverse kinds of inputs” (Dervin, 2015, pp. 60-61). The methodology’s approach investigates, “how acts of communication make and unmake society, structures, organizations, communities as well as identity, personality, self, and other” (Dervin, 2015, p. 62). The choices of network participants can unmake macro-level network collaborative processes and goals as easily as they can construct them. While shared sense-making may lead to environments that facilitate actions in otherwise highly contingent environments, sense-unmakings can also inhibit choice-making and lead to levels of uncertainty that inhibit network change.

Finally, one of the more intriguing implications of using this methodology for this research was the opportunity to explore Dervin’s insight that time-space bound measures (specifically, situated movement states) account for more variance in the use of

information sources than across-time-space and a priori-time-space measures (i.e., demographics or assigned roles) do (Dervin et al., 2003, p. 263). I therefore develop propositions emerging from the study for how awareness of participants' situated movement state could provide network managers and other participants with key insights into why others in the network may use or not use the information contained in SNA plots or how they might do so.

Next, I describe my methodological approach and how I used Dervin's sensemaking framework to develop a methodology to collect and analyze data to examine whether and how network plots are used as an information source for network change.

### **Chapter 3: Methods**

This chapter presents the data collection methods I employed to gather information for examining my research questions. I begin with an explanation of the relationship data collection which provided the basis of the network plots that I presented to key informants for the interviews. I provide an overview of the network analysis of the relationship data and the development of the network plots. I then present the sense-making approach to interviewing and how I applied that method to the development of the interview questions I employed, the selection of key informants with whom I spoke and the conduct of the interviews. Finally, I describe the analytical approach I used to code the interview data as a foundation for the findings and implications presented in the following chapters.

#### **Part I: Case Selection**

I used a single case study design to address my research questions (Yin, 2003). The case I selected was instrumental in nature, meaning that it was intended “to provide insight into an issue or refinement of theory” (Flyvbjerg, 1998, p. 88). It was also heuristic/exploratory in character because it served as “a vehicle for seeking to understand a phenomenon or process” (Flyvbjerg, 1998, p. 88) and a plausibility probe which could help “determine whether potential validity may reasonably be considered great enough to warrant the pains and costs of testing” (Eckstein, 1992, p. 140-141).

My selection of the case was opportunistic and convenience factored heavily in its selection. Nonetheless, the case I chose for analysis suited the objectives of my inquiry. It was a new initiative, so I could examine sense-making at the beginning of the network change process. It was a diverse network with multiple types of agencies across many

service sectors that potentially offered a polyphony of voices. Its aims were consequential—reducing poverty. I was familiar with many of the types of organizations and their missions from my own involvement in similar networks, yet I was not a familiar actor to most in this region. I had a sponsor, the United Way, that facilitated participation in the SNA by using their influence with many participants. However, I likely underappreciated how the United Way’s approach to network change would shape my participant’s sense-making. In retrospect, the network we studied ended up being much larger than I initially anticipated, perhaps diminishing the ability of participants to make sense of large plots.

**Case selection background.** I initially envisioned studying an early childhood network in the region close to where I live; however, the leaders of the administrative organization that oversaw that network, the United Way of the Roanoke Valley, requested that I consider several existing networks and coalitions with which they were involved plus other organizations they wished to engage in a new effort called the Family Self-Sufficiency Initiative. The United Way had completed a lengthy planning process involving its funded partner agencies, community leaders, residents and other stakeholders. The key understanding that emerged from that effort was an impression that United Way had historically spread its investments across too many low-impact organizations that were more focused on meeting the urgent basic needs of their respective clienteles, rather than working collaboratively with other organizations to address the root causes of poverty in the community. The United Way, therefore, adopted a new investment strategy to provide increased funding to a smaller number of organizations that agreed to work collaboratively on high impact projects focused on

systems change. United Way leaders believed that a Social Network Analysis of a larger collection of agencies, organizations and programs could inform their future choices as they implemented their organization's new strategy.

**Geographic delimitations.** This study occurred in Roanoke Virginia, an urban center in southwestern Virginia. Network participants served various localities within the region. The population of the Roanoke Metropolitan Statistical Area (MSA) was 314,515 in 2018. Roanoke is less than an hour's drive from Virginia Tech and Blacksburg, where I live and work, making it a convenient geographic site for conducting data collection.

**Study timeline.** This analysis reflected a single point in time in the winter of 2016/17 and the interviews reflect participant sense-making during the spring and early summer of 2017. The study developed as follows: In the summer and early fall of 2016, my advisor and I negotiated the scope and character of the network analysis, including the roster of programs/organizations to be included, and the final contents of the survey instrument with its facilitator/sponsor, the United Way of Roanoke Valley. I collected the organizational and relationship data through group and online surveys in November and December of 2017. My advisor and I conducted the analysis of network data and produced the initial network plots in January and February of 2017. My advisor presented the results of the network study, including its plots, to a large group of participants and stakeholders on February 24, 2017 (images of the plots were presented/shared, but not provided to participants). I conducted additional data validation and refinement of the network plots in March and April 2017 before providing them to informants for the qualitative interview portion of the study. I interviewed a sample of key informant interviews in May and June of 2017 (See Part V below for a full description of the

selection protocol). My advisor and I prepared a final report on the network study, including its plots and analysis, which was distributed broadly to all participants in late June 2017 by the United Way; however, that report did not include any information from or treatment of the key informant interviews I had conducted. Thereafter, I had the interviews transcribed and I analyzed them over the summer and fall of 2017.

## **Part II: Collection of Relationship Data**

My dissertation advisor served as the lead investigator for the network analysis phase of the study in order to preserve my objectivity when conducting the key informant interviews about the network plots. I and my advisor worked closely during the network analysis portion of the research, but with my advisor in a lead role. To gain access to the research field for this study, the research team (candidate and advisor) worked with a sponsor/facilitator, the United Way of the Roanoke Valley. As the sponsor/facilitator of the project, the United Way's representatives influenced the definition of the network, its boundaries, and the types of relationships explored. The research team met numerous times with a group from the United Way during the summer and fall of 2016 to establish the network boundaries, the types of network relationships that would be explored, other questions that would be addressed during the inquiry, and how that data would be collected. The discussions were collaborative, as all involved sought both to address the scholarly aims of the research team and the strategic goals of the United Way.

For its part, the United Way sought to understand more fully the existing network of relationships currently among its partner organizations (community nonprofits it was funding) and other agencies and organizations with the goal of developing ways and means to engage the entire group in an initiative aimed at reducing the total number of

families living in poverty in its service region. This effort was known as the Family Self-Sufficiency Initiative. The United Way leaders intended to restructure their organization's grant making to encourage collaborations amongst those it funded to secure that overarching goal.

Initially, the boundary for the network study consisted of current United Way partner organizations and a few additional stakeholders identified by that organization's leaders as significant to the new initiative. Following discussion, the study's planning team eventually decided to include many additional public and nonprofit agencies that were not current United Way partners, but which could play roles in helping families achieve self-sufficiency. Ultimately, we identified two distinct groups as important for the study—public and nonprofit human service agencies that would be engaged directly in relevant service delivery and a broader network of supporting and peripheral organizations. The core group consisted of single- and multi-program agencies with specialties in education, health and/or income. Some agencies had cross-cutting programs that spanned many of these foci, while others provided offerings with different foci. Still other entities offered single programs with specific foci. The broader network was comprised of area businesses and employers, government units, schools and ancillary nonprofits and an array of faith-based organizations. While the United Way's leaders considered including additional programs and organizations suggested by the research team that group ultimately decided which entities to include. In several cases, the charity's leaders chose to include only a few selected programs from larger multi-program organizations. The final roster included 72 programs in five categories—21 cross-cutting, 18 education-focused, 22 health-focused and 7 income/employment-

focused programs, plus 4 United Way coalitions. The broader support network was comprised of 10 ancillary/faith/community programs, 11 governmental units, 15 business/employers, 3 institutions of higher education and 7 public schools for a total of 46 support organizations. Although potentially important, broader network participants were less connected and involved in the family self-sufficiency initiative and would generally not have had all the types of relationships we were exploring. We were also less interested in their relationships with each other than with their relationships to organizations in the core network. For these reasons, we decided to survey the two groups separately asking the broader network only about a subset of relationship types with organizations in the core network.

United Way representatives identified respondents from each program or organization to complete the study survey. In some cases, the charity's leaders worked through organizational or program leaders to identify appropriate program representatives. In a few cases, they identified multiple respondents per program. In some cases, the initially selected respondent was not available and the organization provided a substitute to complete the survey.

The study principals worked with United Way leaders to identify four types of relationships we believed to be significant for understanding the network and how the United Way wanted it to begin functioning. Those relationships included information sharing, coordinated referrals, integrated services and shared resources. The research team and United Way leaders developed a set of definitions and examples to help respondents understand what each term described (See Table 2).

Table 2

*Type of Tie*

<b>Information Sharing</b>	Relationships that involve routine conversations between program staff, sharing information about the other program with your clients, making referrals to that program (but not actively connecting clients to the other program)	Example: A client is enrolled in your employment program and your staff provides information about a counseling program. Your staff does not follow through to see if the client is eligible, if he seeks the service, or what the outcome is.
<b>Coordinated Referrals</b>	Formal relationships for channeling and managing referrals that ensure follow up, prescreening referrals for eligibility for the other program, joint client applications/intake, referral confirmation, and consent to share client information across agencies programs	Example: A client is enrolled in your substance abuse recovery program and your staff assists the client in getting connected with a job training program. Your staff follows up on the referral and ensures the client is enrolled and participating. Your staff and the job training staff jointly support the client until a job is secured.
<b>Integrated Services</b>	Planned service coordination, collaborative case management, cross-agency staffing, shared personnel, co-location, or shared data tracking	Example: Clients in your early childhood program needs access to healthy foods. The food distribution program sets up on-site, your two programs track improvement in healthy food consumption for clients and share responsibility for educating clients on nutrition.
<b>Shared Resources</b>	Shared financial resources, purchased services, grant partnerships, or contractual obligations	Example: Your shelter program works alongside 4 other programs to apply for a collaborative grant and share the resources to serve the same target population. Clients are collaboratively case managed.

To help distinguish between relationships that might be critical to network function and those that might be ancillary, the researchers asked each respondent to identify the intensity (low, medium or high) of each relationship type they had with

programs on the roster (See Table 3). We defined intensity as a combination of importance and frequency to simplify data collection and hone in on the relationships with the greatest likelihood to influence network performance. Differences in relationship intensity reported by a dyad could also be an indication of an unbalanced relationship that is significantly more important to one partner than the other.

Table 3

*Relationship Intensity*

<b>Intensity of Tie</b>	<b>Description</b>
Low Intensity	Not an especially important or frequent link
Moderate intensity	A moderately important or moderately frequent link
High intensity	On-going interactions or a link that is very important to your organization

The team developed a pair of survey instruments to collect relationship data, one for the core group of service providers and one for the broader support network members. The survey instrument for the core group addressed all four relationship types with other members of that group and two relationship types, information sharing and shared resources, with participants in the broader network. The survey instrument for the broader network asked only about their information sharing and shared resources with programs in the core service network and not about their relationships with each other. In addition to relationship data, we used the survey to collect information about perceived gaps in services and basic program demographics. The survey also included a set of questions about trust (for a separate research project being conducted by my advisor). Appendix A contains the Institutional Review Board (IRB) documents for that phase of the research reported here.

We offered respondents from the core service group several opportunities to complete the survey in a group setting, providing computers for attendees to respond to the online survey. That approach allowed the research team to provide additional contextual information and instructions to respondents. It also provided those individuals an opportunity to ask questions and obtain clarifications (Lemaire & Raab, 2020). We used Qualtrics, an online survey instrument, for data collection. If at least one representative from a program/organization could not attend any of the group sessions, the United Way sent them a link to an online version of the survey and offered them the opportunity to complete that instrument on their own. We only offered respondents from the broader support network a link to complete the survey independently. The United Way offered a drawing for a \$50 gift certificate in each session to incentivize participation in the group surveys.

Since network analyses require a very high response rate, the team undertook significant efforts to obtain replies from all organizations in the core group. United Way staff members led efforts to secure responses through multiple email, phone and in-person contacts. Ultimately, representatives of 69 of 72 targeted programs/organizations in the core services group responded (a 96% response rate), although during follow-up efforts, United Way staff inadvertently sent 4 core group members the survey instrument for the broader network. That fact meant that the investigators could only gather data on information sharing and shared resources from those responses. Only 14 of 46 targeted respondents in the broader support network (a 30% response rate) returned a completed survey. That low response rate meant only limited use of that data was possible in analysis.

### **Part III: Network Analysis**

As mentioned above, in order to preserve participant's perceptions of my objectivity, my dissertation advisor conducted most of the network analysis. I provided limited technical support. My advisor selected and prepared the network plots included in the network analysis report.

The research team used only confirmed ties for the network plots for the core group. For research studies of this type, researchers generally prefer confirmed ties because it is argued that confirmed ties represent stronger and more significant relationships (Lemaire & Provan, 2018). Because of the low response rate from the broader support network, we used a mixture of confirmed and unconfirmed ties for plots for that group.

For the few programs that had multiple respondents, we aggregated their responses to generate a single relationship profile for their program/organization. Because of the large number of programs in the core service network, only one plot showed relationships at the program level, all other plots displayed relationships aggregated to the organizational level. In two instances, because of significant differences in the types of relationships reported, we decided to present some programs separately from their parent organizations. We represented TAP Head Start and 211 separately from the other programs in their home organization, for example.

To provide consistency across plots, we used a standard system to translate network data to visual representations. Table 4 presents our strategy for doing so.

Table 4

*System of Representations Used in Network Plots*

<b>Symbol</b>	<b>Meaning</b>
Node Color	For the core service network, we used color to indicate the programmatic focus of the program/organization—red for cross-cutting, green for education, yellow for income/employment and blue for health.
Node Shape	For the core service network, we represented all programs/organizations as squares, except for coalitions, which were represented as darkened squares with an internal colored circle. For the broader network, shapes represented specific types of organization—circle for ancillary/faith-based/community organizations, diamonds for businesses/employers, double triangles for governmental units, up-triangles for public schools and down-triangles for higher education. We used circles to depict shared priorities in the Gap Priorities plot.
Node Size	Node size represented total number of ties.
Node Borders	Thick node borders indicated that the program/organization responded to the survey. Thin node borders indicated non-respondents.
Node Labels	We used node labels to name programs/organizations. Names are somewhat larger than is typically used (up to 15 characters) to provide a phonetic representation of the organization name, allowing viewers to identify the program/organization without using a key.
Line Thickness	We used line thickness to reflect relationship intensity. Thinner lines represented less intense relationships and thicker ones more intense ties.
Line Color	We used line color in one plot to represent relationship multiplexity—red for all four relationships, orange for three relationships, blue for two relationships and grey for one relationship.

In addition to the network plots, we calculated whole network statistics. However, we presented only density and centralization in the network plots. Density is the number of ties relative to the number of possible ties and centralization is a measure of how important central actors are to the function of the network (Wasserman & Faust, 1994).

**Part IV: Network Plots**

The plots in Figures 12–25 emerged from the network analysis. I used these visuals as the objects of interest in the sense-making phase of this research. My advisor

presented these images to a large group of respondents and stakeholders during a program in February of 2017, but we did not distribute paper or digital copies of the plots at that time. I provided key informants for the sense-making phase of the study a PDF of the plots (and the relationship definitions) to review prior to their interviews. In addition, the United Way made the full report, including the network plots, available on its website following completion of my key informant interviews in the summer of 2017.

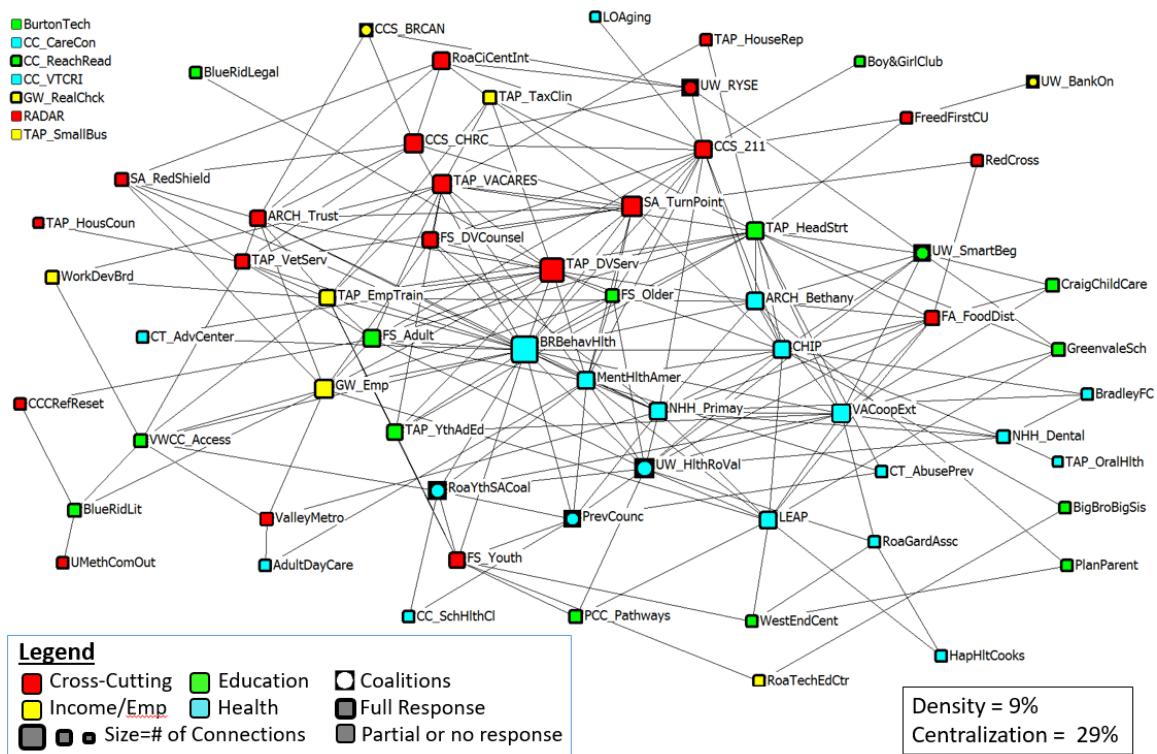


Figure 12. Any confirmed tie at the program level.

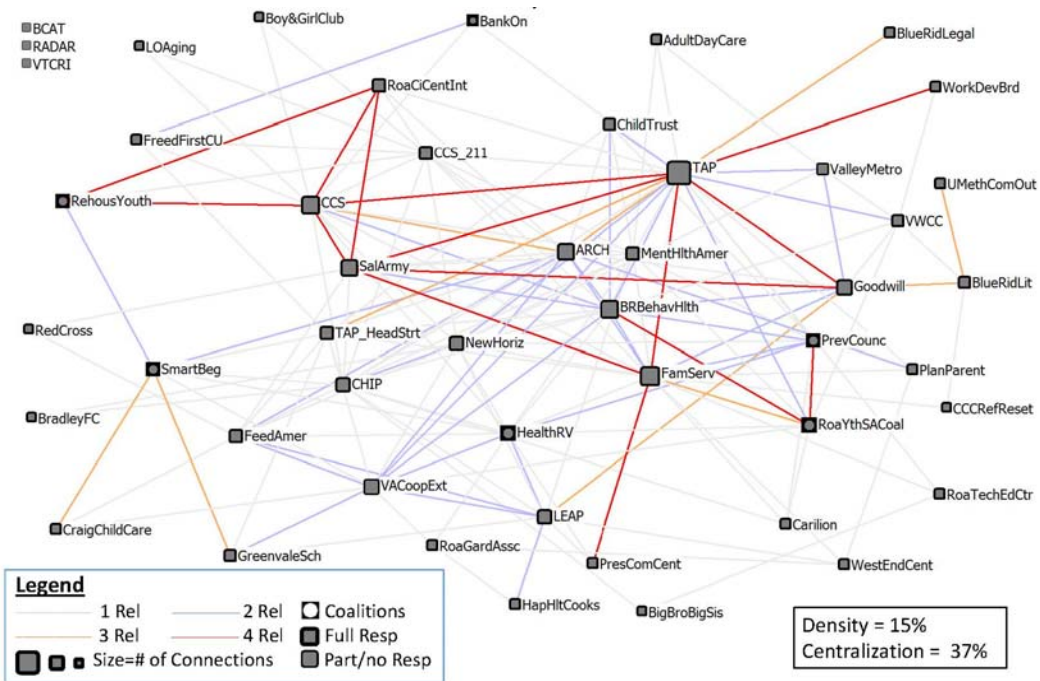


Figure 13. All confirmed relationships (organizational level).

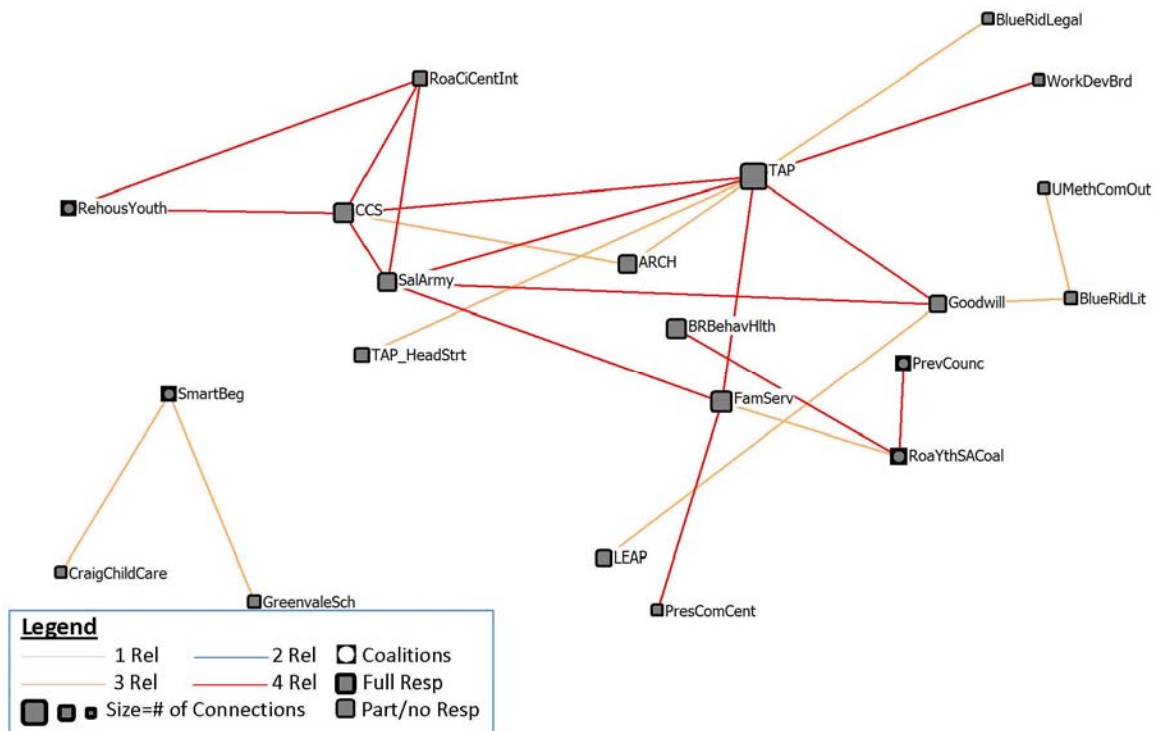


Figure 14. Most robust confirmed relationships (organizational level).

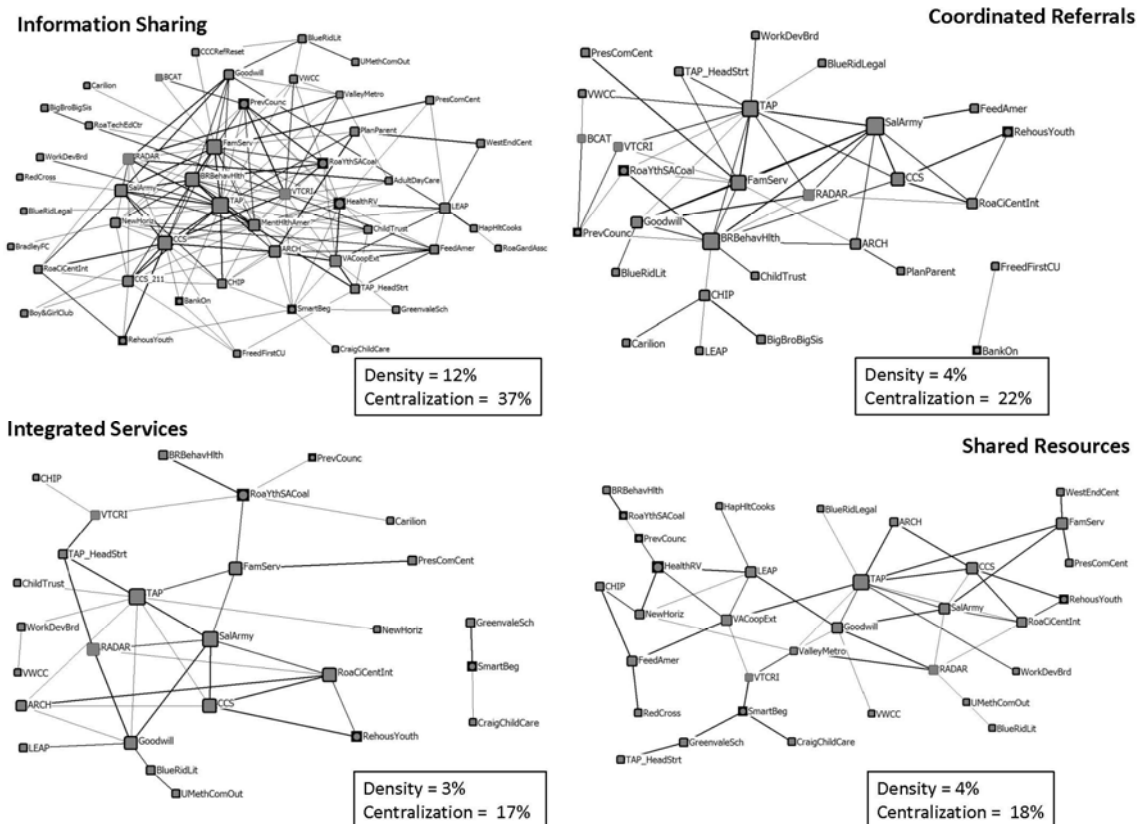


Figure 15. All four relationship-type plots side by side.

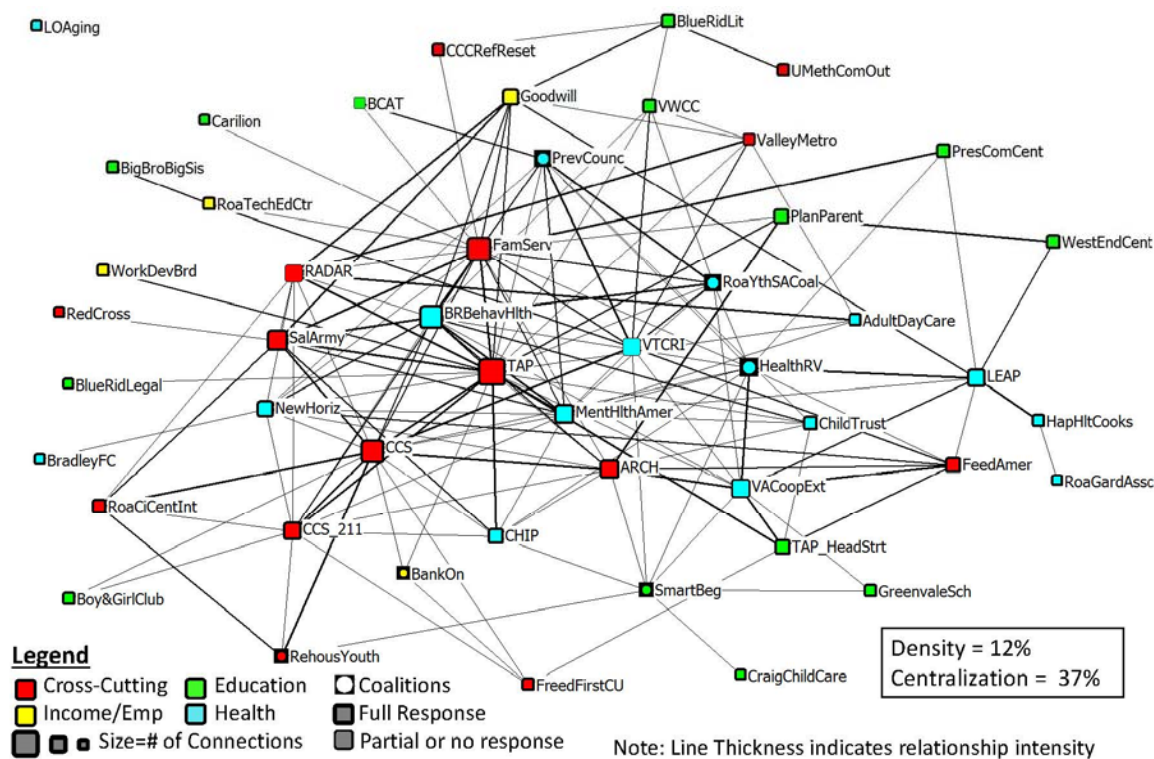


Figure 16. Confirmed information sharing.

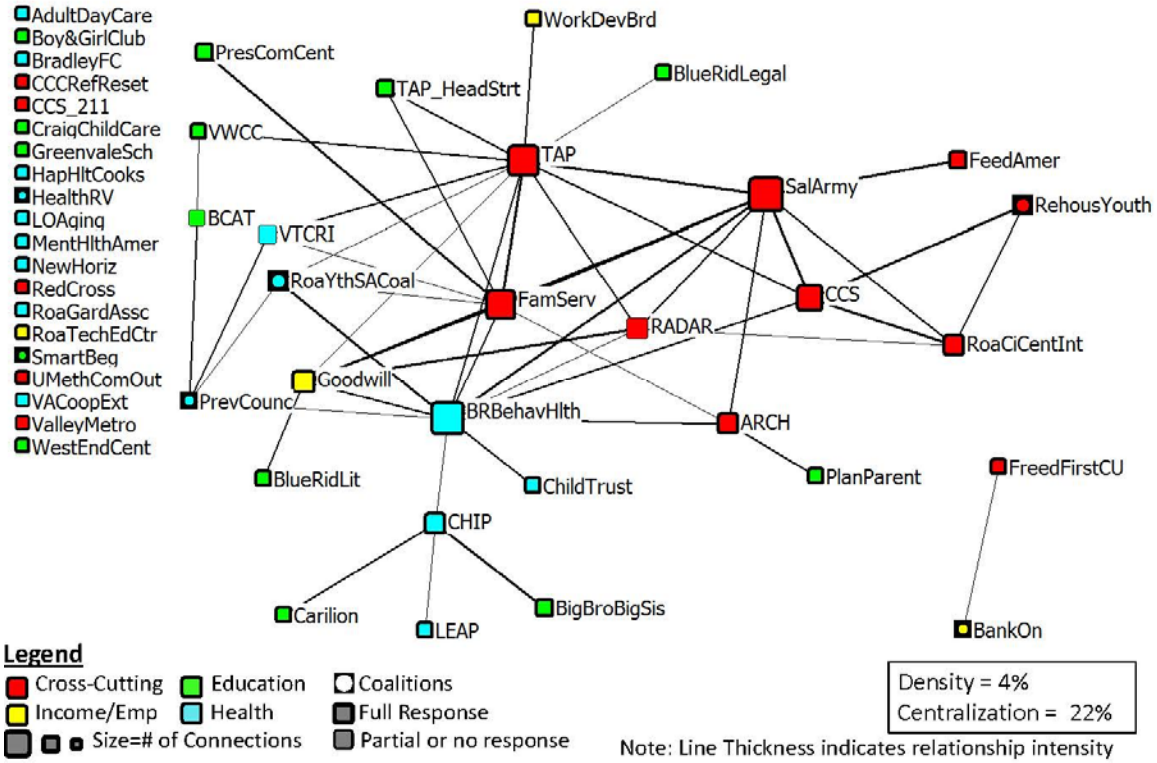


Figure 17. Confirmed coordinated referrals.

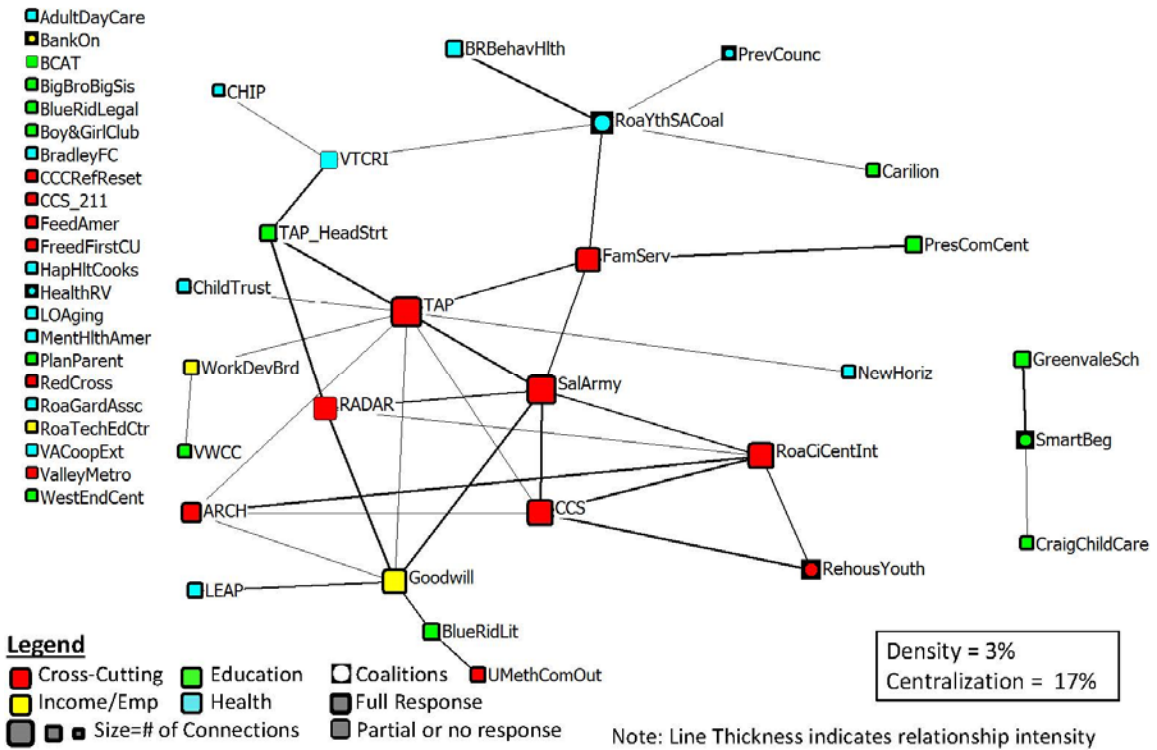


Figure 18. Confirmed integrated services.

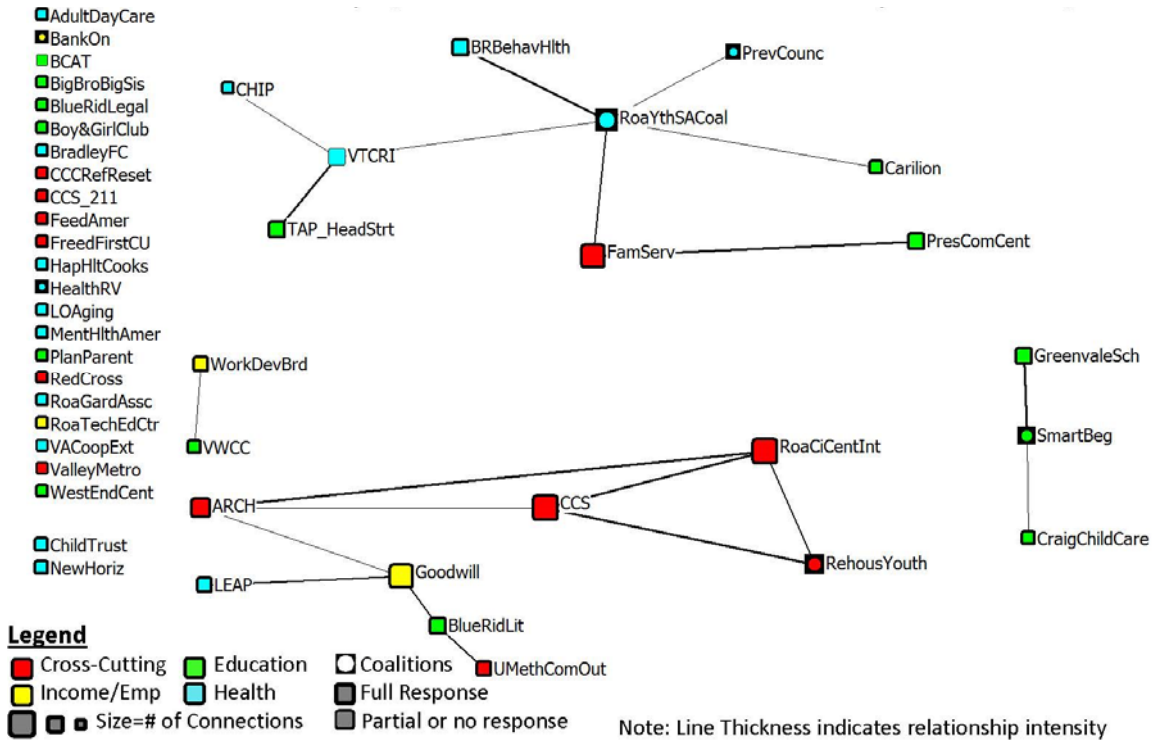


Figure 19. Services fragmentation with removal of TAP and Salvation Army (and RADAR, a nonrespondent).

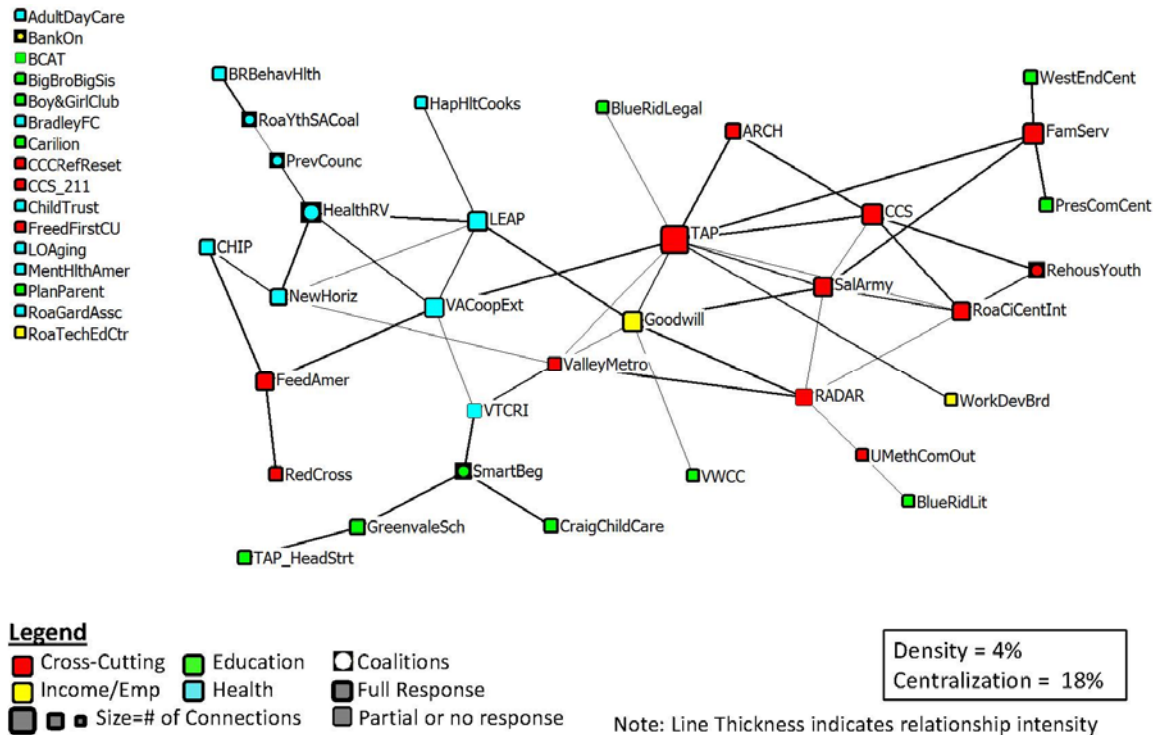
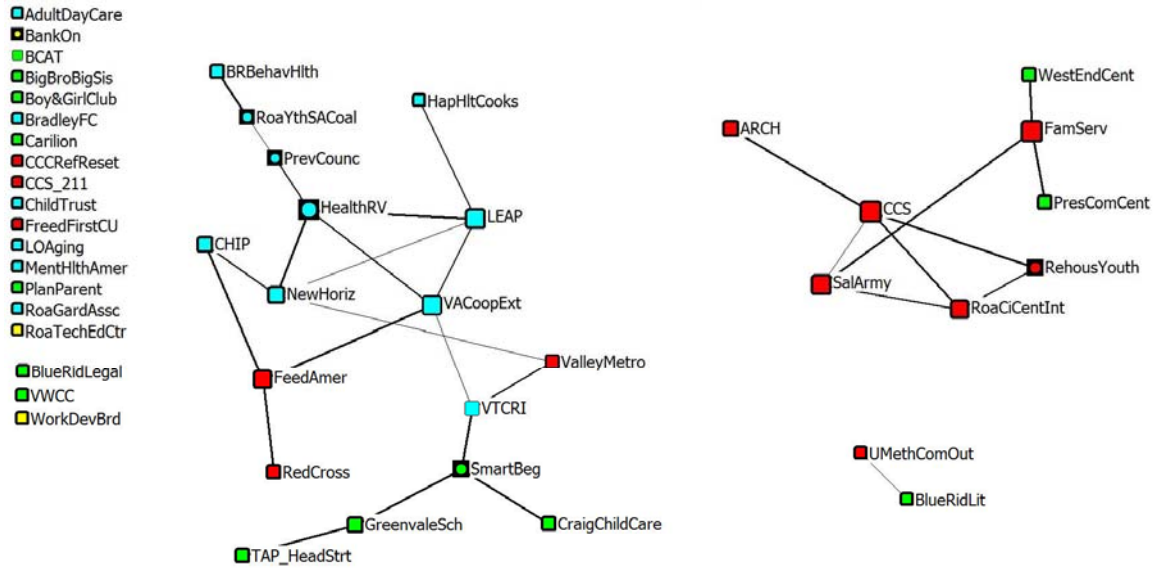


Figure 20. Confirmed shared resources.



**Legend**

- Cross-Cutting
  - Education
  - Coalitions
  - Income/Emp
  - Health
  - Full Response
  - Size=# of Connections
  - Partial or no response
- Note: Line Thickness indicates relationship intensity

Figure 21. Resource fragmentation with removal of TAP and Goodwill (and RADAR, a nonrespondent).

## Broader Information Sharing Network

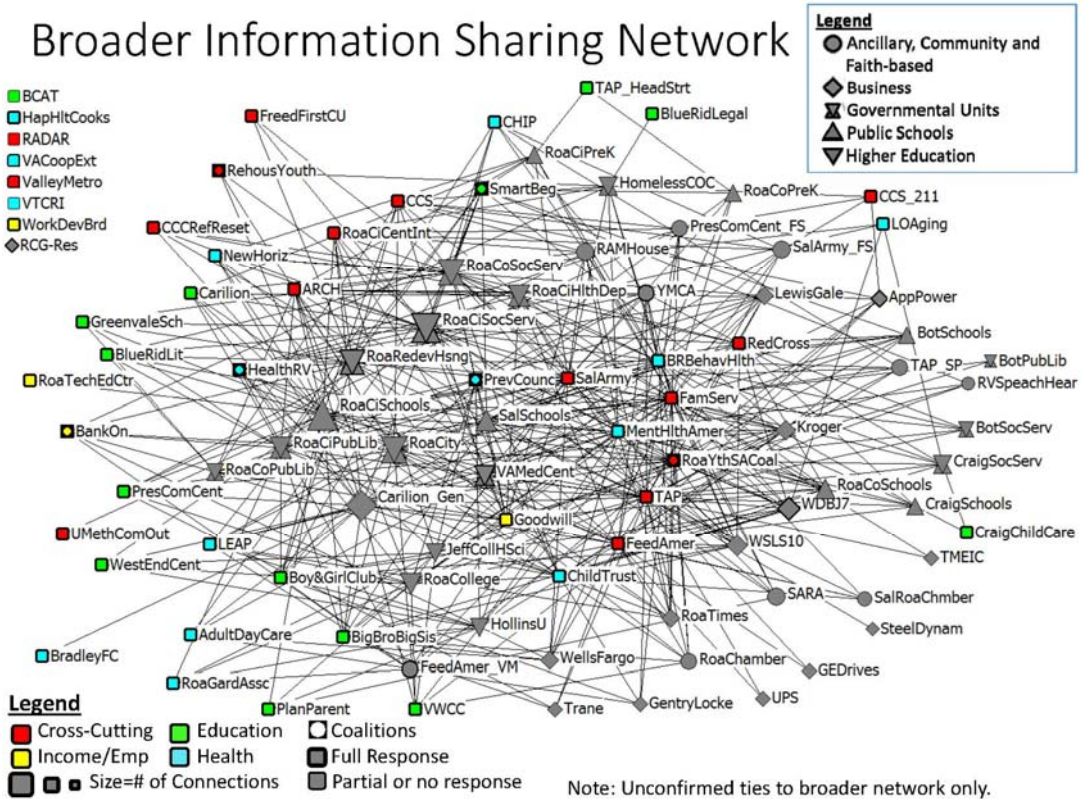
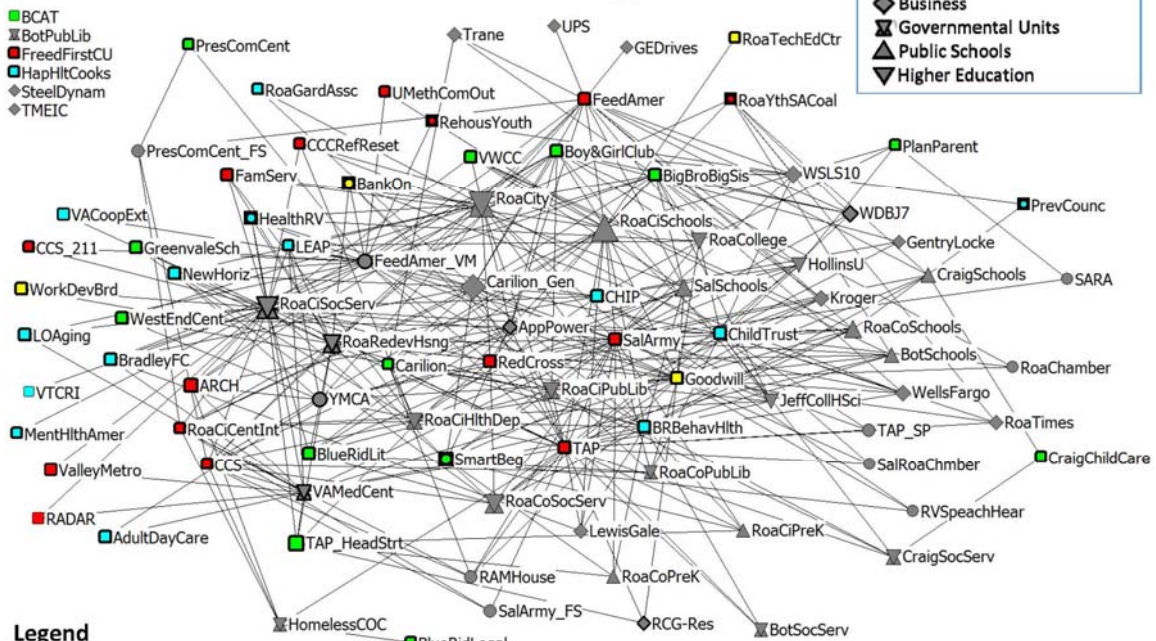


Figure 22. Broader information sharing network.

# Broader Resource Sharing Network



Note: Unconfirmed ties to broader network only.

Figure 23. Broader resource sharing network.

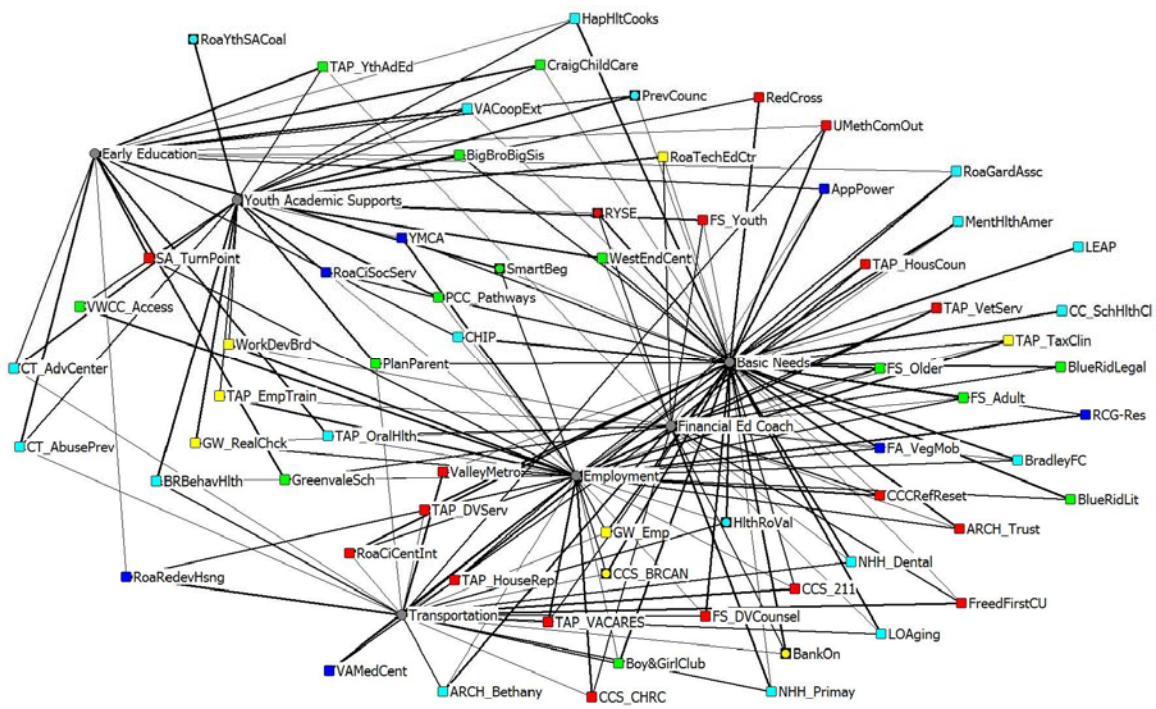


Figure 24. Gap priorities.

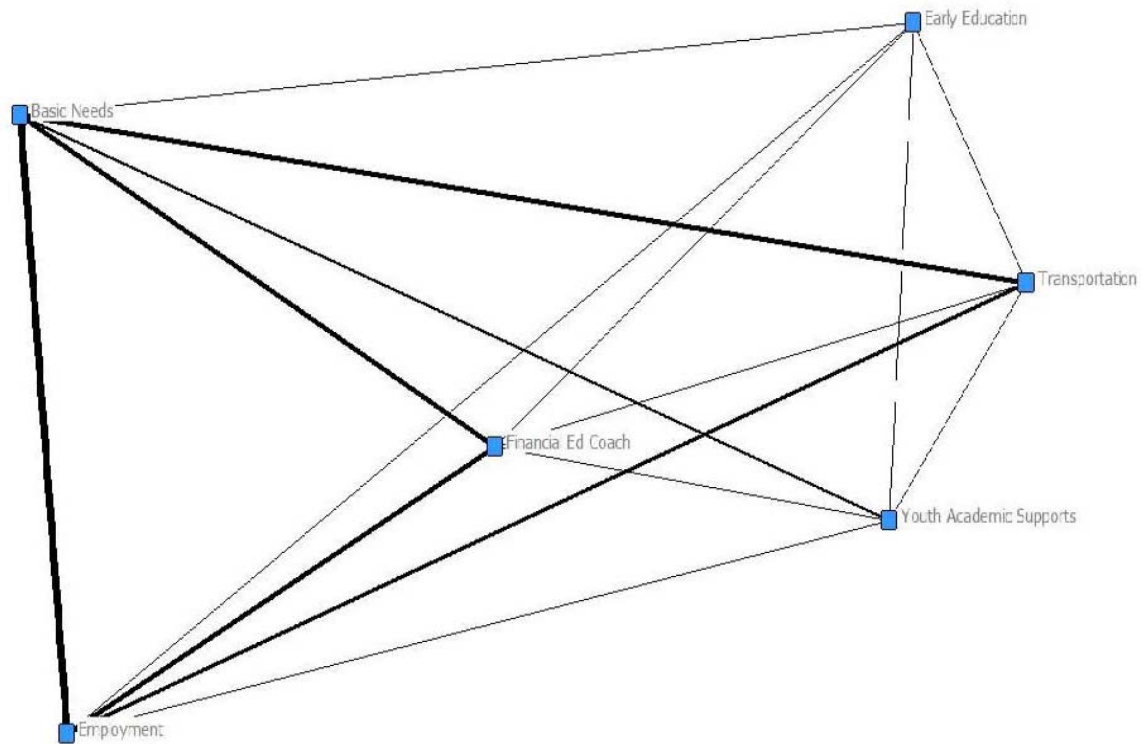


Figure 25. Linked gaps.

Table 5 presents the number of times that informants identified the plot or group of plots as an object that they wished to discuss in their follow-up sense-making interview with me.

### Part V: Key Informant Selection and Recruitment

I selected most interview candidates from responding programs/organizations based on their service area focus and network position. Additionally, I selected a few other interview candidates from key stakeholders in the United Way strategic planning process. I selected a diverse range of potential interviewees to represent different network positions, including central actors, bridges, outliers and isolates.

Table 5

*Popularity of Plots for Interview Discussion (Out of 11)*

<b>Plot Group</b>	<b>Number of times identified for discussion</b>
Any Confirmed Tie at the Program Level	7
All Confirmed Relationships (Organization Level) & Most Robust Confirmed Relationships	0
All Four Relationship Type Plots Side-by-Side	0
Confirmed Information Sharing (Organization Level)	2
Confirmed Coordinated Referrals (Organizational Level)	1
Confirmed Integrated Services (Organizational Level) & Service Fragmentation with Removal of TAP & Salvation Army (and RADAR – a Non-respondent)	6
Confirmed Shared Resources (Organizational Level) & Resource Fragmentation with Removal of TAP & Goodwill (and RADAR – a Non-respondent)	3
Broader Information Sharing Network	0
Broader Resource Sharing Network	2
Gap Priorities	5
Linked Gaps	2

I also sought diversity with respect to the type of program or service offered within the United Way’s family self-sufficiency framework (See Table 6). My goal was to obtain a variety of perspectives from actors occupying different positions within and outside the network. Although my initial intention was to conduct only individual interviews, some informants working in different programs within the same organization requested to be interviewed together as a group. As a result, in addition to 8 individual interviews, I conducted 3 group interviews with multi-program organizations where I included an additional 11 informants representing different programs from within those organizations

that matched my selection criteria. To distinguish between the two types of interviews, I label individual interviews with the word 'Interview' followed by the assigned informant number and I label group interviews with the word 'Group' followed by the range of assigned informant numbers for those present. By including some group interviews in addition to the individual interviews, I was able to observe how the group dynamic of sensemaking differed from individual sense-making. I conducted interviews until I reached information saturation and obtained a diverse pool of responses (ultimately 11 individual or group interviews). I recruited potential informants by email and/or telephone and emailed them a copy of the informed consent form before scheduling their interview. As a part of the actual interview, I asked if they had any questions about their participation in the study, solicited permission to record the interview and obtained their signature on the consent documents. I audio recorded all interviews. Table 6 presents the categories for targeted interviews and the results of my attempts to obtain respondents for each category. If I was able to schedule an interview with my first-choice informant, I indicate "Target interview obtained." If I was not able to schedule an interview with my first choice, but could identify an alternate with a similar program focus and network position, I indicate "Alternate interview obtained." If I was unable to secure an interview with anyone in the category, I indicate "No interview obtained."

I contracted with a service to transcribe the interview audio recordings. I asked a representative of the firm to sign a declaration indicating that its employees would honor the confidentiality of the responses they transcribed. I assigned numerical study codes to each informant to help preserve informants' confidentiality as promised in the consent documents. I identify interviewees below only by their assigned codes, although the

content of some discussions could potentially reveal the identity of an informant to someone familiar with their service network. I sought to do all I could to preserve interviewee confidentiality. I maintained a code book linking study codes to actual informants in a secure file cabinet.

Table 6

*Interviews Targeted and Obtained*

Program Focus	Network Position	
	Central or Bridging	Peripheral or Isolate
Adult Education	Target interview obtained.	Unable to schedule targeted interview, previous person left and new person in role indicated they do not have adequate knowledge. Substitute identified from a different organization and included in a group interview. Alternative interview obtained.
Child/Youth Education	Targeted individual too busy to be interviewed. Substitute interviewee from alternative organization identified. Alternative interview obtained.	Target interview obtained.
Health Services	Target interview obtained.	Three attempts with different organizations. One was leaving the position and two others suggested they were too busy for an interview. No viable substitutes available. <b><i>No interview obtained.</i></b>
Income/Workforce	Target interview obtained.	Target Interview obtained
Other Human Service	Target interview obtained.	Targeted individual unavailable. Substitute from a different organization identified and agreed to be interviewed. Alternative interview obtained.
Coalitions	Targeted individual missed initial interview date. Unable to commit to new time. Substitute from a different	Target interview obtained.

	organization identified and included in another group interview. Alternative interview obtained.	
External Stakeholders	Target interview obtained.	Target interview obtained.

## Part VI: Interview Methodology

SMM interviews can be quite long (consuming as much as two hours) and quite repetitive. Before beginning a SMM interview it is important for the researcher to acknowledge the length and repetition, but to assure the informant that it is intentional and aimed at deepening the communication. The interviewer should also give interviewees permission to pass on addressing a query or indicate that they have already talked about an item or concern. To gauge interview duration and evaluate the depth of responses gained, I conducted a test interview with a participant from a different SNA study. That individual found it difficult to understand what information I was seeking to elicit. Based on that experience, I developed a more direct probing question to add to each category of sense-making questions (i.e. situations, gaps, bridges and outcomes).

I addressed the research questions associated with this study with data obtained from key informants using Dervin’s SMM situated micro-element interview method. The plots presented above served as the objects of the sense-making explored in the interviews. Dervin’s highly developed approach to interviewing aligns with SMM’s overall philosophical approach and intellectual commitments. I employed the situated micro-element interview (described below) as the primary framework for selecting objects of inquiry and for exploring those objects from user (interviewee) perspectives. Appendix B contains the IRB documentation for the interview phase of this research.

Before the interviews, I provided informants with a copy of the network plots from the SNA presentation for reference and a copy of the informed consent form for them to review and sign. At the beginning of the interview, I read them a brief description of the SMM interview process that included instructions for how to respond if they felt the questions were getting redundant or if they felt they had already addressed the question. I also gave interviewees a chance to review the consent form once more and ask any questions about it. They then signed the consent form before the interview proceeded.

The SMM interviewing approach prohibits interviewers from injecting their own nouns (frameworks, conceptions, vocabularies) to “leave the informant entirely free to name and map the world” (Dervin, 2015, p. 69). Within SMM, the “critical entry” is the one occasion when the researcher can introduce their nouns by focusing the informants’ attention to the object or phenomenon being studied. For this study, the critical entry took the following form:

Please take a look through the network plots to refresh your memory. Please think back to the presentation of the data from the network study and your subsequent review and study of the network plots. Are there two or three of the network plots which you found most interesting and informative? Which? Any others? Which three were most important? Any others? Which were the most important?

The plots selected by informants served as the *objects* for follow-up SMM interview questions. The interviews focused on up to three objects (network plots) identified by the informant as interesting or significant, one at a time. I offered the following prompt for each object identified, followed by the SMM questions (See Table 9 for the of interview questions): “What do you see in this that makes it important? What did you learn from it? What does it mean? What do you take away??”

All SMM questions come from a theory-driven list of open-ended non-leading questions, developed and adapted during many years of use and testing. Although very prescriptive overall, there is also “both room and necessity to adapt the interviewing approach to specific research needs” (Dervin, 2015, p. 67). However, the interviewer must, “limit their questions to the SMM core set while at the same time being flexible in their use” (Dervin, 2015, p. 69). For this research, I grouped SMM questions into four sections designed to tap the situation, the gaps, the bridges and the helps/outcomes.

The idea of Level 2 triangulation is central to the SMM approach. Level 2 triangulation in this method is the practice of taking a response to a Level 1 question (called an SMM *element*), and applying the same battery of questions to elicit additional thoughts and insights concerning it through elaboration. According to Dervin (2015), “interviewers do not necessarily do a complete level 2 triangulation on each element elicited in level 1” (p. 70) but can be selective in targeting seemingly significant responses. For this study, I selected no more than one or two responses from each category (situations, gaps, bridges and helps/outcomes) as a Level 2 *element*. I then asked additional questions from the listing about those elements to unpack them with interviewees. To aid in this process, I kept hand written notes to help identify interesting *elements* and I added those SMM elements to the grid on the question sheet. I explored each of the SMM *objects* through Level 2 triangulation on selected SMM *elements* with each interviewee before turning to the next *object*. Appendix C contains a summary of my field notes concerning the objects selected by informants and potential elements that emerged from Level 1 questioning that I noted as potential elements for Level 2 triangulation, although I did not explore all items noted at Level 2. Appendix D contains

a hypothetical overview of an invented SMM interview as an illustrative example of the process.

Table 7 presents the Level 2 elements and other probes explored in the interviews that emerged more than once. Many elements and probes only emerged one time, but only those that emerged multiple times are included in the table.

Table 7

*Repeated Level 2 Triangulations and Probes*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total
<b>01 : Elements &amp; Probes (Total)</b>	<b>14</b>	<b>8</b>	<b>8</b>	<b>6</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>9</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>73</b>
03 : Big corporate vs little grassroots	1	0	1	0	1	1	0	0	0	0	0	4
09 : Centrality of own org	0	1	0	1	0	0	0	0	0	0	0	2
14 : Competition for resources (fixed pie)	0	0	1	0	0	0	0	1	0	0	0	2
17 : Education and income (missing)	1	0	0	1	0	1	0	0	1	0	0	4
20 : Fragmentation	1	0	0	1	1	1	0	0	1	0	0	5
27 : Large Jurisdiction	0	1	0	0	0	0	0	1	0	0	0	2
30 : Missed Opportunities	0	0	0	0	0	0	0	1	0	0	0	1
31 : Missing (General)	1	0	0	0	0	0	1	1	0	1	1	5
34 : Outliers and Isolates	0	0	0	1	0	0	0	0	1	0	0	2
43 : Self Sufficiency System	1	0	1	1	0	0	0	0	0	0	0	3
51 : UW Framing	0	1	0	0	1	0	1	0	0	0	0	3

## **Part VII: Interview Questions/Protocol**

The battery of questions used in the sense-making interview has evolved over time and has taken somewhat different forms in different studies (Dervin et al., 2003). For this study, I separated the questions into categories designed to help tap situations, gaps, bridges and helps/outcomes. I did not ask all questions concerning each object or element. In addition, I sometimes used general probing questions—typically in the form of “Please tell me more about X.” Table 8 presents the SMM questions and the number of times I asked each during the interviews I conducted. Appendix E contains a reproduction of the SMM interview questionnaire that I used.

## **Part VIII: Analysis and Coding of Interview Data**

**Transcription.** Once the interviews were completed, I assigned a study code to the audio recording of each interview and provided the audio recordings to a commercial transcription service (TranscribeMe.com). Although I had planned to begin coding each interview immediately upon receipt, rather than waiting for all interviews to be completed, the quick pace of the scheduled interviews and a slight delay in securing the transcription service meant that I did not begin coding until after I had completed all the interviews. Once I received the interview transcripts from the transcription service, I loaded them into NVivo 11 for coding and analysis. I then conducted several iterations of coding, starting with open coding and moving toward more focused coding as patterns began emerging and then to theoretic coding when the patterns identified appeared to have implications for the research questions I had posed.

**Open coding.** I undertook open coding in two blended phases. Initially, rather than assigning specific codes, I reviewed transcripts and identified “significant

quotations.” These were responses that seemed significant on review and which I thought might be important to later analysis. As the coding process proceeded, patterns in responses began to emerge and I assigned specific codes to significant informant observations. As the analysis progressed, I abandoned the “significant quotations” placeholder and began assigning specific codes instead. Later, I returned to the portions of the transcripts initially assigned as a “significant quote” and coded them with more specific codes.

Table 8

*Interview Questions and Number of Times Used*

<b>Question</b>	<b>Times asked</b>	<b>Number of Interviews</b>
1. <u>What do you see in this that makes it important? What did you learn from it? What does it mean? What do you take away?</u>	39	11
a. What has been happening that makes it important?	34	10
b. What have you been trying to deal with?	6	4
c. What led up to this? What brought you to this point?	2	2
d. How does that connect with past events?	13	8
e. Have you experienced this before? Explain?	3	3
f. What in the current situation empowers or constrains?	7	5
g. And how has this affected how you see yourself?	0	0
2. <u>To tap gaps: What situations could this help you address?</u>	7	5
a. What have been your big questions?	2	2
b. What has been confusing? What have you been trying to unconfuse, figure out, learn about?	17	7
c. What have you struggled with?	1	1
d. What has been missing?	22	10
e. What has had you stuck?	5	3
f. How has that stood in the way?	9	6
g. How has this prevented you from getting help?	0	0
3. <u>To tap bridges: How would you use it?</u>	7	5
a. What conclusions/ideas have you come to?	4	4
b. What emotions/feelings have you come to?	10	8
c. What leads you to that conclusion/idea/emotion/feeling?	1	1
d. How would that evaluation connect with your situation?	1	1
e. What has been limited or incomplete about that?	0	0

Question	Times asked	Number of Interviews
4. <u>To tap outcomes sought or obtained: What would happen from using it?</u>	0	0
a. Where is this all going?	7	5
b. How might that help? And how might that help?	19	8
c. How might that hinder? And how might that hinder?	4	3
d. How might that harm you? And how might that harm you?	0	0
e. How might that constrain you?	2	2
f. How might that empower you?	1	1
g. If you had a magic wand, where would you take this?	3	3
h. What would that allow you to do/achieve/think?	0	0
5. Probing questions. Generally of the form of “Please tell me more about X.”	55	10

Within the open coding scheme, I assigned a code, usually of one to three words (but sometimes more), to provide a meaningful label to the passage I was examining. Many of these codes ended up being unique, or not recurring often. For those that emerged repeatedly, I used the same code. Occasionally, I merged codes if they were very similar, but to which I had initially assigned different labels. Eventually, categories of similar codes began to emerge allowing for grouping, which facilitated the open coding process.

These were codes relating to the following concerns:

1. What informants saw in the plots
2. Potential uses of the plots
3. Problems with the study
4. Impediments to collaboration
5. Other issues

**Focused coding.** Based on the groups that emerged from open coding, I developed a scheme for focused and theoretic coding and I reviewed all transcripts seeking to identify statements related to those focused codes. I conducted focused coding

concerning three themes that emerged from interviewee responses—1) what they saw in the plots, 2) any potential uses of the plots, and 3) missing relationships and other suggested problems with the study. I did not attempt additional focused coding around impediments to collaboration or other issues that interviewees raised, as the coding appeared adequate for use in addressing my research questions. Tables 9–11 present the frequency of focused codes across the interviews.

**Theoretic coding.** I conducted theoretic coding concerning two theory-driven themes that emerged from a confluence of the open coding with the network and sense-making theory underpinning this research—1) the perspectives of informants and 2) their sense-making strategies. According to the analytical framework I presented in Chapter 2, the perspectives of informants could provide some insight into alignment, misalignment or tensions among individual, organizational or network levels of performance and how those relate to perceived changes in network action and network structure.

The interviewees' sense-making strategies potentially illuminate the extent to which the new information with which they were presented (the network plots) led each to thought capable of action (phronesis). Tables 12 and 13 present the frequency of theoretic codes across the interviews.

The next chapter presents examples from the various coding schemes and the analysis of the qualitative coding as it applies to the research questions.

Table 9

*Coding of What Informants Saw in Plots*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
1 : Big multi-program orgs play connective role	0	0	0	0	0	0	0	0	0	3	0	3	1
2 : Clustering of colors	0	0	0	0	0	0	0	0	0	2	0	2	1
3 : Clusters working together	0	0	0	0	0	0	0	0	0	2	0	2	1
4 : Coalitions functioning	0	0	0	0	0	0	0	0	0	1	0	1	1
5 : Confirmation	0	0	0	0	0	0	0	0	0	1	0	1	1
6 : Connections I think are missing	0	0	0	0	0	0	0	0	0	0	1	1	1
7 : Education at the edges	0	0	0	0	0	0	0	0	0	1	0	1	1
8 : Everybody has room	0	0	0	0	0	0	0	0	0	1	0	1	1
9 : Fragility and dependence	0	0	0	0	0	0	0	0	0	1	0	1	1
10 : General level of connectivity	0	0	0	0	0	0	0	0	0	1	0	1	1
11 : Groups I already knew were working together	0	0	0	0	0	0	0	0	0	2	0	2	1
12 : Insiders and outsiders	0	0	0	0	0	0	0	0	0	0	1	1	1
13 : Lack of Income Employment	0	0	0	0	0	1	0	0	1	1	0	3	3
14 : Less isolates	0	0	0	0	0	0	0	0	1	0	0	1	1
15 : Little guys over-excelling	0	0	0	0	0	0	0	0	0	0	1	1	1
16 : Missing actors	1	0	0	0	0	0	0	0	0	0	1	2	2
17 : Redundancy	0	0	0	0	0	0	0	0	0	0	2	2	1

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
18 : Silos	3	0	1	1	2	0	0	0	0	0	0	7	4
19 : Still collaboration without bridges	0	0	0	0	0	0	0	0	1	0	0	1	1
20 : Still Fragmented	0	0	0	0	0	0	0	0	0	0	1	1	1
21 : Things I/we did	0	0	0	0	0	0	0	0	0	1	0	1	1
22 : Tie Confusion	1	0	0	1	0	0	0	0	0	0	0	2	2
23 : Tiny guys doing OK	0	0	0	0	0	0	0	0	1	0	0	1	1
24 : Validation of beliefs	0	0	0	0	0	0	0	0	0	1	0	1	1
25 : We collaborate	0	0	0	0	0	0	0	0	0	0	1	1	1

Table 10

*Coding of Suggested Uses of Plots*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
1 : Any real utility	0	0	0	0	0	0	0	0	0	3	0	3	1
2 : Are an organization's own programs working together	0	0	0	0	0	0	0	0	0	3	0	3	1
3 : Benchmarking - comparing	0	0	0	0	0	0	0	0	1	0	0	1	1
4 : Building Clusters	0	0	0	0	0	0	0	0	0	1	0	1	1
5 : Clarifying Relationships	0	0	0	2	0	0	1	0	0	1	0	4	3
6 : Corporate interests	0	0	0	0	0	0	0	0	1	0	0	1	1
7 : Cross Sector connections	0	0	0	0	0	0	0	0	0	1	1	2	2
8 : Debunking United Way control	0	0	0	0	0	0	0	0	0	2	0	2	1
9 : Expedite planning by narrowing	0	0	0	0	0	0	0	0	0	1	0	1	1
10 : Facilitate differently	0	0	0	0	0	0	0	0	0	1	0	1	1
11 : Forces questions	0	0	0	0	0	0	0	0	0	1	0	1	1
12 : Get funding	0	0	0	0	0	0	0	3	0	0	0	3	1
13 : ground-setting	0	0	0	0	0	0	0	0	0	1	0	1	1
14 : Here I am. We are documented. Are we connected around this issue?	0	0	0	0	0	0	0	0	0	1	0	1	1

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
15 : Identify broader roles	0	0	0	0	0	0	0	0	1	0	0	1	1
16 : Identify conveners	0	0	0	0	0	0	0	0	1	0	0	1	1
17 : Identifying Hubs or backbones	0	0	0	0	0	0	0	0	0	2	0	2	1
18 : Knowledge Sharing	0	0	0	0	0	0	0	0	1	0	0	1	1
19 : Management seeing their connections	0	0	0	0	0	0	0	0	0	1	0	1	1
20 : Messaging	0	0	0	0	0	0	0	1	0	0	0	1	1
21 : New opportunities	0	0	0	0	0	4	0	1	4	1	0	10	4
22 : New partners or collaborators	0	0	0	0	0	0	0	0	1	0	0	1	1
23 : None	0	0	0	0	1	0	0	0	0	0	0	1	1
24 : One Stop - Central Intake	1	0	0	0	4	0	1	0	2	0	1	9	5
25 : Realign	0	0	1	0	0	0	0	0	0	0	0	1	1
26 : Reality Check	0	0	0	0	0	0	0	0	1	0	0	1	1
27 : Reducing complexity for funders	0	0	0	0	0	0	0	0	2	0	0	2	1
28 : Reference	0	0	0	0	0	0	0	0	0	2	0	2	1
29 : Self-reflective criticism or critique	0	0	0	0	0	0	0	0	0	1	0	1	1
30 : Shared interests	0	0	0	0	0	0	0	0	1	0	0	1	1
31 : Sharing reality	0	0	0	1	0	0	0	0	0	0	0	1	1
32 : Shows natural landscape	0	0	0	0	0	0	0	0	0	1	0	1	1
33 : Something to build on	0	0	0	0	0	0	0	0	0	1	0	1	1

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
34 : Survival	0	0	0	0	1	0	1	0	0	0	0	2	2
35 : Trigger Discussion	0	0	0	0	0	0	0	0	0	1	0	1	1
36 : Unlikely suspects	0	0	0	0	0	0	0	0	0	0	2	2	1
37 : Unrealized Potential	0	0	0	0	0	3	0	0	0	0	0	3	1
38 : What is the point?	0	0	0	0	0	0	0	0	0	1	0	1	1
39 : Who is at the table?	0	0	0	0	0	0	0	0	0	0	1	1	1
40 : Who is the interpreter?	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	1	0	1	3	6	7	3	5	16	28	5	75	10

Table 11

*Coding Missing Relationships and Other Problems With the Study*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
1 : Academic	0	0	0	0	0	0	0	0	0	1	0	1	1
2 : Arbitrary groupings	0	0	0	0	0	0	0	0	0	1	0	1	1
3 : Can't show multiple program foci	0	0	0	0	0	0	0	0	1	0	0	1	1
4 : Certain Organizations diminished or rendered invisible	0	0	0	0	0	0	0	0	9	0	0	9	1
5 : Confirmation (unconfirmed ties)	0	0	0	0	0	0	0	0	2	0	0	2	1
6 : Cross sector culture clash	0	0	0	0	0	0	0	0	0	0	1	1	1
7 : Graph separation	0	0	0	0	0	0	0	0	1	0	0	1	1
8 : Is this what I really said	0	0	0	0	0	0	0	0	3	3	0	6	2
9 : Labeling	0	0	0	1	0	0	0	0	0	1	0	2	2
10 : Leadership	0	0	0	0	0	0	0	0	0	0	1	1	1
11 : Need program and top-level responses to be complete	0	0	0	0	0	0	0	0	0	2	0	2	1
12 : No Two-Step Verification	0	0	0	0	1	0	0	0	1	0	0	2	2
13 : Not My Reality	0	0	0	5	7	0	7	0	4	4	0	27	5
14 : Partial Roll Up	0	0	0	4	1	0	0	0	1	1	0	7	4
15 : Presentation confusion	0	0	0	0	0	0	0	0	0	1	0	1	1
16 : Quality	0	0	0	0	0	0	2	0	0	0	0	2	1
17 : Questioning methodology	0	0	0	0	0	0	0	0	3	1	0	4	2
18 : Relationship Type Confusion	0	0	0	0	0	0	0	0	7	4	0	11	2
19 : Resources	0	0	0	1	0	0	2	3	0	0	0	6	3

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
20 : Respondents from big organizations know all relationships	0	0	0	0	0	0	0	0	0	1	0	1	1
21 : Snapshot in time	0	0	0	0	0	0	0	0	0	2	0	2	1
22 : UW Lens	1	0	0	0	0	0	0	0	2	2	0	5	3
23 : Visual Representation	0	0	0	0	0	0	0	0	3	5	0	8	2
24 : Wrong Respondent(s)	0	0	0	0	1	0	0	1	0	5	0	7	3
Total	1	0	0	11	10	0	11	4	37	34	2	110	7

Table 12

*Perspectives of Informants*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
1 : Business-like	0	0	0	0	0	0	0	3	0	0	0	3	1
2 : Client	2	1	1	0	3	0	1	1	1	0	0	10	7
3 : Community	1	0	1	0	0	0	0	0	0	1	2	5	4
4 : Family	3	0	5	0	0	0	0	1	0	0	1	10	4
5 : Network	8	1	0	0	0	2	0	1	0	2	0	14	5
6 : Own Organization	2	8	5	2	0	0	1	1	1	4	2	26	9
7 : Partner(s)	0	0	0	0	0	0	0	0	0	3	0	3	1
8 : Individual/Personal	0	0	0	0	0	0	0	0	0	0	0	0	0
9 : Regional	0	0	0	0	0	0	0	2	0	0	0	2	1

Table 13

*Sense-Making Strategies of Informants*

	Interview_001	Interview_002	Interview_003	Group_004_007	Interview_008	Interview_009	Interview_010	Interview_011	Group_012_013	Group_014_018	Interview_019	Total References	# Interviews Referenced
1 : Confuses - Missing or incomplete	4	2	0	0	5	3	7	2	11	10	3	47	9
2 : Confuses - Presentation (or does not see anything much)	0	0	1	0	0	0	4	0	6	8	2	21	5
3 : Surprises - Contradicts current understanding (about self or own organization)	0	0	1	5	1	0	0	0	0	0	0	7	3
4 : Surprises - Contradicts current understanding (about situation or others)	0	2	1	3	0	0	0	0	7	2	1	16	6
5 : Makes Sense - Confirms what I already believe (about self or own organization)	1	2	0	1	0	0	0	0	2	1	0	7	5
6 : Makes Sense - Confirms what I already believe (about situation or others)	4	1	2	3	0	0	0	0	4	6	1	21	7
7 : Makes Sense - New Information	1	0	0	0	0	0	0	0	1	2	3	7	4
Total References	10	7	5	12	6	3	11	2	31	29	10	126	
# strategies used	4	4	4	4	2	1	2	1	6	6	5	7	

## Chapter 4: Subject Area Findings

This chapter presents the subject area findings from the case and addresses the first four research questions. Question 5 is addressed in Chapter 6.

To review, I set out to investigate the following research questions in this study:

1. Do network participants make-sense of network plots in ways that could influence their collaborative actions?
2. If so, how do network participants make sense of network plots and what are the potential implications of that sense-making for network managers?
3. If not, why not? In those cases, what do participants think of the network plots and what are the potential implications for researchers and analysts?
4. What factors may influence the sense-making of individuals and how might sense-making vary based on those factors?
5. Based on the results of the investigation, what existing theories from the literature might further elucidate this process or what new theories could be developed and tested?

The first four questions are addressed in turn below.

### **Question 1a: Do Participants Make Sense of Network Plots?**

According to Dervin, sense-making is “behavior, both internal (i.e. cognitive) and external (i.e. procedural) which allows the individual to construct and design his/her movement through time-space. Sense-making behavior, thus, is communicating behavior. Information seeking and use is central to sense-making” (Dervin, 1983, p. 3). Although Dervin defines sense-making as “behavior,” I did not construct this study to garner its findings from observable behavior. Like most of Dervin’s own work on sense-making, I

used informant's self-reported cognitions and perceptions of potential uses or actions arising from information.

It may be clearer to define sensemaking in terms of what it *is not*, rather than what it *is*. Based on Dervin's definition, information that *does not lead to action* which helps an individual construct or design their movement through time-space, is not part of sense-making. Likewise, if an individual is not able to extract information from a purported information source or if it is meaningless to them, then it cannot lead to sense-making in Dervin's terms. Lastly, if an individual deems extracted information to be unreliable, it is unlikely to lead to sense-making; although, it could be an example of sense-*un*making where individuals draw on alternate information sources to resist powerful actors' interpretations and taken-for-granted implications for the uses of information that contradict an individual's own experiences, values, interests or sense of self. In some cases, an individual's sense-making/unmaking may present as a justification for inaction based on suppositions or unsubstantiated alternative explanations arising from sources other than the information being considered. Just because a plot "did not make sense" to an observer, does not necessarily mean that there is no sense-making going on. Similarly, just because a plot "did make sense" does not mean that they did engage in sense-making. Not every thought that arises by considering an information source constitutes sense-making. Finally, individuals may engage in sense-making, but that sense-making may not be related at all to the plots.

To help "make sense" of all these different situations, I present a typology in Table 14 of the intersections between cognition and actions that either do or do not constitute sense-making based on the patterns of responses I observed in my interviews.

Sense-making exists at the intersection of types of information extracted and potential uses of that information. I identified three different uses of information that constituted different types of sensemaking—two that represented movement and one that represented non-movement. For sense-making with uses related to movement, the sense-making could either support change or support resistance to change (which I treat as sense-unmaking). In the non-movement flavor of sense-making, individuals use information to reinforce or justify the status quo. In this table, I infer possible connections between the sense-making strategies I encountered in my interviews, with the likely hood that it could relate to a particular use. These inferences did not arise from my interviews because it was rare that I was able to get an informant to discuss potential uses in the context of how they were making sense of information they extracted from a plot. Instead these are inferred but logical connections that I will synthesize into a refined framework in Chapter 6.

Most informants in this study displayed multiple sense-making strategies across their interview since they were examining multiple pieces of information embedded in different plots. Additionally, informants potentially extracted information both from what was seen in the plots and from what was not seen. There were only a few examples where informants clearly connected the information that they extracted from the plots with related potential actions on their part, such as occurred in the following exchange:

Interviewer: Okay. So, if you want to flip to the coordinated referrals. Start there. All right. So, what do you see in this that makes it important? What do you learn from it, what does it mean, or what do you take away?

Informant: Okay. What I see in it that makes it important is that there seems to be a great deal of players in this, but they may not all be utilized.

...[probes on meaning, importance, feelings, things missing, etc.]...

Interviewer: How could you use this sort of view of what's out there happening and not happening within your own programs?

Informant: Well, I know that personally I'd definitely start reaching out to some of these places, and finding out what they do have, like a RADAR. Transportation is often a huge issue for our families and they may qualify based on many of them have disabilities or children with disabilities and different things--so that might be a place I would reach out to. Continue reaching out to Carilion and even try to reestablish a relationship with LEAP. Start looking into Big Brothers Big Sisters again, just seeing if they have an interest in getting back into a more coordinated referral type thing where we can refer students for a mentor. So yeah, I think it's a very useful tool to look and see who is connected and who is not, and where we can establish those connections. (Interview 009, 5/30/2017)

In this exchange, the informant connected the observation that the plot showed many unutilized players with a motivation to begin reaching out to establish coordinated referrals—one of the few clear indications I heard connecting information from a plot with a potential collaborative action. Informants rarely connected specific information with potential future actions without encouragement to do so. Of the 11 interviews I conducted, 7 had 0-5 statements coded as possible uses. Another 2 had 6-10 statements coded as uses and only 2 had more than 10, one of which was the sponsor, the United Way. Of the 67 unique statements coded as relating to usefulness, I only categorized eight as strong, indicating that the respondent seemed confident of a specific use for themselves that they intended to act upon. I coded more statements, ten, as negative, meaning that the informant questioned the utility of the plot or suggested it would not be useful. I coded most statements as either weak, meaning the informant offered only probable uses for themselves or speculative uses by others, or as exploratory, meaning that the informant identified only questions that they might need to explore. In the case of both weak and exploratory statements, it seemed less likely that any actions would emerge from the thoughts arising from consideration of the plots that were reported by informants. See Table 15 below for the distribution of counts of use statements across cases.

Table 14

*Is It Sense-Making?*

Type of information extracted	Uses of Information			
	Non-movement		Movement	
	Not Sense-making	Sense-making reinforcing the status quo	Sense-making supporting change	Sense-unmaking supporting resistance to change
<b>Objects that “Don’t Make Sense”</b>				
<b>Information not extracted:</b>				
No Information	✓	✗	✗	✗
Useless Information	✓	✗	✗	✗
Information that does not come from the object of inquiry	Yes, but may not relate back to object of interest	More Likely	Possibly	More Likely
<b>Information that confuses:</b>				
because unintelligible	✓	Not Likely	Not Likely	Not Likely
because incomplete	Possibly	Likely, if not addressed	Likely, if addressed	More likely
because perceived as invalid	More likely	Not Likely	Less Likely	Possibly
because perceived as biased	Not Likely	Possibly	Less Likely	Very Likely
<b>Information that contradicts:</b>				
beliefs about self/organization	Possibly	Not Likely	Less Likely	More Likely
beliefs about situation/others	Possibly	Not Likely	More Likely	Less Likely
<b>Objects that “Make Sense”</b>				
<b>Information that confirms:</b>				
beliefs about self/organization	Possibly	More likely	More likely	Possibly

Type of information extracted	Uses of Information			
	Non-movement		Movement	
	Not Sense-making	Sense-making reinforcing the status quo	Sense-making supporting change	Sense-unmaking supporting resistance to change
beliefs about situation/others	Possibly	Less likely	Less likely	Possibly
<b>Information that educates:</b>				
New Information	Any	Any	Any	Any

Table 15

*Distribution of Categories of Use Statements*

Categories of use statements	Count of Coded Statements	Interviews Represented
<b>Strong:</b> Informant seemed confident of a specific use for themselves that they intended to act upon	8	5
<b>Weak:</b> Informant offered only probable uses for themselves or speculative uses by others.	19	6
<b>Exploratory:</b> Informant identified only questions that arose that might need to be explored.	13	4
<b>Negative:</b> Informant questioned utility or suggested that it would not be useful	10	4
<b>Not from Plot:</b> The statement emerged related to other elements of inquiry, not from the plots.	17	7
Total	67	10

Per the theoretical framework illustrated in Figure 1, thought not capable of action would not constitute sense-making. Of the many and varied thoughts that informants shared as having emerged from consideration of the plots, few met the definition of sense-making that I modeled on phronesis—thought capable of action.

In the interviews, I only asked a variation of the question “How would you use it?” seven times about plots. I coded two of those use responses as strong use responses,

two as weak, one as negative and two did not offer any use—offering instead something akin to a non-sequitur.

At times, when prompted for potential uses, there seemed to be less connection or nexus between the information informants extracted and any contemplation of action.

Consider, for example, the following exchange:

Interviewer: Okay, so let's look at the integrated services ... So what do you see in this that makes it important? What do you learn from it, what does it mean, or what do you take away from it?

[Extended Silence followed by Informant 012 going back over the study's definition of integrated services]

Informant 013: Well, on the flip side of that, what stood out when I looked at it was how big this list is over here of isolated organizations and programs, which, as you mentioned, just kind of grows as you go through the four different types of relationships.

Informant 012: Yeah, that's a good point. I'd kind of forgotten that that's what that was over there.

...

Interviewer: So, if you were to try and use this plot to do something, what situations would it help you address if any?

Informant 12: I mean, I think it might be if we wanted to set up a new service, or a new program, or a grant, we might be able to look at this and say, 'In the realm of one of these issues-' I mean, for us, it would be income and employment probably, would be our bucket that we should be in. Is there anybody on here that's doing something that we would want to explore further? So, if they're providing an integrated service, how are they doing that? And what information do they have? I mean, I don't know if we could pull in other examples. But the SwiftStart program with TAP, we've actually— maybe you've been made aware of this, but we pulled some of the templates from that into the new [employment] program. So, I think that's an example of a real-world knowledge, but maybe in the future, we could look at something like this and say, 'Huh, Salvation Army, Council of Community Services are doing something together here.' And I'm familiar with the missions of both those organizations. That's an interesting pairing. What are they doing? And what will we— if we were running into work in that realm, maybe we would think Salvation Army. Our organization is probably more similar to the Council of Community Services because we're a bigger umbrella group that's supposed to work with a broader group of stakeholders out there. So we might compare ourselves to some like groups in here as well, I would think. (Group 012\_013, 6/7/2017)

In this exchange, the informants reported that the plot might be useful for tapping into the network for a future new program of their own; however, that potential use had a

somewhat unclear link to the primary information they were initially able to extract, the existence of many isolates. Based on the extended pauses in responses to questions about meaning and uses which can be heard in the interview recordings, my sense was that some respondents may have been struggling to extract meaningful information from the plots or any potential uses of that information. Instead, consideration of the plot, at times, seemed to offer informants an opportunity to discuss other perceptions and concerns arising from their understanding of the goals of the self-sufficiency initiative, such as in the following exchange:

Interviewer: So, thinking again of those missing relationships, what's been happening that makes that important that they're not there?

Informant: Well, like I said, my impression is that this is going to be used to inform funding decisions. And I'm going to guess the more robust relationships, the more money. So, if your particular relationships are not representing, well, then you're going to be perceived as not having as big an impact in the community. That is what I would think. I could be wrong about that. But, I mean, if we want the whole picture, we want the whole picture.

...

Interviewer: So, let's see. What leads you to that conclusion?

Informant: Well, we know that the funding pie is shrinking. And we saw it pretty dramatically with what's happened with United Way. So, we're getting—and I count us fortunate, too—but we're getting considerably less than 50% of what the original award was, which I understand given the climate. And then the City of Roanoke had to reduce funding, as well. So, they got to decide how to allocate money. And I'm going to think, of course you're going to put it where you think it's going to do the most good. And with organizations that— you're going to look at the number of people touched and you're going to look at the success of their interventions to determine that's where the best investment is. That's only common sense. That's as is should be. It would be a mistake to keep funding programs that don't have an impact. (Interview 010, 6/5/2017)

In this exchange, the interviewee attributes their thoughts to the impression that their ties are not well represented on the plots, but quickly moves to an understanding of a new funding environment in which decisions are strongly influenced by numbers of clients served and the success of interventions, which is not information contained in the plots.

The predominant themes that emerged across interviews were confusion because of missing information or unintelligible presentation. However, a variety of other sense making strategies did arise from the key informant interviews. Table 16 presents the broad sense-making strategies that emerged from the study, along with a few selected examples, many of which I return to unpack in later sections. See Table 13 in the previous chapter for counts of sense-making strategy codes by interview. See Table 14 for how sense-making strategies might connect to potential uses. I address those strategies that could constitute sense-making in section 2a of this chapter concerning how participants make sense of network plots. I address those strategies that may not have constituted sense-making in section 3b that describes what participants thought about the network plots in those circumstances.

Because of the open non-directive SMM interviewing strategy, which allowed me to pick and choose questions during the interview and the fact that some of the questions happened to align with the coding scheme I developed, counts of coded responses may not necessarily correlate with important themes. Had I instead used a more structured interview or survey, asking the same questions about each plot, those counts of coded responses might be more meaningful. So, while I do at times reference the prevalence of the coding associated with certain types of responses, I believe it is the substance of the responses that best illuminate my research questions. That said, the coding that emerged the most often across the largest number of respondents related to confusion from a sense of incompleteness or missing pieces emerging from their examination of the plots (47 coded statements across 9 interviews).

Table 16

*Sense-Making Strategies With Examples*

<b>Strategies</b>	<b>Illustrative examples from the coding</b>
<p>1 : Confuses - Missing or incomplete</p> <p>47 coded statements across 9 interviews</p>	<p>“So, my observation is that there's more connections here than you see on this piece of paper (Interview 008, 5/30/2017).”</p> <p>“...Now a lot of people that we have ties with at [the] program level are not on this chart (Interview 010, 6/5/2017).”</p> <p>“And so, I feel– one of the things that stands out to me is that I feel like there are some relationships that have been missed in particular with regards to services that we share, or information that we share with the other agencies (Interview 011, 6/7/2017).”</p>
<p>2 : Confuses - Presentation (or does not see anything much)</p> <p>21 coded statements across 9 interviews</p>	<p>“Well, this is crazy, I don't know how anybody would interpret that because you couldn't even– when you get in here you can't even see where the– is it that one (Interview 010, 6/5/2017)?”</p> <p>“Because I need a magnifying glass and it's not the font. It's like information overload for me. ...Visually, this gives me just as much heartburn as the last one [laughter]. I mean, it seems like visually there would be a better way to represent this than this kind of graph (Group 012_013, 6/7/2017).”</p> <p>“I mean, even in this [plot] ... I would pull that one out as an example of what doesn't work. And it's not because it didn't try to work. It's because it's literally– maybe my mind doesn't work like this, but I don't have the capacity to look at this and see connections in a way that helps me extrapolate meaning (Group 014_018, 6/12/2017).”</p>
<p>3 : Surprises - Contradicts current understanding (about self or own organization)</p> <p>7 coded statements across 3 interviews</p>	<p>“Well, if you need to be liked in the community, it's not the job for you. But it also takes heart, makes us have to work harder at building relationships. And to try to not get defensive about people throwing us under the bus, but try to take every opportunity that we can to educate people about what we do and how we do it (Interview 003, 5/15/2017).”</p>

Strategies	Illustrative examples from the coding
	<p>“Well, certainly Head Start should be connected with all three. So how that happened– that's real interesting, that's major– especially Smart Beginnings and Greenvale School are not connected to Head Start (Group 004_007, 5/22/2017).”</p>
<p>4 : Surprises - Contradicts current understanding (about situation or others)</p> <p>16 coded statements across 6 interviews</p>	<p>“You know what surprised me was the Local Office on Aging being kind of at the perimeter of a lot of places, of a lot of the charts (Interview 002, 5/11/2017).”</p> <p>“Well, it does surprise me that TAP is such a central player in all of this, because I mean, I think TAP has some good programs but I don't think TAP has very good follow-through (Interview 003, 5/15/2017).”</p> <p>“Why does Greenvale, who's a central, really almost downtown Roanoke non-profit where all the other non-profits are, why are they so removed from everybody else (Group 004_007, 5/22/17)?”</p> <p>“I, just as an outside observer, some of the ones that are outliers, I actually see where there is a connection between them and some of these other organizations. So, it's kind of a little shocking to me that there was not a connection (Interview 019, 6/26/2017).”</p>
<p>5 : Makes Sense - Confirms what I already believe (about self or own organization)</p> <p>7 coded statements across 5 interviews</p>	<p>“And probably because I'm only new to the Valley ... by three years that this in many ways kind of confirms what I thought, that we've kind of connected in a lot of different ways through a lot of different people (Interview 002, 5/11/2017).”</p> <p>“So, you can look at it, and you can say, ‘Okay. Clearly, the homelessness continuum is strong.’ And you can see specifically who the key players are in that continuum (Group 014_018, 6/12/2017).”</p>
<p>6 : Makes Sense - Confirms what I already believe (about situation or others)</p> <p>21 coded statements across 7 interviews</p>	<p>“I, mean looking at it, it makes total sense that Goodwill and TAP are sort of in the center, and Workforce Board is removed (Group 004_007, 5/22/17).”</p> <p>“Just looking at these relationships, I'm pretty aware of some of these. And it makes sense. I don't see any on here that shock me (Group 012_013, 6/7/2017).”</p>

Strategies	Illustrative examples from the coding
	<p>“But there's this very clear substance abuse group at the top, and then there's the housing group, and there's the childcare group that's off to the side not connected with anybody else. So, there's some very clear clusters of folks that I know because I work in the field, that I know are working in coalition. And so, this shows me that those coalitions are functioning (Group 014_018, 6/12/2017).”</p>
<p>7 : Makes Sense - New Information</p> <p>7 coded statements across 4 interviews</p>	<p>“I found the most interesting and informative plots to be the one between your shared information networks and the one that has established formal relationships. And so, in the presentation as well as in the slides, it talks about the difference between the two and how people perceive that they have relationships with others informally, but then when you have the formal relationship plots, it's a very different story. So, I found that very informative, found very surprising (Interview 001, 5/11/2017).”</p> <p>“Well, I'd say we can find out who our core players are in our community, who we may consider strong advocates in our community, agencies that if they were to go away, they could have a great detriment to our community with the services that they provide. And some of them, as you mentioned, is if you have two outliers but there is one core connector, somehow, that does bring those together. So, I think that's clearly what those might demonstrate to us (Interview 019, 6/26/2017).”</p>

Some of the prevalence of that coding may have arisen because “What has been missing?” is one of the direct questions on the SMM question roster and is one that I asked often (22 times across 10 interviews – see Table 8 for the prevalence of all questions across interviews). However, respondents offered these sorts of responses easily with compelling anecdotes and explanations. According to the coding, informants were less likely to engage in sense-making that confirmed existing beliefs (28 coded responses over 7 interviews) or were somewhat less likely to think it worth discussing in their interviews. As evidenced by the long pauses which may be heard in interview

recordings, some informants struggled to offer any meaningful response to what they saw in the plots that they thought was important or useful. Take, for example, the following exchange:

Interviewer: Feel free to kind of re-familiarize yourself with this, or if you like, I can go through it. What we will want to do is pick two or three of those plots that you find most interesting, or informative, or curious, or just that you want to talk about and I'll make notes of those and then I'll ask you my questions about each of the three.

[20+ seconds of silence]

Informant: Are you waiting for me to do something?

Interviewer: So, I'm just giving you a chance to look through there, and then what I'll ask you to do is, after you've gotten through there, to go back and pick three.

Informant: Oh. How in the world would I do that? Based on what?  
(Interview 010, 6/5/2017)

While not as clearly expressed as in the exchange above, there were other instances in which informants seemed to be stretching to identify something in the plots in response to the specific prompting of the interview. Although all informants were provided with copies of the network plots well in advance of the interview, some admitted that they had not looked at them and it is possible that some of them came into the interview without having developed a pre-established understanding of meanings arising for them from the plot. Instead, it is possible that some of my informants had spent little time examining the plots and were attempting to sense-make of them on the fly. This may have accounted for some of the struggles evident in some interviews. Therefore, my sense-making findings may be skewed to a very early stage of a longer ongoing sense-making process.

Perhaps because of this difficulty, a few informants implied that there might be some underlying flaw with the study that caused it to deviate from their perceived understanding of reality. Take for example the following statements:

That doesn't even make any sense, and so, if you're looking to address community need, then that— your priorities are only going to be as good as the information you've got. Right? So, I feel like somehow you don't have the information you need from us and I don't know how I failed in that... Well, and I think that's what I'm— and that's what I came away from that meeting, feeling like that maybe I wasn't trusting the data that had been gathered. And maybe it's better than I think it is, but if you look at this, you're looking at that being what informs the community what changed and how you allocate resources, then the accuracy of that data is pretty important, as far as I'm concerned. (Interview 010, 6/5/2017)

And it frustrates that it doesn't look like what I know it should look like, and I think we saw that in the room too. There's just a lot of frustration to look at that. Even if you put all the limitations out on the table, and you know it's not the full network, and you know it's just a snapshot in time, and you know that all your partners weren't there, but it's still just like, 'I just want to fix it [laughter].'  
(Group 014\_018, 6/12/2017)

“Why is CHIP over in isolation up here? Is that a mistake?” (Group 014\_018, 6/12/2017).

While it is possible to conclude that network participants were making sense of network plots in different ways, in particular by challenging them, the net result was that they were often dismissive of the potential usefulness of the plots because of perceived flaws. Still, these circumstances could be examples of sense-unmaking. Take, for example, this blunt statement:

If we showed it to people and said, 'Here's what the system looks like,' it could hurt us because you might be missing some crucial links on here. So, if you're asking me would we use this, is that the basic question? ... The answer for [us] would be no. (Interview 008, 5/30/2017)

Identification and incorporation of new information was one of the least common responses coded (7 coded responses over 4 interviews). It is significant that of the two quotations I provide in Table 14 that were coded as new information, one came from the leader of a large governmental agency not involved in the day-to-day work of collaboration and the other from an external stakeholder who likewise was not personally involved in service level collaborations. It may be that individuals less engaged in

network activities are more likely to find new or useful information from the plots than participants who are engaged in day-to-day network activity.

When informants identified something that confirmed their existing beliefs, they tended to accept it uncritically, while when they saw something that contradicted an existing belief, they often associated it with an element of doubt. For example,

LEAP seems to be more the bridge between the healthcare groups than anything else, which is very interesting because LEAP is just a tiny, little nonprofit that has like barely any staff. So, I would expect to see New Horizons as more of a bridge rather than LEAP. New Horizons has a lot of resources, good bit of resources.  
(Group 012\_013, 6/7/2017)

In general, the plots did not seem to move informants towards a new, improved or different belief or understanding. Even when informants identified some information that was new or that conformed with their existing beliefs, they usually identified other aspects that were confusing or surprising (See Table 13). Only one informant (Interview 001) offered more statements coded as confirmation or new information than confusion or contradiction. Four informants made no responses coded as confirmation or new information.

Therefore, the most accurate answer to question 1a—“Do network participants make-sense of network plots?”—is that they sometimes did, but there appear to be many impediments to them doing so. One significant finding from this study is the understanding that these impediments are an inherent part of a sense-making process that is more layered than my initial conceptual model—a concept I develop further in Chapter 6.

### **Question 1b: Do They Do So in Ways That Could Influence Collaborative Actions?**

Some informants indicated that they thought they could use the information in the plots for collaboration, although over a third of the statements I coded as relating to uses

of the plots that enable change came from my interview with employees of the United Way, which may be more representative of a network manager's perspective than a network participant's. Out of over 18 hours of interviews, Table 17 presents the strongest statements I heard from my informants connecting information from plots to potential collaborative actions. To organize these, I have aligned them with Agranoff and McGuire's (2001) conception of network management processes; however, the terminology of activation, framing, mobilizing and synthesizing was not how my informants conceived of these activities themselves.

Throughout the interviews, informants referenced collaborative challenges, although such comments usually emerged from probing questions, not as information arising directly from their examination of the network plots. Table 18 presents some of the collaborative challenges raised repeatedly by multiple informants.

There was little indication from the interviews that the network plots provided much assistance in helping participants discover ways to expand collaboration toward network goals. Therefore, the most fitting answer to question 1b—"Do they do so in ways that could influence collaborative actions?"—is that there was not a strong indication from the interviews that interviewees would. Instead, informants seemed to reinforce their existing conceptions of collaborative obstacles and impediments, further justifying their current patterns of action/inaction rather than learning possible new approaches from examination of the plots.

**Question 2a: If So, How Do Participants Make Sense of Network Plots?**

How participants attempted to make sense of network plots varied substantially.

There was little indication that that sense-making was an intermediary step between information and actions as I posited in my initial conceptual framework.

Table 17

*Strongest Examples of Collaborative Actions Arising From Network Plots*

<b>Network Management Processes</b>	<b>Examples of collaborative actions from interviews</b>
<p><i>Activation</i> requires network managers to be able to identify actors to incorporate into the network to help secure network objectives</p>	<p>“Yeah, so it varies out, depending. But I think I would take it and go back and look and say, ‘Okay, well, who do I think I have integrated services with, and why don't they see our services as integrated?’ I think it could help me set up some meetings as we're working on grants, to look at, okay, what needs to be stronger, or what's less, or how do we talk about what we do together, and make sure we're on the same page because that's one of the things I noticed is, obviously, a lot of our partners don't see us the same was as I see it, I would think (Group 004_007, 5/22/2017).”</p> <p>“Well, again I think that if you're an individual agency [that] might be managing a \$100,000 [budget] or something like that, or less than a million. You are struggling these days, big time and you don't know what the federal government's budget is going to do because that's not going to happen for a while, but you're worried about what you hear. So, what you want to do is figure out, how am I going to survive? And, I think maybe that's the best time to get people to the table to figure out how to survive. I think you can show people things like this and say, ‘Even up at New River Valley there's probably a lot of services there that nobody even knows about.’ If you do this for the New River Valley people, look I say, ‘Wow, I did nothing.’ That's my experience. When I look at things like this, I don't realize how many resources we have. I've been here about 16 years. I've done some of</p>

Network Management Processes	Examples of collaborative actions from interviews
	<p>these exercises before, and once you start to draw things out you're like whoa there is something. We did that for [a past initiative] one time, and we never finished the job because [laughter] it got too complicated. I mean you've got the graphing ability to do that kind of thing right here, but when you step back and you look it, it's like crap there's a whole bunch of things that we could do here. But if you keep it in these little small silos, we will just kind of slowly go down and never really service the people that— not do the mission kind of work we're committed to doing. So that might be the first thing you can do with this stuff is show people the pictures of all this stuff and show all the different services that are out there and say 'Now, if you were to build this thing brand new, would you build it this way?' And they'd say, 'Oh no, it's terrible.' 'Well, what would you build?' See where it goes from there, and that would take a while to figure out, but you would build new— it's a design issue. I think in the 21st Century design is the name of the game. How you design things that are more efficient, more effective, more local, and accountable (Interview 008, 5/30/2017)?"</p>
<p><i>Framing</i> requires network managers to have an understanding of the roles of network participants so that they can be arranged and integrated</p>	<p>And part of that has to do with having the time and the space to do that, and maybe we're not necessarily the agency that is going to be doing all of those things. But in terms of helping people think about it and how to get there, because TAP and Goodwill and some of the other ones play such a large role in the community, that it's really about— you have to decide where to put your effort. And if what we're seeing is those are the gaps that are there, then maybe it's time for [our organization], for example, to— with the help of some of the other partner agencies, say, 'All right. How do we fix this?' because it took us [many] years to get really good at what we're doing right now. If part of the problem that we're seeing are these other things, then we need to start now [laughter] trying to anticipate what some of those other needs are going to be and filling those particular gaps because if there's no one here who can do it really well, then you've got to create something that's going to do it.</p>

Network Management Processes	Examples of collaborative actions from interviews
	And you're going to take a lot of time to get some of that expertise (Group 004_007, 5/22/17).
<i>Mobilizing</i> requires network managers to recognize differing levels of agreement and commitment to network goals held by network participants	I think it does demonstrate the way we do, as a community, collaborate. I think of like Healthy Roanoke Valley, and having an organization like that that brings all different cross-sector businesses and nonprofits together to solve some issue within our community. So, I think this may actually demonstrate where maybe some of our other weaknesses are, and we need maybe a Healthy Roanoke Valley type of model to surface. I think one of our other big weaknesses in our community is mental health issues. I'm not aware of any major convening that may address that (Interview 019, 6/26/2017).
<i>Synthesizing</i> requires that network managers attend to the collaborative environment by conscientiously building relationships and removing blockages to cooperation	... I think the best thing about the whole project is that it is a report back to us on what the natural landscape is without a directed integration, which is what we essentially do in our new model. Or at least, our attempt is to do that through funding, but this gives us a really natural lay of the land. And there's a lot of value in that. Because it does show you— it is clear where there's work to be done (Group 014_018, 6/12/2017).

Participant’s sense-making sometimes supported resistance to change or reinforced the status quo in addition to supporting collaborative action. Several empirical and theoretical indications may warrant further discussion and exploration. In this section I discuss 1) which sense-making strategies might be most likely to influence collaborative action, 2) how a participant’s perspective (network, organization or individual) may shape their sense-making, and 3) how a participant’s orientation (past, present, future) may influence sense-making.

**Sense-making strategies.** Tables 14 and 15 present the general sense-making strategies I identified in the interviews. Within that framework, sense-making can arise

from new information or from data that confirms or contradicts beliefs. This study raises questions about how these different sense-making strategies might influence later collaborations and how those relationships could, in theory, vary based on the individual's sense-making strategy.

Table 18

*Collaborative Challenges*

<b>Categories</b>	<b>Examples of Collaborative Challenges</b>
Lack of Collaborative Slack	<p>“...you get so focused on those things that you need to do in your program that it's hard sometimes to think– I don't want to say outside the box–but it's hard sometimes to make those connections when you don't have the space to really consider them and think about them. ...</p> <p>You're pulled, your attention is pulled in so many different directions and you're like, ‘I've got to take care of this and this, this thing and I've got 15 grants going on over here, and I've got 20,000 meetings that I need to attend,’ that sometimes that dilution of your attention means that sometimes maybe you don't notice Greenvale hanging out over here, right, because you're so busy trying to meet all of the other mandates that you have, that, relationships are important, and building them is important, but sometimes you just don't notice the things that maybe you could do a little bit better until something like this is put in front of you, and you're like, ‘Why isn't Head Start connected to Greenvale? [They] work with them all the time’ [laughter] (Group 004_007, 5/22/2017).”</p> <p>“Number one, when you work for a non-profit especially, you wear a lot of different hats, and in doing so, you don't always have time to find out what the next person is doing (Interview 009, 5/30/2017).”</p> <p>“Time, right? I mean, we are all trying to do so much with so little. There's just very little time for us all to actually get together and sit down and say, "Here's what we're at and here's what we're doing (Interview 011, 6/7/2017).”</p>
Competition for Resources	<p>“We're all fighting for sometimes the same money (Interview 009, 5/30/2017).”</p>

Categories	Examples of Collaborative Challenges
	<p>“We are competing against every single person on here for that dollar, for that person to say who they're going to give their dollars to (Interview 011, 6/7/2017).”</p> <p>“I think that as a community, we oftentimes fight too much over very limited resources, and grants, and other funding sources, so we have to know as a community when it's best to step aside because somebody else may be doing it better than you and not constantly fighting over that funding source (Interview 019, 6/26/2017).”</p>
Collaborative Disposition or Skill	<p>“The constraining factors simply are an ability to work together. You can call it political will, you can call it collaborative skills. ... It takes some management skills, leadership skills, change of management skills, all of which are in short supply. Am I depressing you now [laughter]? ... That should be taught in school. Because if you have social workers that come out, they just want to deal with one kind of client. They don't care about the rest of the universe (Interview 008, 5/30/2017).”</p> <p>“And some of it, we've got some people that have been in leadership positions for 30 years and their idea of collaboration is very different than what my idea of collaboration is (Interview 011, 6/7/2017).”</p> <p>“And there's so much red tape that we have to jump through. Well, they have to fill out this paperwork, and they have to meet with this person, and they have to be that. And so eventually people get tired of agency time, trying to figure out what it is, and I get tired of it (Interview 009, 5/30/2017).”</p>

Logically, new information that an individual deems to be useful is potentially most likely to influence collaborative actions. Take as evidence the following statement where new or surprising information was received as helpful and instigated a challenge to improve collaborations:

It's interesting. I came in late to this presentation, and I had my resource development officer there to hear the first part of it, and I really came in probably about one of these slides here. And I remember personally being really disappointed that [our organization] wasn't— not disappointed, but it really stood out to me that [we] didn't have kind of higher standing in the nonprofit community here than it does, and that's actually really good for me to see. So, I

appreciated that kind of, I don't know, outsiders view of where this organization stands within the community. I thought that was actually really good for us to hear. For me to hear... it gives me some pretty clear direction on what has been missing with regards to our messaging. It helps me understand that I'm not only trying to cultivate a sustained donor base, but I really have to make sure that everyone knows what it is we do here... but then to see it on paper and to see it reflected in the greater nonprofit world as well because I remember at that point in time I was really coming from the business world, but to see that other nonprofits really didn't know about us either [laughter], it's not a good thing see, but I'll take anything as a challenge and try and overcome it. (Interview 011, 6/7/2017)

Information that confirms an individual's existing beliefs may be the least likely to influence collaborative actions. Information that contradicts perceptions or perspectives may not lead to any sense-making resulting in collaborative action if the individual deems its source unreliable; or, it might have the opposite effect of strongly motivating collaborative action if the individual accepts the information as valid and within the scope of their ability to influence. These inferences and insights provide a foundation for a more refined model of sense-making and research questions that I could address through potential future studies, which I discuss in Chapter 6.

**Network, organization and individual perspectives.** Informants often expressed the perspective of their organization (26 coded statements across 9 interviews), rather than that of the network (14 coded statements across 5 interviews) or of themselves as individuals. In fact, I did not identify any informants as expressing an individual or personal perspective, or at least their responses did not appear self-interested. However, I did not ask the SMM question, "And how has this affected how you see yourself?," which could have elicited such a view. Only one informant consistently demonstrated a network perspective in their responses (8 of their 16 coded responses portraying a perspective). For example, below are three coded statements from that respondent indicating a network perspective. "We don't want to duplicate the services that we're

providing and we want to meet the need, whatever we can, where we have the infrastructure to do so” (Interview 001, 5/11/2017).

And a lot of them are your youth education things. Your Boys and Girls Club, your Methodist Community center, Big Brothers Big Sisters, Craig Child Care. They don't have those confirmed ties. And if you're going to build families that are sustainable and that are going to be self-sufficient, they need to have those ties to the broader network that are in the middle, so the TAP, the Salvation Army, the Family Services, those places, and they don't have them. (Interview 001, 5/11/2017)

“Or as if there were a way for them to understand, their reach would be far greater if they pooled their resources, not even just financial stuff, but just in communicating” (Interview 001, 5/11/2017).

However, most informants expressed either a client, community or family perspective (25 coded responses across 9 interviews). The following statements illustrate this new ‘beneficiary’ perspective.

I look at it from the perspective that financial fitness for a household, or when they are unhealthy or unfit or not being responsible with their funding, that creates a lot of stress on the household. Sometimes that's the biggest cause of divorce is over money or arguing over money. And then if somebody is stressed out over money, are they neglecting or abusing their children as a result of that stress in the household? (Interview 019, 6/26/17)

“Well then, you’re not meeting all the needs of the community, or you're not meeting all the needs of your client base” (Interview 003, 5/15/17).

So, if you want to put it in [the] graph up there you almost want to put the person needing help in the middle of that whole graph and you could do this for every single person that needs help. But what kind of services might they need? How do you make it so that they don't have to run around on five different buses or spend days from work in trying to go to these different programs? Can be more like the one-stop concept of more of what the old fashioned settlement house, if you know what that means? (Interview 008, 5/30/2017)

These three orientations were not a part of my initial models of network change. It seems likely that network participants are disposed to distinguish between the needs of

those they serve and the aims of the organizations that exist to serve them. Perhaps unsurprisingly, network performance may not only be influenced by alignment between network goals and those of their constituent organizations, but also by network participant's perception of the alignment between network goals and community needs independent of the goals of their own organizations. However, the beneficiary perspective of those served (client, family, community), might also mask an organizational perspective if the informant believes their organization is well-positioned to address that service need. For example, the organization of the individual quoted above suggesting a one-stop settlement house approach would best serve clients' needs, has already established a large campus in a distressed community with a range of programming available. I suspect that while the dominant perspective of an individual would likely shape their collaborative choices, sense-making may involve how they frame any choice in a good light, such as a concern for the needs of beneficiaries. This new understanding of when sense-making comes into play and how individuals use it provides a foundation for a revised framework for sense-making and new research questions that I or other researchers could address through potential future studies, which I discuss in Chapter 6.

**Past, present and future orientations.** The SMM list of interview questions explicitly probe for connections to past experience, the present situation and future possibilities. Logically, network participants all come to the sense-making moment with different experiences that shape how they interpret information, such as the data presented in network plots. Each person or organization also exists and operates in their own unique current situation which can also influence sense-making. If there is little consensus on the goals of the network or its future direction, then it follows that

variations in those orientations may also influence sense-making and collaborative activities. Based on the interview responses, informants did not exhibit a dominant overarching orientation (past, present, future) across the interview, but instead switched between these orientations based on the question I was asking. Instead, the clearest theme that emerged was a concern that United Way's change in funding strategy would create a break from past practice, leading to an uncertain future for many organizations. However, there was no clear connection between either the level of concern expressed or the fit of the respondent's organization in the new funding scheme with the potential for collaborative activities that might emerge from the information extracted from network plots. Some programs who expressed concern about their ability to fit into the new scheme engaged in constructive sense-making with an orientation to collaboration, while others used a range of information from the plots and other sources to resist the pending changes. Likewise, some prominent organizations, ones that were central to the network plots in key strategic positions allowing them to benefit from the potential changes, engaged in sense-making that might lead to collaborations addressing network goals, while others were dismissive. Therefore, I could not make any determination concerning how those orientations could influence collaborative activities. Nevertheless, the idea that the network plots invoke a perception of a potential discontinuity into the past-present-future orientation of the network participant provides a foundation for more refined research questions that could be addressed through potential future studies, which I discuss in Chapter 6.

## **Question 2b: What are the potential implications for network managers?**

Although in this study I identified limited sense-making of the sort potentially leading to collaboration, that finding could be a result of certain impediments (discussed under question 3 below) that network managers should consider. However, interviewee responses did evidence a lack of uniformity in sense-making among interviewees which is itself a potentially significant insight. Left to their own devices, network participants could exhibit a great variety of sense-making strategies emerging from examination of network plots that may lead to an even greater variety of responses affecting future collaborative actions that may or may not align with the goals of network managers. While in some circumstances, the reaction of network participants to plots may not be a significant factor in managing a network thereafter, there are probably many situations when network managers should carefully consider the potential repercussions of introducing network plots before doing so. An important use of SNA and network plots is to show what may be missing in a network by providing “network members the opportunity to see the structure of the network and to evaluate how it compares with what they expect or want” (Lemaire & Raab, 2020). Plots are useful for identifying gaps in network structure such as isolates and fragments with no (or little) connection to the broader network. However, based on the feedback from informants in this study, network managers should recognize that network participants may interpret what is not shown in network plots as something that *was missed* rather than something that *is missing*. These perceived ‘overlooked’ elements are sometimes as important to network participants, if not more important, than what is depicted. If the representation of their own organization and close relationships is not plausible in their own estimation, some network participants

may deem the overall findings of the study to be invalid or conclude that the entire process is illegitimate.

The potential that network participants might not use network plots to enable collaboration, but also to resist change or reinforce the status quo, underscores the importance of establishing an ongoing process of conscientization among network participants that brings hidden struggles and vested interests to the surface. Or, as Provan et al. (2005) have observed, the result of an SNA “will only have practical value to communities if it can be effectively presented, discussed, accepted, and acted on by community leaders and network participants” (p. 610). I suggest that this process should begin even before the network analysis is conducted and should involve participants, not just managers, deeply in the design of the study. Authentic balanced communication among network managers, participants and analysts throughout the process is likely crucial if network plots are to have meaning and usefulness to participants beyond the abstracted meanings and recommendations provided to them by analysts and managers. Network managers and analysts would also be poorer for failing to appreciate and incorporate the perspectives of network participants, especially when they contradict established expectations, norms and practices.

As a researcher/analyst, I found it disconcerting when my informants questioned the accuracy of the SNA and resulting plots or when they inferred some flaw in the analysis. All social network analyses have limitations and I went into the sense-making phase of the study aware of the limitations of the SNA portion of the research. Gaining access to the field meant compromising with the United Way on study boundaries, which are known to have a strong influence on SNA findings (Nowell et al., 2018). Relying on

participant self-reports for identifying ties, especially organizational ties, also has well-understood reliability limitations because of the vagaries of human recollection (Calloway, Morrissey, & Paulson, 1993; Marsden, 1990). To allow me to examine participant's raw sense-making, we planned a process that intentionally offered little engagement between researchers and participants during study design, data collection, analysis and presentation. In fact, as a part of the study design, we purposefully provided only a one-time, cursory presentation of plots with limited interpretation to a large group of network members and we did not distribute any report containing the plots to the network members until after I had conducted my sense-making interviews with selected informants. While these choices could explain some of the situations where informants thought relationships or actors were missing from plots, I selected the SMM interview approach to privilege the perspectives of network participants (information users) over my own as a researcher (information designer), so I was resolved to take their concerns seriously and not to dismiss them as known limitations of the study. As a result, I felt obligated to review the data collection and analysis process in a search for potential errors that could have led to their sense-making frustrations. As a result, although I did not identify any errors, I did identify a range of methodological choices that had the potential to influence participant sense-making that I discuss further in Chapter 5. While these issues may be of more interest to researchers/analysts, network managers should understand that some choices that enhance the ability of researchers to answer important research questions using SNA can have repercussions for network participant's ability to make sense of network plots.

### **Question 3a: If Not, Why Not (or How So)?**

Although it was clear from the interviews that network participants sometimes had trouble making sense of the network plots, it was initially less clear why they struggled. By taking their struggles seriously and resisting the urge to conclude that the network participants simply lacked the technical and scholarly foundation to interpret the plots appropriately, I eventually came to understand two primary explanations relating to how participants struggled to make sense of network plots: 1) their inability to extract meaningful information and 2) irreconcilable disagreements between the graphical representation of the plot and their cognitive social structure.

In general, sense-making can be stymied if individuals are unable to extract meaningful information from an information source, in this case the network plots. In SNA, it is not uncommon for network plots to be of a size or density that can exceed an observer's ability to process the information visually. This was almost certainly the case with the broader network diagrams from this study (see Figures 22 and 23). Sometimes termed the "hairball effect," SNA diagrams may have a signal-to-noise ratio that is just too low for observers to extract useful information, meaning that the amount of useful information was too small compared to the background "noise" of meaningless data. Off the record, one informant referred to the plots a "Skittles on spaghetti." Other informants shared similar views: "Well, this is crazy, I don't know how anybody would interpret that because you couldn't even— when you get in here you can't even see where the— is it that one?" (Interview 010, 6/5/2017). "I don't know how you would make any order out of this process [laughter], to be honest with you" (Interview 019, 6/26/2017).

Because I need a magnifying glass and it's not the font. It's like information overload for me. ...Visually, this gives me just as much heartburn as the last one

[laughter]. I mean, it seems like visually there would be a better way to represent this than this kind of graph. (Group 012\_013, 6/7/2017)

I mean, even in this one, that any confirmed tie at the program level. I would pull that one out as an example of what doesn't work. And it's not because it didn't try to work. It's because it's literally— maybe my mind doesn't work like this, but I don't have the capacity to look at this and see connections in a way that helps me extrapolate meaning. (Group 014\_018, 6/12/17)

A second broad reason that individuals might not make sense of SNA information is if they reject it as invalid or unreliable, although their justifications for that assessment could potentially be considered a form of sense-making that results in resistance to action as opposed to action toward shared network goals. In the case I studied, the underlying reason some of my informants seemed to reject the information from the network plots was because it did not match their existing cognitive social structure. When that conflict exists, individuals have two potential logical approaches. They may accept the new information and update their conceptions of their social structures, or they may reject the information to preserve their cognitive social structure (CSS). Those that accept the information and respond are engaging in sense-making concerning new data that could result in collaborative actions. Those that reject the information are unlikely to be motivated toward collaborative actions based on information from the plots and are instead engaging in a form of sense-making that supports resistance to change or reinforces the status quo. One reason that the plots may have not have matched some individual's CSS is because unconfirmed ties are not displayed, meaning that relationships that they reported (and therefore exist in their CSS) do not appear on most plots. Chapter 5 explores some methodological considerations and approaches related to how some representations (or non-representations) of unconfirmed ties might affect sense-making.

Some informants recognized known limitations of SNAs, including this study, such as framing of the study by the United Way, difficulty in accessing appropriate respondents, that the study reflected a snapshot in time, or that there might be some confusion or discrepancy in how participants categorized relationship types and intensities. The statements in Table 19 illustrate those understandings by some participants.

Table 19

*Participant Recognition of Study Limitations*

<b>Limitations</b>	<b>Examples from Interviews</b>
United Way Framing	<p>“Actually, the third program that United Way partners with [us on] isn't even on here. It didn't come up on anything, just our two [other programs] did... I'd say in the past, [United Way's program] has definitely competed with [ours]. And then we tried to complement what [they were] doing, and the structure doesn't work, well, how it's fallen out. A couple months ago, they asked for our [program] training manual to which I said no [laughter] (Interview 001, 5/11/2017).”</p> <p>“Okay. So, I looked at this when I was there at the afternoon session way, way back when and what I thought is that, this is mostly programs, mostly, that United Way funds. So, if you don't get funded by United Way you're not included in this network... So again, it's more of in a United Way centric view of the world (Interview 008, 5/30/2017).”</p>
Difficulty accessing appropriate respondents	<p>“Well, I think that it's accurate as far as it's goes, but I think they're probably more arrows on here than they're showing and I'm guessing that that goes back to whoever filled this out didn't really think it through fully enough. So, what you have is maybe a picture that could be 80% good, maybe 75% accurate (Interview 008, 5/30/2017).”</p> <p>“I mean, the other survey thing that really sticks out to me in all of this is that we did a really bad job of figuring out how to get a valid– like a good response from Carilion... But I think that probably, we should've asked Community Outreach to fill out a partner survey in some way, and we didn't do that (Group 014_018, 6/12/2017).”</p>

Limitations	Examples from Interviews
	<p>“Yeah, the data was collected before I came onboard here at [my organization]. And so, I feel– one of the things that stands out to me is that I feel like there are some relationships that have been missed... (Interview 011, 6/7/2017).”</p>
Snapshot in time	<p>“To me, just because it's been right about six months, this is to me is– when I look at it, it's like a past picture. I feel if you were to ask the same people the same questions today, it would look very different for [one component of our organization], and it wouldn't be so isolated out there. (Group 014_018, 6/12/2017).”</p>
Relationship type confusion	<p>“So shared resources, but I think going in, we thought that might be– and even you could integrate services without actually sharing resources, but, again, it's a fuzzy line, people say, I'm sure... Well, I think it's your definition, too. And as I look at this definition, I still think maybe the integration is harder to achieve to some extent, and maybe that's why the data is showing some of that, too, because the definition here is kind of sharing a grant or some resources (Group 012_013, 6/7/2017).”</p> <p>“But what I was frustrated by was when we looked at the four the first time, what I saw were Happy Healthy Cooks not connected to TAP. And it was like, "I think they're mis-categorizing what type of relationship they have." And so, the reason I pushed for this was it didn't matter if I called it resource sharing and you called integrated services, at least we're just showing, ‘Hey we are connected (Group 014_018, 6/12/2017).”</p>

However, the most common doubts expressed in interviews was that the SNA and the resulting plots had somehow missed existing ties, meaning that the plot did not represent relationships that existed in the mind of the informant. As stated above, this was perhaps the only clear theme that emerged from the interviews.

When noting discrepancies between the plot and their CSS, a few informants acknowledged that they felt the representation of the plots somehow disadvantaged them:

If we showed it to people and said, ‘Here's what the system looks like,’ it could hurt us because you might be missing some crucial links on here. So, if you're asking me would we use this, is that the basic question? ...The answer for [us] would be no. (Interview 008, 5/30/2017)

However, the dismissals of validity (or statements of implausibility) were rarely that clear. Instead, in most interviews the informants did not seek to qualify or explain the discrepancy, they simply reported it with an implication that their CSS was superior to the plot. Though there is evidence that cognitive networks can differ substantially from more objective measures of relationships (Marsden, 1990), it may not in fact matter much to participant's sense-making which is more accurate. For some informants, it was as if the perceived discrepancy lowered their estimation of the validity of the data, perhaps below some plausibility threshold needed to accept information that could lead to collaborative action.

**Question 3b: If Not, What Do Participants Think of Network Plots?**

Although it did not show up directly in most recorded interviews, there were some off-the-record comments from some participants at various times that they perceived this study to be an effort by United Way to justify the elimination of funding to smaller nonprofits in favor of larger collaborative investments intended to create a larger impact. In cases where informants disputed the information in the plots, it could be an example of sense-unmaking, where individuals challenge information provided by powerful actors that they see as intended to disadvantage or control them.

**Question 3c: What Are the Potential Implications for Researchers and Analysts?**

I identified four potential implications for researchers and analysts based on what I learned from informants. First, network managers and participants often look to researchers and analysts as experts to interpret the meaning of the data embedded in network plots. Take for example the following conversation among three network managers about how to interpret the plots.

NM1: It is hard for non-academics to read these graphs. I mean, it is easy to see whose lines are what, but it is hard to-- I think it's hard is-- it's hard to pull meaning from that. And one of the things that I kept wanting from [the lead researcher] was-- I'm a sociologist, so are there any theories that say, "If you have this level of tie, or this percent density, or this blah-de-blah, that means this." And so, I was kind of wondering, is there some kind of academic interpretation of the data that we don't have as-- you see a line from that agency to that agency. In my head, I know what that means because I work in the field, but does the academic-- what do the academic sides say about the theory of what this all means? It's what I was kind of wondering. Does that exist?

NM2: Like, "What is it that you know that we don't [crosstalk]?" that they're laughing in the back of your head already [laughter]...

NM3: Yeah. I mean, the bottom line is, what's the point? How would we present this to the community and to our partners with a 'What's the point?' message? Which is, I think, where we went wrong in presenting it to our partners when we did. It didn't have a-- and so, what we need to do or what this tells us is important to it, and I think that would have changed the dynamic of that conversation entirely. Even if we led with that, it would have changed the dynamic of the conversation, but I think it's useful data. I think some of it's only useful to us, and some of it's useful externally. And I've been struggling with how much of this do we need to interpret for our partners, and how much of it we just simply rely on your interpretation of. But this can't be wasted time and effort, so we've got to do something with [it]. (Group 014\_018, 6/12/2017)

In many cases, interpreting meaning is wholly appropriate, since researchers and analysts do have specialized technical knowledge and expertise that is not available to many network participants. However, it should not be assumed that the interpretations of researchers and analysts are objective truth. Instead, these trained professionals engage in sense-making concerning network plots that is contextual and shaped by their personal perspectives that could differ significantly from network managers and participants. Valuing and incorporating different perspectives into narrative explanations of plots would help researchers test their assumptions and provide richer 'food for thought' for network managers and participants, even if those researchers and analysts do not wholly accept those perspectives from a rational standpoint. I did not design my analysis to tease out differences between the sense-making engaged in by researchers/analysts and network managers/participants, but it would be an interesting future study.

Second, researchers and analysts should take seriously how the representation (or non-representation) of ties could influence the sense-making of network participants if it creates a conflict between the CSS of participants and the information that is represented in the plots. In some circumstances, if the information is accepted by the participant, it could represent new information and learning that they could use to engage in sense-making that supports change. However, if they reject the implications of the discrepancy and hold fast to their existing CSS, they may reject the usefulness of the plot or use it to resist change or reinforce the status quo. The multiplex, first-order, egocentric plots developed in the next chapter are one possible way to begin thinking about how to identify and address this issue as a part of social network analysis. The experience of one youth organization in the study illustrates this point. In the quotation below, the new executive director of that organization struggled to make sense of the limited connections their organization had on the network plots.

I feel— one of the things that stands out to me is that I feel like there are some relationships that have been missed in particular with regards to services that we share, or information that we share with the other agencies. I don't know if it's because it wasn't reported on our end, which is very possible...I think that it's important to note the missing relationships because I mean, the clearest example I can give is [a large multi-program agency]. I mean, we work very closely with [them] to provide opportunities for our kids here in [our organization]. Because of that, we are able to send our kids on field trips and we're able to do college visits that we couldn't do otherwise. [They are] able to confirm a certain number of units of service that they wouldn't be able to confirm otherwise. So, that's the one that really jumps out at me on that on the confirm tie level. Other people that we work with here... just looking through, [nutrition organization], for example. We work with [them], [and mentoring organization]. We have mentors that actually come here to this location through [that mentoring organization] to mentor and tutor kids that we have here on a daily basis. I'm trying to think what else. I will tell you too that this helps to point out to me some places where we're really missing an opportunity to partner. For example, [local faith-based organization] is right up the street from us, and that's been one that's really been on my mind recently as an opportunity that we haven't been fostering that relationship here at [our organization]. (Interview 011, 6/7/2017)

This organization reported many relationships to eight other programs, only one of which was confirmed by those programs. Nine other programs reported relationships with this organization, only one of which was confirmed by this programs. Of the three missing relationships discussed by the interview informant, none of them was identified by the individual completing the survey for this organization and only one was reported by the other party, but not confirmed by them. Given the number of relationships reported that were not reflected on any network plots, it is unsurprising that the informant from this organization struggled to reconcile the plots with their own CSS. In Chapter 5, I explore some methodological approaches to illuminate and address this issue and help understand how it might affect sense-making in more detail.

Third, relationship type confusion affects sense-making in multiple ways. During data collection, SNA survey respondents may conceive and categorize relationships differently from representatives of those programs with which they have connections. This can result in ties that exist, but which participants understand differently, being rendered invisible in many plots. However, perhaps more importantly, my interview informants seemed to struggle with understanding that most of the plots showed only one type of relationship. The very idea that there are different representations of the same network based on different types of relationship confused some informants. For example, informants would sometimes interpret no relationship existing on one particular plot as no relationship existing at all, as in the following statement from an informant with an employment-oriented program.

Well, immediately, the one I see, for me, is it worries me that my only connection to [education institution] that's really showing up for integrated services is if I'm going through the [workforce program]. And I don't really see that that's how it functions, but that's how it represents. And so, obviously, I think [our programs]

need to be doing more work for [them], and not through the [other organization] but on its own. (Group 004\_007, 5/22/2017)

In reality, this employment-oriented program and the educational institution had two types of confirmed relationships—information sharing and coordinated referrals. To the best of my understanding, this entity’s relationship with the educational institution did not meet the definition of integrated services, so it should be unsurprising that the relationship was absent from that plot. Instead, the informant found it troubling that the workforce program looked like an intermediary between the two, even though both the employment program and the educational institution clearly did have integrated service relationships with the workforce program through their colocation at a shared facility. If network participants are not engaged in identifying and defining the relationship types important for the network, they may be less likely to be able to make sense of them later. Take for example the following statement from the coordinator of an initiative, a network participant that also happened to be affiliated with the network management organization which did have a role in selecting and defining the relationship categories used in the study: “I also just think that the four services that we-- the four types of relationships that we put them into don't highlight the strengths of our initiatives” (Group 014\_018, 6/12/2017).

Finally, all of these findings support the importance of the broad community-wide processes of communication, sense-making and conscientization discussed in section 2b above. Researchers and analysts can play an important role in those processes by helping balance all voices and helping bring “to consciousness deeply hidden struggles that society or social structures have a vested interest in silencing” (Dervin, 2015, p. 64).

#### **Question 4: What Factors Might Influence an Individual's Sense-Making?**

**Situation movement state.** As stated in Chapter 2, Dervin has explored how an individual's situation movement state might be a predictor of information uses. Table 20 contains an expanded listing of situation movement steps developed by Dervin et al. (2003). I did not observe as many waiting states as are exhibited in this table and I saw more diversity of movement related states. I therefore identified two additional situated movement states that I felt better characterized what I heard in my interviews—cruising and groping along. In this table I also attempt to identify potential connections between movement states and the uses of information from network plots, though these are speculative on my part based on definitional connections rather than being drawn from information provided by my informants.

Based on the interviews I undertook, it was difficult to establish any informant's situation movement state clearly because of the general non-directive questions that I used in the interview. More direct questions or even asking informants to identify their own situation movement state might yield a more precise categorization. My analysis of interviews uncovered no clear themes connecting situation movement states and reported potential uses of information. A relationship may exist, but it would take a differently designed study to tease them out. I discuss alternate approaches for gathering information to determine situated movement states and ways to connect them with potential uses relevant to network management in Chapter 6. There were, however, several other factors that seemed more likely to be relevant to sense-making concerning network plots—alignment with existing cognitive social structure, group vs. individual processes, and the idealized type of network change that I developed in Chapter 2.

**Alignment with cognitive social structures.** Whether and how an individual makes sense of network plots may depend on the plot's alignment with their preexisting CSS, especially their first order relationships. Some of the informants that struggled to make sense of the plots suggested that the plots did not properly reflect their relationships as they understood them. I identified several reasons that informants expected relationships might not be represented on the network plots.

Table 20

*The Situation Movement State*

<b>State</b>	<b>Description</b>	<b>Reinforcing Status Quo</b>	<b>Supporting Change</b>	<b>Supporting Resistance to Change</b>
<i>Previously identified by Dervin and colleagues</i>				
Decision	Being at a point where you need to choose between two or more roads that lie ahead		✓+	
Problematic	Being dragged down a road not of your own choosing			✓
Spin-Out	Not having a road		✓-	✓
Wash-Out	Being on a road and having it suddenly disappear		✓-	✓
Barrier	Knowing where you want to go but someone or something is blocking the way		✓+	✓
Being Led	Following another on a road because he or she knows more and can show you the way		✓+	
Waiting	Spending time waiting on something in particular	✓	✓+	
Passing Time	Spending time waiting on nothing in particular	✓	✓-	
Out to Lunch	Tuning out	✓		

State	Description	Reinforcing Status Quo	Supporting Change	Supporting Resistance to Change
Observing	Watching without being concerned with movement	✓		
Moving	Seeing self as proceeding unblocked in any way and without the need to observe	✓	✓ -	
<i>Newly identified in this study</i>				
Cruising	Not happy with current road, but proceeding forward while looking for a better road		✓ +	
Groping along	Seeing self as proceeding blindly with a need to explore and test the environment to chart a path		✓ -	✓
✓: Individuals in this state may engage in this sort of use ✓ -: Individuals in this state may follow along with this sort of use ✓ +: Individuals in this state may lead this sort of use				
<i>Note. From Sense-Making Methodology Reader: Selected Writings of Brenda Dervin (p. 262), by B. Dervin, L. Foreman-Wernet, and E. Lauterbach, 2003, Cresskill, NJ: Hampton. Copyright YYYY by Copyright Holder. Adapted with permission.</i>				

Some reasons are just part and parcel of SNA, while researchers/analysts could address others with changes in study design. For example, some network participants may have important relationships that are not represented on the plots because the object of that relationship fell outside the boundaries established for the study that we developed in collaboration with the United way using a nominalist approach (Laumann, Marsden, & Prensky, 1989; Wasserman & Faust, 1994) based on the inclusion criteria inherent in their new self-sufficiency initiative. This is not a new finding and researchers have a variety of ways to address it via study design (Lemaire & Raab, 2020), including realist and relational approaches where members are engaged in determining what programs are

included. What emerged as a potential issue with this analysis is the strong role that United Way had in determining which programs and organizations would be within the boundaries of the study, without broad consultation of other network participants in establishing the roster used for the survey. Two specific examples illustrate this point. First, in one interview, one large multi-program organization reported that although some of their programs were included on the roster, one very important one was left off, possibly because the United Way itself ran a virtually identical initiative, which they had copied from this organization, and which was not included on the roster. As a result, only a fraction of this non-profit's relationships showed up in the network plots. Second, another organization that was mentioned often in the interviews as being absent on the plots, but which did rank highly as admired in the community based on an open ended question, was not surveyed nor included on the roster because the United Way deemed that they would be unresponsive to the survey, unlikely to participate as a funded partner in the self-sufficiency initiative and had a reputation for working independent of other organizations in the community due to their financial autonomy. Both situations could have been addressed if the organization providing access to the field of research had taken a less central role in establishing the network boundaries and roster. However, if researchers are more inclusive of additional programs or organizations, it might not result in a "better" or more accurate plot of the whole network, because it could also result in providing too much extraneous information. However, it might improve the sense-making ability of some participants and reduce delegitimization of the information provided in the plots.

Another similar issue arises for all multi-program organizations when only some of their constituent parts are listed on the roster. Exclusion of some organizational elements may be completely legitimate for the purposes of the SNA (unlike the example in the previous paragraph); however, these exclusions still have the potential to frustrate the sense-making ability of some participants. One potential way researchers sometimes address this is to include an “organizational remainder” on the survey that allows respondents to identify relationships with any other programs run by the organization.

In some, but not all circumstances, the misalignment between the plots and CSS could have occurred because unconfirmed relationships did not appear on most plots. This study collected relationship data from participant self-reports. However, this sort of data collection sometimes fails to provide an objective indication of an actual relationships, therefore the analysis and presentations focused on “the more reliable confirmed links, where both partners in every link had to indicate on the questionnaire that the particular relationship actually took place” (Provan, Veazie, Teufel-Shone, & Huddleston, 2004, p. 177). In a way, this is how researchers/analysts help make-sense of network plots and make them more useful for the defined purposes of the particular study they are undertaking. However, from the perspective of some network participants, it can significantly frustrate their sense-making ability, even to the point of rousing them to perceive the plots as “useless.” This is not to imply that unconfirmed ties should be represented on network plots, but instead that researchers/analysts and network managers should consider the position this places some network participants in when they seek to make sense of the plots and how they might react differently from others in the network when presented with the information in the plots. In Chapter 5, I present a kind of

multiplex first-order ego-centric network representation that I develop into different categories of alignment between network plots and CSS. My hope is that these might assist in predicting if or how specific participants might make sense of network plots.

**Individual versus group processes.** In Dervin's model of sense-making, the process is largely individual, internal and cognitive. This contrasts sharply with Weick's conception of sensemaking as socially constructed (Weick, 1995). While most of my interviews were individual interviews, which placed my informants in a position where they were compelled to make-sense of the plots on their own, I did also conduct three group interviews in which participants could work together to "talk-out" their sense-making collaboratively. There were obvious differences in the two settings. In the groups, the informants were much more likely to identify things they wanted to talk about, often to the extent that I did not get to ask as many probing questions because they probed each other's statements on their own. I did not design my study to explore the differences in these two sense-making settings, but it seemed that there was richer sense-making happening in the groups as evidenced by the greater number of statements coded as sense-making using a wide range of strategies and uses (see Table 13). A differently designed analysis might be able to identify some distinctions, but more importantly could explore how the properties of Weick's sensemaking apply to network plots—properties such as rooting in identity, the retrospective perspective, the enacted evolution of understanding, its social construction, its iterative ongoingness, its use of extracted cues, and the sensemaker's reliance on plausibility over accuracy (Weick, 1995).

**Network change models.** The type of network change happening within the network is another factor that could influence sense-making around network plots. The

case I studied is an example of exogenous network restructuring (see Figure 9). Since some informants raised concerns about the United Way's new funding approach and since they saw this network analysis as supporting that process, participant's sense-making could have been shaped due to concerns about how the United Way would use the information.

In the network restructuring model, there are several things happening at once that could confound sensemaking. First, change is driven by an actor exogenous to the network. By identifying the actor as exogenous, it does not mean that they are wholly separated from the network, but that the network has relatively little influence over them or their choices. The United Way itself is being driven toward its new funding approach by exogenous actors in business and government. Exogenous actors can take several different approaches to instituting change through the network restructuring model. While the approach could be consultative, it could also be relatively arbitrary, leaving network participants with little sense of agency or control. Regardless of where the exogenous actor's approach lies along that spectrum, network participants are likely to evidence some resistance to information if they are opposed to the changes being introduced or even if they are just uncertain or confused about the possible implications for their own organization. Network participants may also be less trusting of network managers and other network participants in mandated or exogenously driven network change initiatives than they would endogenously-driven ones, leading to greater resistance to their change efforts (Segato & Raab, 2019).

Second, by definition, exogenous network restructuring results in direct changes to the structure of a network. In this case, the United Way sought to connect multiple

different networks, each working on different issues, together with each other and with new actors not previously involved in their work. These changes had the potential to put some network participants in powerful and important positions within the new larger network while marginalizing others. At the time of my study, the United Way had communicated these intentions to network participants, but had not yet instituted them through its new grantmaking strategies. It was unclear to network participants who would be the “winners” and “losers” in the new system. Since that time, the United Way has engaged in three years of increased investment in “System Innovation Partnerships” where network participants identify a lead agency to serve as a backbone to coordinate the collaborative activities of a group of agencies working on shared goals. Logically, the agencies that received those grants could become more central, connected and influential than previously, with greater control over resources and process decisions. How network participants perceive potential changes to their network position through restructuring could have a significant impact on how they make sense of current structures represented in plots.

Third, exogenous network restructuring seeks to change the network activities that constitute the relationship ties in networks. For example, they may seek to shift relationships from information sharing toward coordinated referral, integrated service or resource sharing relationships. These more intensive types of network ties mean some network actors could lose a modicum of control or autonomy since they would potentially become more dependent on other programs for those things that they formerly controlled themselves. Resistance to that loss of autonomy could also shape network participant’s sense-making, especially if the new network activities take away from other

activities that the agencies value as important for obtaining their organizational performance goals.

Finally, exogenous network restructuring seeks to change the goals of the network. In the case I studied, the United Way introduced a new and ambitious goal of lifting 10,000 families out of poverty over a roughly 13-year period. While most network participants likely saw this as a laudable aspiration, it had the potential to pull them away from core service work to their target populations. Also, much of the impetus for this strategic change came from donors and local leaders who expressed beliefs that nonprofits had not been using their resources wisely or they would surely have eliminated poverty already. This questionable assumption likely flies in the face of the experience the nonprofit leaders that are a part of this network. Some participants may have been concerned that these lofty ambitions would not be matched with resources commensurate to achieving them, thus leaving their organizations to appear ineffective.

Though these are possible explanations based on the network restructuring model and are consistent with some interviewee observations, it would take comparison with sense-making in networks undergoing other types of change and more direct questioning to determine the extent that these factors influence sense-making in this or other similar cases. The next chapter explores some methodological issues that emerged from taking the perspectives of network participants seriously.

## **Chapter 5: Methodological Findings**

### **The Sense-Making Methodology**

My use of Dervin's sense-making methodology as a method of inquiry proved at once to be both useful and problematic. It can be a difficult methodology to implement and requires practice and experience to implement effectively. I found selecting elements for second level triangulation challenging as doing so often took the conversation away from the objects (the plots) and away from my primary research questions. I also tended to ask many of the same questions from the roster repeatedly, while using others sparingly or not at all. For example, I often asked informants "What is missing or incomplete?" which could be largely responsible for the emergence of that issue as a major theme. It is arguable that a more direct and directive approach to interviewing might have better addressed the primary research questions, discovered some useful patterns in sense-making and illuminated sense-making concerning network plots as mechanism of network change. Nonetheless, the SMM did prove helpful in uncovering some interesting and relevant insights into how the collection, analysis and visual presentation of network data might be improved from the perspective of network participants. The philosophy underpinning SMM allowed these insights to surface precisely because it valorizes and respects the insights and observations of informants that experience the phenomenon being studied.

While informants did not have access to the information needed for the observations shared in this chapter, their insistence that the plots failed to capture much of what they 'knew,' even about their own relationships, challenged me to revisit the network data again and again, to review it from the perspectives of participants. And,

upon closer examination, I found it understandable why plots sometimes failed to “make sense” to participants. I present those insights, as they related to five interrelated areas, below.

1. Boundary setting and sense making
2. Relationship types and sense making
3. Unconfirmed ties and sense making
4. Survey response patterns
5. The egocentric view and sense making

### **Boundary Setting and Sense Making**

Setting the boundaries for *social* network analysis is always a challenge since, unlike many *physical* networks, there is rarely a material edge to a social network. Nonetheless, “it is common for SNA studies in the management field to be silent or underplay important issues relating to boundary-setting, informant response rates, and decisions concerning visualizations” (Conway, 2014, p. 103). Choices concerning which programs/organizations analysts include on rosters, and those they choose to survey, arise from multiple theoretical, practical and relational considerations associated with the purpose(s) of the study, the resources available for it and access to survey respondents. Unfortunately, the field often gives limited consideration to how different methods emphasize some network features while ‘systematically obscuring’ others (Nowell et al., 2018). Wasserman and Faust (1994) discuss two broad approaches developed by Laumann et al. (1989) to establishing network boundaries—the *realist* approach where actors in the network set boundaries and membership and the *nominalist* approach where researchers set boundaries based on theoretical concerns.

Because we relied heavily on United Way engagement for access to the field and identification of suitable survey respondents, this study tended toward a nominalist approach that identified members of the ‘core service network’ as those programs working, or potentially working, on family self-sufficiency in the Roanoke Valley. In the process of establishing the survey roster, the United Way did reach out to some network participants for input on what programs/organization to include or exclude, but this likely fell short of a relational strategy (Knoke & Yang, 2008) or snowball approach (Borgatti, Everett, & Johnson, 2018) where network participants define membership through multiple rounds of nomination. Thus, we used a more nominalist approach to boundary setting with the United Way as the final arbiter of who to include and who to exclude on the survey rosters. However, the researchers were able to negotiate the inclusion of three “name generators” (Marsden, 1987) or open-ended questions asking respondents to name organizations which they deemed important, influential or admired (up to 5 organizations for each category), regardless of whether they were listed on the roster or whether the respondent had an existing relationship with them or not. Although we did not add any new programs/organizations identified by these questions to those represented in the plots we produced for the study (because those organizations were not surveyed about their relationships), it gave the researchers some insight into who might have been excluded from the initial survey and offered the possibility for us to include them in potential future data gathering efforts.

When researchers, analysts or sponsors establish network boundaries using a nominalist approach without the engagement of network participants, network participants might have difficulty “making sense” of the resulting network plots. Having

the network boundaries defined through an inclusive process by network participants themselves requires extra rounds of data collection and may not always be practical. However, engaging network participants in establishing the boundaries, even if there are only subtle differences in where boundaries are set as a result, could redound to a more sensible network for participants because it may contain actors who are important to those participants that might otherwise be missing. If it is a goal of a SNA to yield plots that are sensible to network participants, then engaging network participants in the boundary setting process may be especially important.

When examining networks at the organizational scale, whose members may each operate multiple programs, some of which may be included within the network while others are not, analysts must make decisions about what to do with the “organizational remainder” or those initiatives that do not fall within a network study’s boundaries.

Multiple informants for this analysis expressed confusion on this count. For example,

I was not surprised to see TAP be an integral part of this just because of their reach. I was a little more surprised to see Goodwill not as integral because it has struck me that they have as many or maybe more programs. And when they saw the big list of programs that were included, TAP had 8, or 9, 10 different ones. And Goodwill had maybe like three or something like that? And I was just like, ‘Where did all their programs go [laughter]?’ (Group 012\_013, 6/7/2017)

Even if all programs in an organization are included within a study’s delimited network boundaries (and on the survey roster), some relationships occur at an organization or multi-program level rather than with a single discrete program. Including an organizational remainder node for organizations with only some of their programs within a demarcated boundary might make the resulting network plot more sensible to participants. While it may be difficult to confirm ties to organizational remainders, including them on the roster of first round surveys of relationships may be a prudent first

step to provide analysts with information to help determine if they should be included in subsequent analyses. Confirming organizational remainder relationships would probably require a separate confirmation step, since it may be difficult to identify and engage an appropriate respondent that could confirm those relationships in an initial survey. Again, if a goal of the analysis is for network participants to make sense of network plots, then including organizational remainders in the boundary setting process may be an important methodological consideration.

### **Relationship Types and Sense Making**

Relationship type confusion was another factor I identified that could limit participant's sense-making abilities. We drew the relationship types employed in this study—information sharing, coordinated referrals, integrated services and shared resources—from the broader literature on collaboration and networks and from previous studies we had conducted. We also focused on relationship types that were of interest to the study's sponsor. In some cases, respondents identified that a relationship with another actor existed, but reported it as a different type than their counterpart did, meaning that neither relationship could formally be confirmed and therefore did not appear on most plots—the exception being the plot of Any Confirmed Tie at the Program Level (Figure 12) that showed confirmed ties independent of the relationship type. Although we provided detailed definitions and examples to survey respondents for this study, these relationship types did not emerge from network participants and there did not appear to be a shared understanding of their meaning emerging from existing or ongoing network activities that I was able to discern in my interviews. While the approach we used has merits from a research perspective, especially to aid in comparing studies conducted on

different networks, if it is a goal of the analysis for participants to make sense of network plots, then I suggest that the research design should incorporate approaches for mitigating relationship type confusion, though each such approach will present challenges of their own.

I suggest that there are two general approaches for increasing a shared understanding of relationship types among network participants. First, the framework used to define ties among network participants could be developed through an extended process involving those participants themselves. Researchers could use open non-directive qualitative approaches such as SMM to gain an understanding of how actors conceive of the different types of relationships at play in the network. Relationship type and intensity (the two tie attributes examined in this study) may not be the appropriate dimensions for quantifying relationships for this network, no matter how they are defined. For example, we could have chosen relationship types distinguishing between personal and professional relationships and could have quantified them by levels of trust or mutual benefit. My point is, in the case of this study, we did not involve network participants in the process of selecting those measures, but instead the project team and the sponsor selected them to align with their aims for the study. While this is completely appropriate and defensible, participants might have had less relationship type confusion had they been engaged in the process of defining those attributes.

A second potential approach that could be used to address relationship type confusion is for network leaders to operationalize those categories and measures used in the study within the network across an extended period prior to data collection. If the network actors become accustomed to using these relationship categories and measures in

their normal operations, in time a shared understanding may begin to emerge. For example, United Ways have long labeled the organizations to which they donate as “partner agencies” while dubbing those from which they fundraise as “employer partners.” In this long established and operationalized conception, United Ways are situated between these two sets of organizations/actors. The network initiative I studied was attempting to make a major break in these traditional partnerships and it was likely unclear to most network participants what types of new relationships would emerge. If a network change agent intends to use exogenous network restructuring as an approach to refocusing network performance, then a participatory process that collaboratively defines and operationalizes new relationship types could be an important first step.

Depicting complex organizational and human relationships in numbers for a network graph will always have its limitations, but selecting relationship categories and measures that are more sensible to network participants could be one important factor for ensuring the resulting plots are more sensible. The significance of members understanding and sharing conceptions of relationship types also emerged in my exploration of survey response patterns and can be seen visually in the egocentric network views, both of which I discuss in the following sections.

### **Unconfirmed Ties and Sense Making**

I collected relationship data for this project from participant self-reports and then used a process known as ‘reciprocal nomination’ to identify confirmed relationships. In that process, a link is considered confirmed only if reported by both actors in the dyad independently (Stork & Richards, 1992). Perhaps, the process I used could be better described a *blind* reciprocal nomination, because neither party knows whether or not the

other party reported a relationship about them. Survey participants are not actually confirming a relationship that others have said exists; rather, I as the researcher am using the reciprocal nomination process to confirm those relationships. Some confusion among network participants may exist by referring to these simply as confirmed relationships, which may imply that they are *respondent* confirmed relationships rather than *researcher* confirmed relationships. Most plots from this study presented researcher confirmed ties rather than unconfirmed ties, meaning that both parties independently reported a relationship of the same type. Of course, some relationship types can be directional (and not reciprocal) and some can be either directional or reciprocal. I was interested in reciprocal relationships in this study and I developed all the relationship definitions to be reciprocal in nature. For example, I could have chosen to define information flows as directional by asking who participants obtained information from and who they provided information to; instead, I defined information sharing as a reciprocal relationship involving “routine conversations between program staff.” Given that focus, removing unconfirmed ties from the analysis (and the plots) accomplished several important things. As discussed in (Conway, 2014), unconfirmed ties could represent an attempt by one respondent to overstate the number or importance of their relationships to present a distorted ‘self-presentation’ (Goffman, 1973) to create a ‘hoped-for-possible-self’ (Zhao, Grasmuck, & Martin, 2008). Removing such ties is appropriate in many cases. However, when one individual fails to report a tie reported by another, researchers commonly interpret that non-response as indicating that the connection is less significant, weaker or somehow qualitatively different than a confirmed relationship (Provan et al., 2004) and that, therefore, it is appropriate to omit it from some graphical representations and

analyses. These ‘hidden’ relationships (unconfirmed ties not shown on plots) inhibited sense-making among some informants, as in the following passage which I have discussed previously.

I think that it's important to note the missing relationships because I mean, the clearest example I can give is [a certain large multi-program nonprofit]. I mean, we work very closely with [them] to provide opportunities for our kids here in [our organization]. Because of that, we are able to send our kids on field trips and we're able to do college visits that we couldn't do otherwise. [They are] able to confirm a certain number of units of service that they wouldn't be able to confirm otherwise. So, that's the one that really jumps out at me on that on the confirm tie level. (Interview 011, 6/7/2017)

Had the plot shown unconfirmed relationships, the informant may have felt quite different. For this program, there were 51 reported relationships involving 17 alters, but only one was confirmed. Interestingly, the implication made in this passage is that the survey respondent for the large multi-program nonprofit had not confirmed the relationship discussed which they assumed had been reported by the survey respondent for the informant’s own organization (which was someone other than the informant), when, in fact, the respondent for the youth services program of the large multi-program nonprofit *had* indicated a relationship, but the survey respondent for the informant’s own organization had not indicated a relationship with them. However, there was no way for informants (or survey respondents) to be aware of that fact because the data concerning it was not accessible to them.

There are several possible methodological explanations for “real” relationships that are unconfirmed, including the survey respondent’s unfamiliarity with all organizational relationships, relationship type confusion, and even response patterns. I have addressed relationship type confusion above and offered potential ways to address it. Survey response patterns are a specific instance of relationship type confusion that I

will discuss in a later section. A survey respondent's potential unfamiliarity with all organizational relationships is an issue in any study of inter-organizational relationships. Especially for large organizations with many connections, identifying and securing participation from informed respondents with knowledge of those relationships is difficult. In any SNA, analysts expend much effort to get a very high (close to 100%) response from all organizations/programs on the roster because of the sensitivity to missing data (Huisman, 2009) that can lead to misleading conclusions and representations (Borgatti & Molina, 2003). However, it is challenging to secure effective participation from one or more respondents from each organization/program who has adequate knowledge of all relationships and it is difficult to measure and establish the adequacy of the response when in the midst of conducting a survey.

Much of my informants' confusion around unconfirmed ties may have been prompted by the research design choice of using a single point in time survey to collect ties and then confirm them through reciprocal nomination. In this design, survey respondents identify relationships without knowing whether other network members are indicating a relationship with them. Alternatively, another potential approach for researchers to confirm ties is a two-step survey process in which connections are identified in a first survey and then confirmed, refuted or otherwise qualified by respondents in a second survey. While a two-step process may not be appropriate for some whole network analysis projects, it may be prudent when using the introduction of network plots to catalyze network change. Researchers would have to discern ways to address social pressure for respondents to confirm more ties than they would have otherwise out of fear of causing offence to potential future network partners who may

have a different conception of the relationship. This could be addressed by some sort of graded response (such as relationship intensity) that allows options other than simply dismissing the existence of a tie. One of my informants, after the interview was over, suggested a Tinder-like swipe left, swipe right system for relationship confirmation, which while effective in the world of online hookups, may be ill-fitting for long-term collaborative spaces. In Chapter 6, I discuss how to design a study to explore the benefits and tradeoffs of an alternative approach to tie confirmation.

### **Survey Response Patterns**

One of the most interesting findings from this study, for me at least, emerged directly from the intersection of the method (SMM) and the primary emerging theme (The Missing). As noted above, some participants experienced such a sense of unreality about the place of their organizations on the plots that they surmised some sort of error or flaw had occurred in the research. Taking informants at their word, instead of simply trying to communicate the limitations of a study of this sort, required that I double and triple check each step of the data collection and analysis process, starting with the element of the inquiry that would logically connect most closely with the participant's view of the network, their initial survey responses. Respondents completed the survey instrument online and the investigators extracted the network data into matrix form for further analysis without necessarily examining the responses in their raw form. Upon printing the surveys and comparing them to the information in the plots, I observed some interesting response patterns that were not readily evident to me in the whole network analysis. These appeared to explain some of the sensemaking troubles experienced by

participants. They also could affect interpretation of the network analysis results in interesting ways.

Someone could interpret the four relationship types surveyed in this study as progressive, each building on the next from left to right in the way they were ordered on the survey. That is, one could assume coordinated referral relationships build on the relational foundation of information sharing; integrated services relationships in turn build on coordinated referrals; and resource sharing relationships build on integrated services. However, in the materials we provided to participants we did not define the relationships that way and we gave leave to participants to interpret the connections between relationship types as they saw fit. While it is difficult to understand how coordinated referrals, integrated services or shared resources could exist without information sharing, they are otherwise independent types of ties as defined in the study materials we provided to study participants (see Table 2).

To aid in understanding how survey respondents had different understandings of the relationships between ties, I have categorized several common response patterns as builder, informer, floater, skipper, completer and mixer. I describe each of these below and provide examples derived from respondent surveys. I coded individuals' survey responses to the assigned pattern if there were no more than two exceptions to the dominant pattern at the line item level, otherwise, I coded them as a mixer.

**Builder.** Builders tended to fill in the columns from left to right, stopping at a certain point before moving to the next row. They rarely if ever chose to leave a column blank and then provide additional responses further to the right. These respondents appeared to view each relationship type on the right as deriving from those to its left on

the form and that could not exist without the lower level relationships. This pattern is illustrated in Table 21.

Table 21

*Builder Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	1			
Program 02	3	3	3	3
Program 03	2	2		
Program 04	1	1		
Program 05	1	1	1	
Program 06	3	3	3	3

**Informer.** Informers tended to identify all their relationships as information sharing only, as illustrated in Table 22.

Table 22

*Informer Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	2			
Program 02	1			
Program 03	2			
Program 04	1			
Program 05	2			
Program 06	1			
Program 07	3			
Program 08	1			
Program 09	2			
Program 10	2			
...				

**Floater.** Floaters typically provided one response per row, leaving all others blank, as illustrated in Table 23. This example also illustrates another observation I made

about response patterns—often, if there was a variation from a pattern, it occurred in the first response. Perhaps Floaters misunderstood the survey instructions and thought that they were supposed to provide only one response for the tie type that best fit the relationship. Alternatively, perhaps respondents faced with making choices concerning so many relationships across multiple dimensions may have employed a sort of shorthand to help them expedite the process.

Table 23

*Floater Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	3		1	
Program 02				3
Program 03	3			
Program 04			3	
Program 05		2		
Program 06			3	
Program 07			3	
Program 08			3	
Program 09			3	
Program 10		2		
...				

**Skipper.** Skippers, as the name implies, often omitted lower-level relationships on the left to provide responses for higher order ties to the right, as when they indicate an information sharing relationship, then skip responding to the coordinated referrals relationship to indicate a relationship involving integrated services or shared resources. This could indicate that they thoughtfully considered the relationship definitions and only provided indications of connection intensities for those that met the descriptions. Their

response patterns also suggest that they conceived that all higher order relationships were based on information sharing, as illustrated in Table 24.

Table 24

*Skipper Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	1			
Program 02	1		3	3
Program 03	1		3	3
Program 04	1			3
Program 05	1	2		
Program 06	1		2	
Program 07	1			
Program 08	1			
Program 09	1			3
Program 10	1			
...				

**Completer.** Completers provided a response for each relationship type if the connection existed at all, as illustrated in Table 25. They seemed to believe they should provide a response for each blank on the survey instrument. In many cases, the reported intensity decreases for relationship types further to the right, but they are never left blank.

**Mixer.** Mixers did not appear to use any one strategy, as illustrated in Table 26. Like Skippers, their responses could indicate that they thoughtfully considered the relationship definitions and only provided relationship intensities for those ties that fit each description.

Table 27 presents the distribution of response patterns grouped by the respondent's dominant pattern.

Table 25

*Completer Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	2	2	1	2
Program 02	3	3	3	3
Program 03	3	3	3	3
Program 04	3	3	3	1
Program 05	3	3	3	1
Program 06	1	1	1	1
Program 07	3	3	3	2
Program 08	3	3	2	1
Program 09	1	2	1	1
Program 10	3	3	3	2
Program 11	3	3	3	3

Table 26

*Mixer Response Pattern*

	<b>Information Sharing</b>	<b>Coordinated Referrals</b>	<b>Integrates Services</b>	<b>Shared Resources</b>
Program 01	1			2
Program 02	1			
Program 03			1	
Program 04	1		2	
Program 05	2		3	3
Program 06	3		3	3
Program 07	1	1		
Program 08	1	1		
Program 09	3		2	2
Program 10	3	1	3	3
...				

These response patterns suggest several potential implications. First, although the latter three relationship types are independent, all logically (and definitionally) rest on a foundation of information sharing. When Floaters failed to indicate an information sharing relationship when indicating one of the higher order relationship types, it resulted

in fewer confirmed information sharing ties. One potential way to address this is for researchers to deduce the existence of information sharing relationships in those cases and represent them on relevant plots.

Table 27

*Distributions of Response Patterns Grouped by Dominant Response Pattern*

Responder's Dominant Pattern	Count of Response Patterns	Total Line-item Responses	Line-item response patterns					
			Build	Float	Inform	Skip	Complete	Blank
Builder	13	215	<b>121</b>	1	61	3	20	9
Floater	19	330	1	<b>180</b>	85	2	0	62
Informer	5	102	0	1	<b>88</b>	0	0	13
Skipper	6	83	5	3	36	<b>36</b>	2	1
Completer	14	164	3	0	1	0	<b>151</b>	9
Mixer	6	100	28	6	27	20	12	7
NA	1	0	0	0	0	0	0	0
<b>Total</b>	<b>64</b>	<b>994</b>	<b>158</b>	<b>191</b>	<b>298</b>	<b>61</b>	<b>185</b>	<b>101</b>

Second, Floaters were more likely to be involved in relationship type confusion, in which one respondent indicated a relationship of a particular type, but the other individual in the dyad defined the tie differently, resulting in an unconfirmed tie for both relationship types that did not appear in plots. Interestingly, Floaters were also the most likely of all respondents to indicate a relationship by selecting the boxes in the first part of the questionnaire and then not indicating the intensity for all relationship types (62 of 330 responses or 19%).

Third, because Completers defined all their relationship as containing all four relationship types studied, we were more likely to represent them as participating in robust relationships—defined as relationships that consist of three or four of the different relationship types. Of the 994 line item responses across all surveys, 185 indicated all

four relationship types to be present (unconfirmed robust ties). Of those 185, 151 arose from 14 of the 64 respondents (82% arising from 22% of respondents). Of those 14 respondents, 11 were associated with one of the organizations evidencing confirmed connections across all four relationship types (see Figure 13). At the organizational level of aggregation, eleven organizations evinced confirmed ties for all four relationship types with at least one other organization (see Figure 26). Of those eleven, five respondents were Completers and four were Builders.

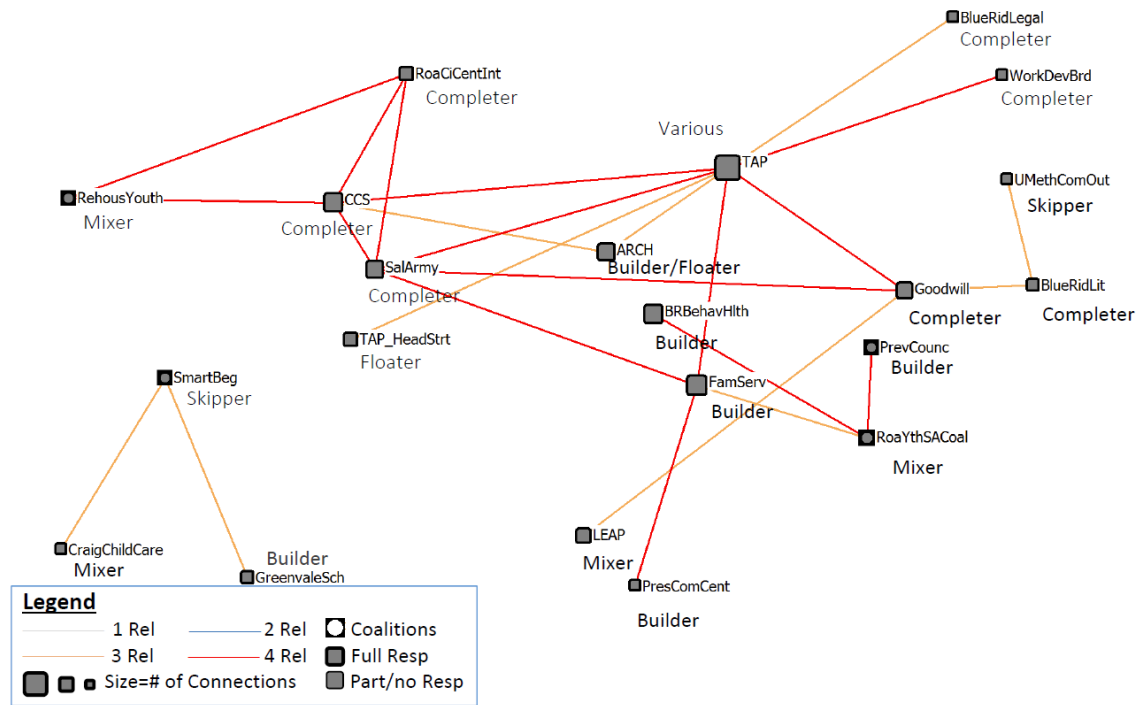


Figure 26. Robust relationships with response patterns identified.

Respondents' use of these two strategies make it more likely that the analysts would show them as participating in a robust relationship in Figure 13. Table 28 presents organizations with robust ties.

Completers may not have been necessarily indicating the presence of all four relationship types as much as they apparently assumed that they were supposed to

provide a response for each blank on the survey form. Researchers may address some of this phenomenon by using processes to confirm relationships and SNA-specific statistical techniques to address autocorrelation. However, it is also possible that completers' indication of a relationship intensity of 1 (defined as "Not an especially important or frequent link") may have been equivalent to a blank or non-response for individuals using other response patterns. I had assumed as I began this inquiry that humans' predilection to find patterns would result in sensemaking concerning the meaning of the plots. However, that penchant for patterns appears to have evidenced itself even earlier—in responses to the survey instrument.

Table 28

*Organizations With Robust Ties*

<b>Org</b>	<b>Patterns</b>	<b>4 confirmed ties</b>	<b>3 confirmed ties</b>
SalArmy	Completer	5	
CCS	Completer	4	1
RoaCiCentInt	Completer	3	
Goodwill	Completer	2	2
WorkDevBrd	Completer	1	
FamServ	Builder	3	1
PresComCent	Builder	1	
BRBehavHlth	Builder	1	
PrevCounc	Builder	1	
RoaYthSACoal	Mixer	2	1
TAP	Mixer (aggregate)	5	3
BlueRidgeLegal	Completer		1
BlueRidgeLit	Completer		2
ARCH	Builder		2
GreenvaleSch	Builder		1
SmartBeg	Skipper		2
CraigChildCare	Mixer		1
UMethComOut	Skipper		1
LEAP	Mixer		1
TAP HeadStart	Floater		1

## **The Egocentric View and Sense Making**

The plots provided to participants showed a large landscape of collaborations across different dimensions, but for network participants observing the plots, the portrait of the ego was left lacking, perhaps causing a failure in sensemaking as they searched for cues for a plausible explanation that fit their CSS. Network studies often focus on either the whole network or the egocentric network in their analysis. The whole network plots provided in this study did not show everything that respondents reported about their relationships, nor all that was reported by others about their ties with them. There are important differences between egocentric network analysis and whole network analysis; however, when participant sense-making is important, a method bridging the two approaches may be warranted (Kilduff & Tsai, 2003). An egocentric view could be useful to both participants and researchers, especially for sense-making. This sort of plot, which I call a multiplex, first-order, ego-centric plot, illuminates unseen patterns and makes some of the “missing” ties reported by interview informants more visible. Researchers may have legitimate ethical concerns about giving participants such a clear view of what others say about them; however, interested participants could deduce most of that information from standard plots, especially if researchers used a two-step tie verification process or they retained records of the responses provided on behalf of their own organization. The remainder of this section presents some of these plots that illuminate some of the different sense-making positions respondents may have experienced when viewing the plots provided to them. This type of plot is potentially a useful tool for examining the unconfirmed ties discussed above. For example, it could provide a quick

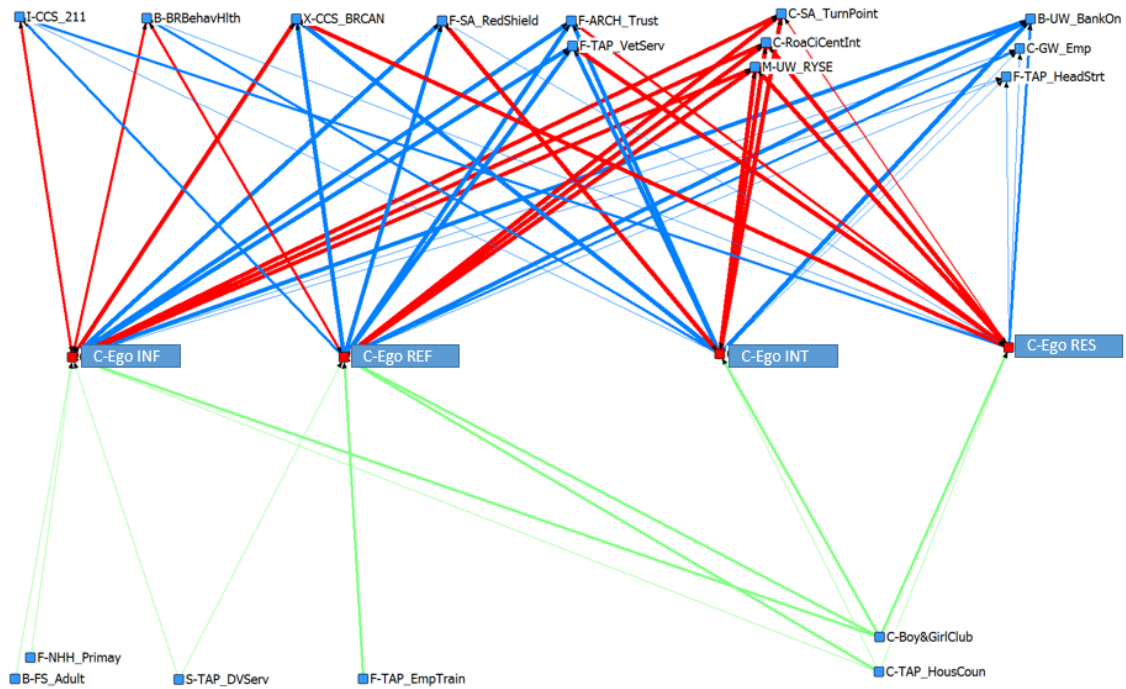
indication that perhaps the survey respondent(s) had inadequate knowledge of relationships to act as a reliable confirmer.

While there were nearly 70 survey respondents, there were only informants from 11 organizations represented in my interviews, so there is not enough information from this study to correlate egocentric views with sense-making approaches, but there may be enough hints to build some testable theories about potential correlations if data could be collected from a larger sample of network participants in a fresh study.

Below I use a single plot to represent the 1<sup>st</sup> order egocentric network across all relationship types for several programs and discuss what they could potentially reveal. Blue ties were reported by the ego, but were unconfirmed. Red ties indicate confirmed ties. Green ties were relationships reported by others that were not confirmed by the ego. The thickness of the tie represents reported relationship intensity; for confirmed ties, where each party in the dyad reported different intensities, the thickness represents the minimum intensity reported by either respondent. In my own attempt at sensemaking, I quantified the level of potential ‘unreality’ that a respondent might encounter based on the pattern of confirmed and unconfirmed ties. I calculated the number of alters, the number of ties and the total tie intensities for all three situations—unconfirmed ties reported by the ego, confirmed ties, and unconfirmed ties reported by alters. In Figures 27–33, the first number was reported by the ego, but not confirmed, the second was confirmed and the final was reported by others, but not confirmed by the ego. For the alter unreality numbers, the number following the + sign is additional alters that might have been confirmed except for tie confusion (meaning that it would show up on a “Any

Confirmed Tie at Program Level Plot,” but would not have appeared on any of the relationship specific plots.

**The completing realist.** Figure 27 depicts a program with a relatively high number of confirmed alters, 9 of the 12 reported (75%).



**Completer**

Alter Unreality 3/(9+0)/6  
 Tie Unreality 28/20/13  
 Intensity Unreality 59/54/19

Figure 27. The completing realist.

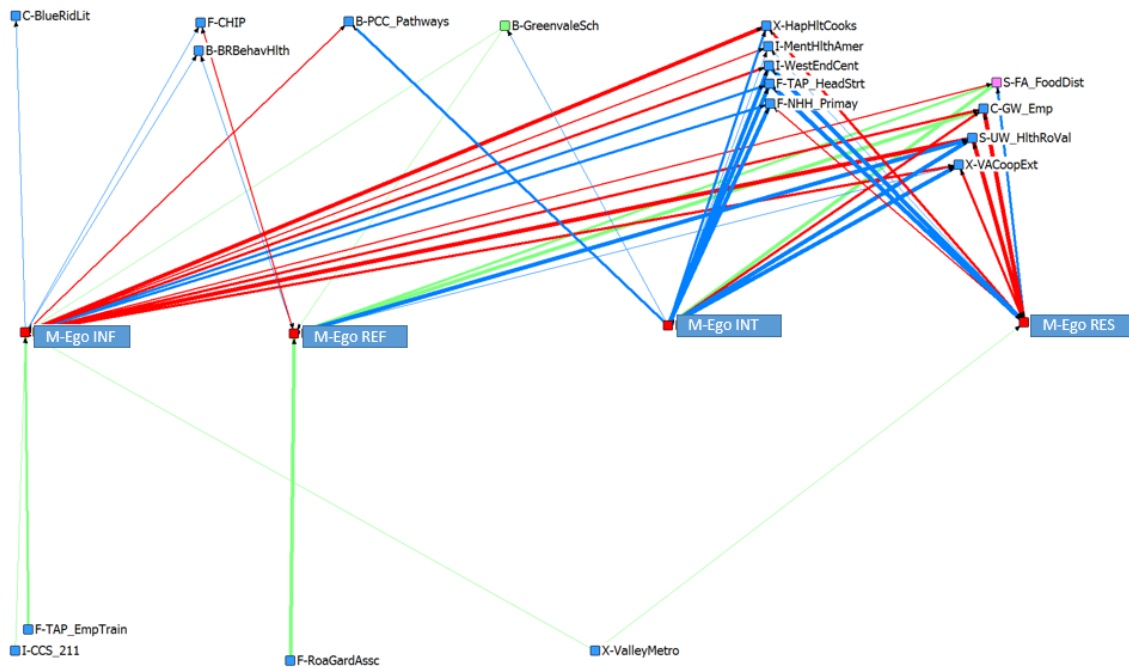
The ego depicted in this plot reported only three alters that did not confirm ties and only 6 other alters (programs) reported relationships that the ego did not confirm. Of the unconfirmed relationships reported by others, most were reported as low intensity, which may mean that the ego did not consider them relevant enough to report. Three of the six unconfirmed alters were TAP programs. Ego did report a relationship with TAP’s Veterans Services, which that program reported as both intense and robust (comprising

all four relationship types). This may mean that they saw many other TAP programs as being related or bound up in that one relationship. Interestingly, TAP Veterans Services only confirmed the resource sharing relationship with ego, which might indicate that they saw the relationship purely in financial terms—that is, until you consider the response patterns of both. The ego’s response pattern is Completer, while the respondent for TAP’s Veterans Services was a Floater (meaning they almost always picked only one relationship type as comprising the connection). So, the results of this analysis of ties may have more to do with response patterns than the nature of the relationship(s) shown on the provided graphs. When examining ties and intensity only 20 of 48 reported ties were confirmed (41.6%) with a cumulative confirmed intensity of 54 of 113 reporting (47.8%). While lower than the percentage of confirmed alters, these are still relatively high confirmation rates when compared with others in the network. This could possibly mean that, for this respondent, the plots might have had less hidden information, making it easier for them to make sense of the plots. Finally, the relatively low number of unconfirmed alters could be an indication that the survey respondent was well positioned to have knowledge of the program’s relationships.

**The mixing realist.** Figure 28 shows an organization in a similar position. One potentially significant difference is that ego’s response pattern is that of a Mixer rather than a Completer, meaning that they perhaps provided more considered responses about the nature and extent of their reported relationships.

Again, we see a high confirmation rate among alters—11 of 14 or 78.6%. This included one alter (Greenvale School) that illustrated tie confusion, since the ego defined the connection as integrated services, while the the alter described it as information

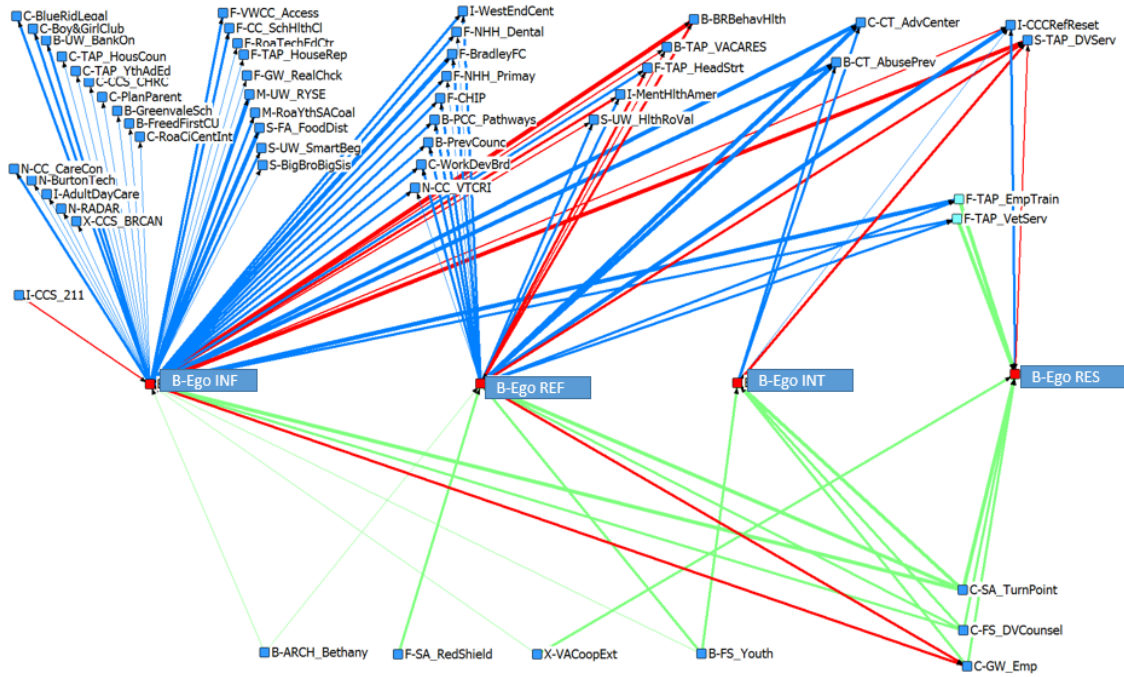
sharing and coordinated referrals. The tie confirmation rate (41.7%) and intensity confirmation rate (37.2%) in this instance were slightly lower than the previous example, but still relatively high. However, this presentation suggests visually that the confirmed relationship types tended to skew toward information sharing and shared resources. This may mean that while the ego saw many of their relationships as containing a combination of three or four relationship types, partners tended to see those ties as primarily information sharing and occasionally as shared resources, but in only one case each as coordinated referrals or integrated services. Again, this diagram depicts very few unconfirmed alters, meaning that the respondent likely had extensive knowledge of the program's relationships.



**Mixer**  
 Alter Unreality 3/(10+1)/4  
 Tie Unreality 21/15/10  
 Intensity Unreality 49/29/18  
 Figure 28. The mixing realist.

**High Reality**

**The low reality poser.** Figure 29 shows a program that reported many more ties than were confirmed. Only 20% of the alters reported by ego were confirmed by alters, about the same confirmation rate as the number of reported ties.



**Low Reality**

**Builder**  
 Alter Unreality 36/(9+2)/6  
 Tie Unreality 59/15/20  
 Intensity Unreality 108/26/52

Figure 29. The low-reality poser.

Two additional alters might have been confirmed except for tie confusion. In particular, the image indicates many information sharing and coordinated referral relationships reported by ego that were not confirmed by alters. Analysts may interpret these many reported but unconfirmed relationships as an attempt by the ego to overstate the extent of their ties in the network, but it could also be an artifact of the Builder response pattern manifested by the respondent. Irrespective of which of these may have

occurred, the result could have led the respondent to a sense of unreality that could have inhibited their sensemaking.

Interestingly, this adult program respondent did not confirm a relationship with either the youth or domestic violence programs within the same organization—two of only six programs indicating a relationship with ego that were not confirmed. Given that ego had confirmed a robust relationship (all four relationship types) with TAP’s domestic violence program, it is possible that the respondent thought it unnecessary to report ties with programs within its own organization.

**Above it all.** Figure 30 depicts a program that reported only 4 alters and 5 ties, yet had 12 alters with 24 ties reported by others that did not confirm them.

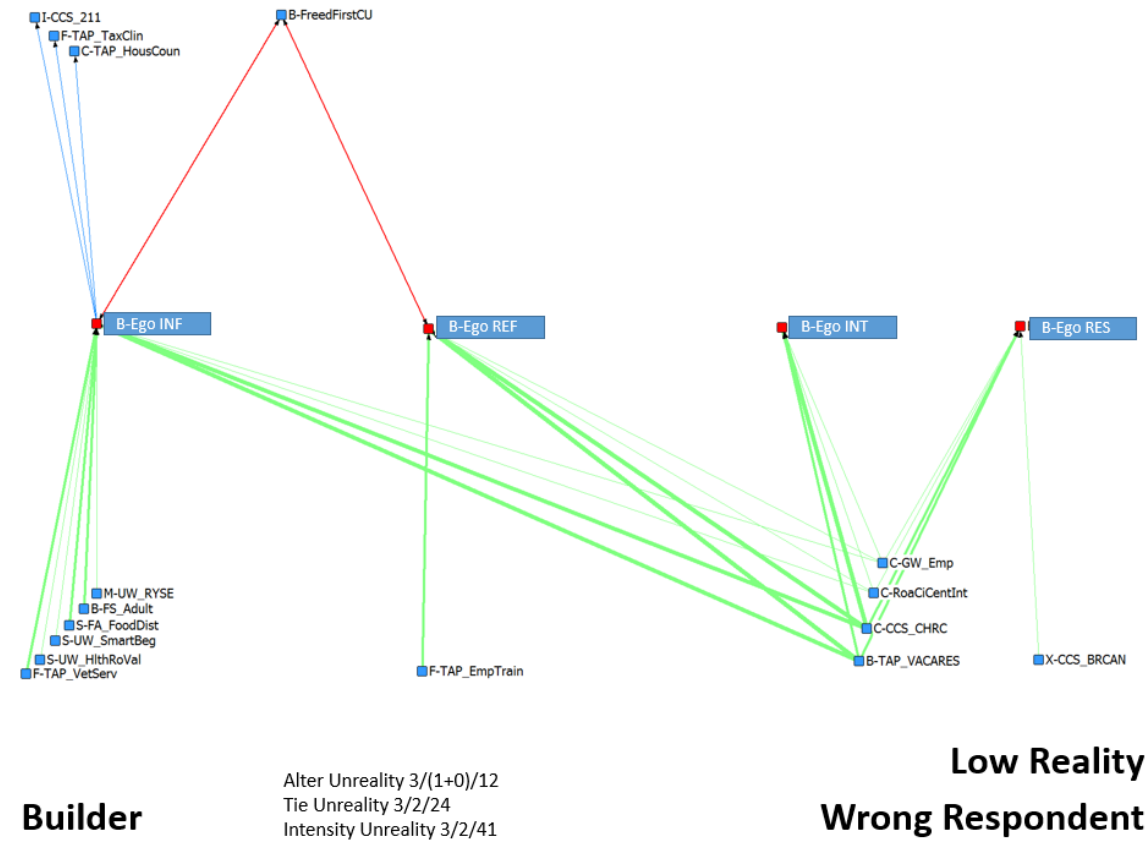
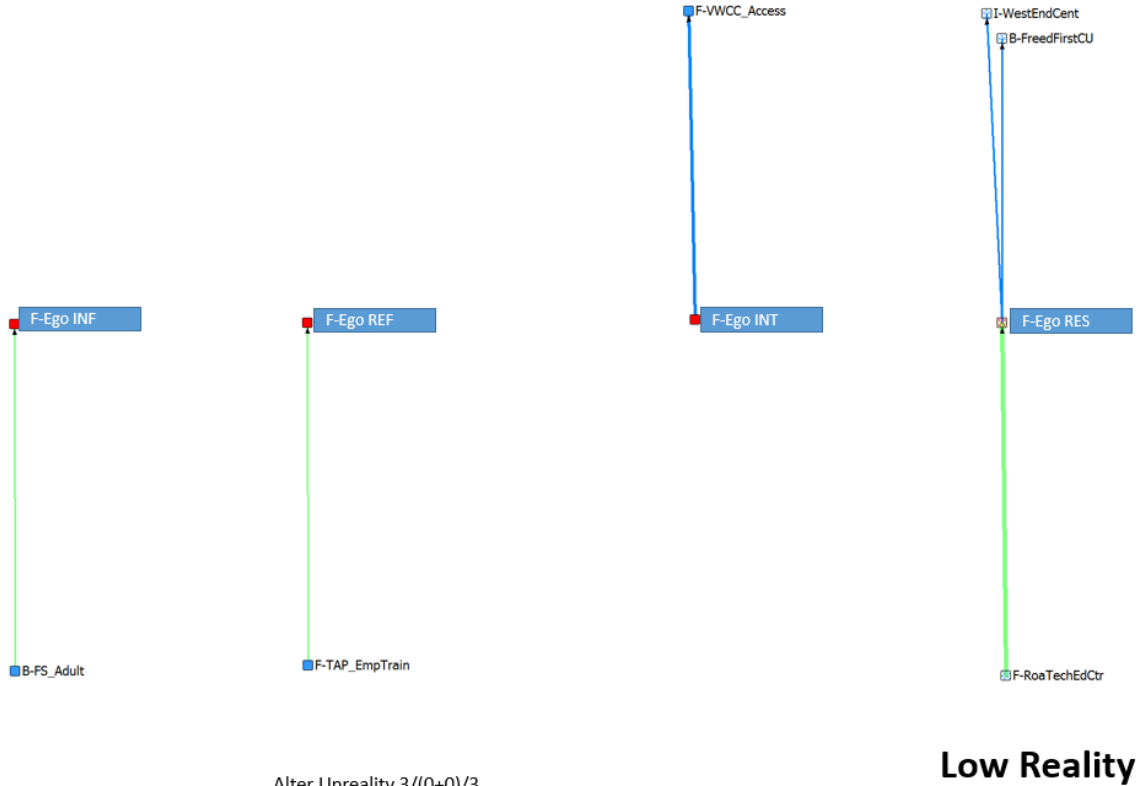


Figure 30. Above it all.

The result was a program with many relationships reported by others in the network that shows only a single connection to those entities. One might suppose that perhaps the survey respondents were not in a good position to know the program's relationship. However, this small initiative had two respondents (a new director and a former director) whose responses were aggregated for the programs. They should have had a good understanding of the initiative's ties. While there were a few differences, each respondent identified a relatively small number of low intensity connections, primarily information sharing, with a small number of other programs. Perhaps the respondents had a very different conception of relationships from their partners. The ego in this case was a coalition run by the convening partner, the United Way. Therefore, it is also possible that many other organizations sought to promote weak or non-existent relationships with that initiative as more significant than they were in order to curry favor with the United Way and demonstrate their willingness to collaborate in the future. It is possible that the diminished connectivity of this program as seen on the standard network plot could contribute to a broader sense of unreality among a larger group of network participants that could have undermined some measure of sense-making among them. At the same time, because it shows only confirmed ties, the plots might offer an accurate representation of the actual relationships.

**The wall flower.** Figure 31 shows a program that wound up as an isolate because all of its ties were unconfirmed. The ego reported three ties with three programs, but none of those was confirmed. Three programs reported relationships with the ego, but that respondent did not confirm them. So, even though the program was represented as an isolate in all network plots, the reality was slightly more complex. Nevertheless, the

conclusion that this program was relatively unimportant to the network appears to be a justified one.

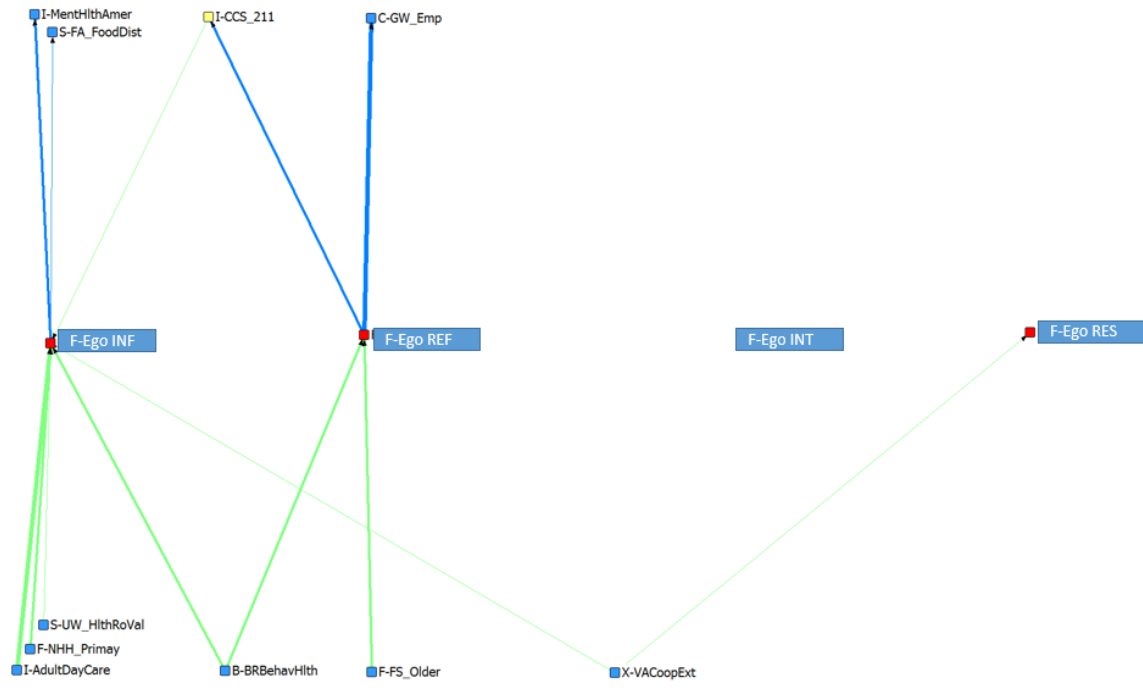


**Floater**

Alter Unreality 3/(0+0)/3  
 Tie Unreality 3/0/3  
 Intensity Unreality 4/0/5

Figure 31. The wall flower.

**The ghost.** Figure 32 is similar to Figure 31 in that the program, indeed the whole organization, was represented as an isolate, despite having a number of ties reported in the survey. In this case, the issue may have resulted because the respondent for the ego completed the survey from the perspective of a single program, Meals-on-Wheels, while other initiatives responded to the survey thinking more broadly about the range of services offered by the ego.



**Floater**

Figure 32. The ghost.

Alter Unreality 3/(0+1)/6  
 Tie Unreality 4/0/9  
 Intensity Unreality 8/0/15

**Low Reality**

**Out to lunch.** Figure 33 is an example of an organization that wound up with only two confirmed ties, both information sharing. The ego reported only 4 unidimensional relationships with 4 programs. However, many other programs reported numerous and varied relationships with the ego. It appears that either many programs over reported their relationships to ego or the respondent for ego had insufficient knowledge of those ties or did not take the survey seriously. As a result, a potentially important organization was significantly underrepresented in the network plots. In a situation such as this, there may be justification for researchers to adjust the network analysis and ‘symmetrize’ representations to show unconfirmed relationships (Scott, 2000) as is sometimes done for important non-respondents such as RADAR, which was a non-respondent that was represented on some plots. Or alternatively, early

identification of the situation (difficult prior to analysis) could have led to a decision to identify additional respondents or to use a two-step tie verification process as discussed above. Regardless, it is completely understandable that the diminished representation of this organization on network plots could inhibit sense-making and led observers to search for other ways to account of what they saw or did not see on the plots.

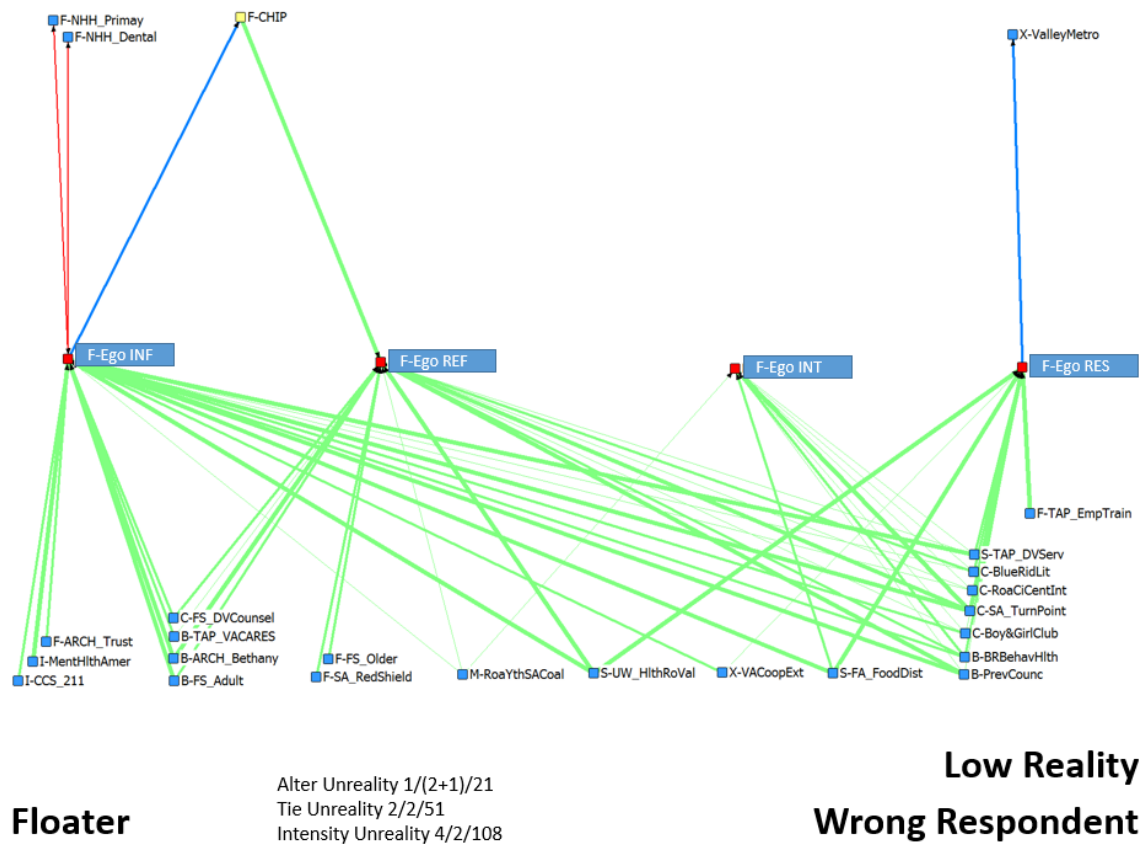


Figure 33. Out to lunch.

**Wrapping up.** There are many other multiplex first-order ego-centric plots that are equally informative and potentially useful for understanding participant’s sense-making. Although problematic because of the clarity of information they reveal about what respondents say about each other’s relationships, their usefulness as a visually informative data validation tool for researchers and analysts warrants further exploration.

Because the representation of one's own program/organization may be particularly important in sense-making, these plots may also be useful in identifying individuals/organizations that might struggle to make sense of network plots, which could be useful to understand when network leaders attempt to use information in the plots for decision-making.

In Chapter 6, I synthesize my emerging subject area and methodological insights and potential propositions from chapters 4 and 5 and suggests potential directions for future inquiry.

## Chapter 6: Synthesis and Conclusions

In this research, I set out to explore how network participants made sense of network plots. I did so to gain insights into how that sense-making might influence collaboration and network performance. In an effort to privilege the perspectives of network participants, I used an open-ended, non-directive interviewing approach—Dervin’s SMM situated micro-element interview method. Partially as result of that choice, I had difficulty using the information I obtained from interviews to address my primary research questions directly. However, the wide-ranging character of the conversations I conducted did offer a wealth of insights that challenged some of my fundamental assumptions and prompted me to consider several new directions discussed below.

### **Limitations**

There are several limitations of this study that bound its relevance and constitute validity threats to broad generalization.

**Single case study.** This research is based on a single case. The characteristics of that case likely limit its applicability. It was a new initiative attempting to redirect the work of several diverse networks and a broad group of other actors. The nature of network change aborning had many exogenous and engineered aspects that were in a state of flux as I embarked on the study. There was not yet broad consensus among network participants on the appropriateness of the change efforts afoot. My findings may be most appropriately applied to cases with similar circumstances.

**Atypical approach to analysis design.** To avoid influencing the sense-making of my informants, my advisor and I implemented the SNA portion of the analysis with

limited interaction with network participants. We did not wish to ‘colonize’ their sense-making with our own theories, frameworks and assumptions prior to data collection. This approach was a break from our preferred practice of deep participant engagement throughout study design, implementation, analysis and dissemination. Therefore, my findings may not be typical and may not apply as directly to networks where researchers/analysts, network managers and participants work more closely throughout the process.

**Non-representative informants.** I selected my informants to provide a polyphony of voices from diverse perspectives in different structural positions within the network. The 19 informants I interviewed were not necessarily representative of the over 72 programs in the core network. A larger, more representative sample would be required to reliably address research questions connecting sense-making strategies to uses of information and later collaborative choices.

**Non-response bias.** I was not able to obtain interviews from several candidates that I initially selected for an interview and attempted to recruit. They declined interviews for a variety of stated reasons, usually citing scheduling difficulty or saying they were too busy. It is possible that other factors, such as the nature of proposed changes in the United Way funding approach could have led to a reluctance to speak while being recorded even with assurances of confidentiality. It is possible that those individuals declining interviews might have held perspectives that differed from those held by those that consented to be interviewed, leading to a bias in my findings toward issues that were more comfortable to discuss. However, given the candor of many of my interview

informants on a range of uncomfortable and controversial issues, the effect could have been quite small.

**Unstructured interviewing approach.** The unstructured approach to SMM interviewing that I undertook in this research was effective in raising important new questions. However, a more structured approach for an SMM interview that asked informants the same set of questions about the same objects would better address research questions.

### **Summary of Insights**

Table 29 presents a summary snapshot of the insights discussed in previous chapters along with potential propositions emerging from those findings. This chapter synthesizes many of those observations into a framework for researching and understanding how network participants make sense of network plots. Those threads I do not employ for that purpose require further development.

Table 29

*Emerging Insights and Potential Implications*

Domain	Emerging Insights/Findings	Potential Implications
Issues relating to the case	<ol style="list-style-type: none"> <li>1. Some participants exhibited significant ambiguity and anxiety about pending changes to the United Way’s funding allocation processes that seemed to influence their sense-making strategies regarding network plots.</li> <li>2. This was a large network and informants had difficulty making sense of plots with many alters and ties.</li> </ol>	<ol style="list-style-type: none"> <li>1. The type of network change at play in a given network at the time of analysis (see Chapter 2) is likely to influence the sense-making strategy of network participants when considering network plots.</li> <li>2. There may be an upper threshold to network size or density allowing for visual sense-making of network plots. The larger and denser the plot gets, the more difficult it may be for network participants to extract useful information visually.</li> </ol>
Sense-making from network plots	<ol style="list-style-type: none"> <li>1. Informants made sense of network plots not just to enable change, but also to enable resistance to perceived change and to reinforce the status quo.</li> <li>2. The dominant sense-making strategy that emerged in the interviews was one of confusion, resulting from a sense that participants referred to as something missing.</li> </ol>	<ol style="list-style-type: none"> <li>1. There may be important relationships between the information individuals extract from a source, their sensemaking strategy, and the use they make of that information that could be uncovered by a differently designed study.</li> <li>2. Sense-making may have little to do with how individuals use information to make decisions or form beliefs. Instead it may be a way of reconstituting a plausible representation of the self in the light of sometimes contradictory actions and/or beliefs or it may be evidence of dissonant perceptions of oneself by others.</li> </ol>
Use of information from plots	<ol style="list-style-type: none"> <li>1. Relatively few interviewees evidenced a strong inclination toward a particular use of information extracted from a network plot;</li> </ol>	<ol style="list-style-type: none"> <li>1. My approach to Dervin’s interview method was not effective in extracting connections among information extracted from plots, sense-making strategies, and potential uses of that data. A more</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
	<p>more statements suggested either weak or exploratory use of extracted information.</p> <ol style="list-style-type: none"> <li>2. On a few occasions there appeared to be little logical connection between the information that informants reported extracting from plots and the potential uses they posited they would make of that information.</li> <li>3. I did not ask the question about potential uses consistently.</li> </ol>	<p>focused interviewing approach might have yielded a pattern of connections.</p> <ol style="list-style-type: none"> <li>2. Some characteristics of this study's focus may have made the resulting plots less useful to network participants than they might have been otherwise, including               <ol style="list-style-type: none"> <li>a. The size of the network</li> <li>b. The diversity of the network</li> <li>c. The nominalist approach to setting boundaries</li> <li>d. The anticipated mode of network change</li> <li>e. Lack of participatory processes defining relationship types and attributes</li> <li>f. Trust in the process</li> </ol> </li> </ol>
Collaboration	<ol style="list-style-type: none"> <li>1. There were some statements indicating that informants might use the information from the plots for collaborative actions.</li> <li>2. Informants offered many statements related to collaborative challenges.</li> </ol>	<ol style="list-style-type: none"> <li>1. Participant's past dispositions toward collaboration are likely to be reflected in their sense-making related to potential uses of information from network plots.               <ol style="list-style-type: none"> <li>a. Participants with a predisposition toward collaboration will be more likely to engage in sense-making strategies that enable collaborative action.</li> <li>b. Participants with a predisposition against collaboration will be more likely to engage in sense-making that enables resistance to collaborative action or reinforces the status quo.</li> </ol> </li> <li>2. The model of network change at play may shape patterns of sense-making when participants consider information presented in network plots.</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
		<ul style="list-style-type: none"> <li>a. Participants in networks with more emergent aspects and structures, as opposed to those that are more engineered/mandated, will be more likely to use information from network plots through various sense-making strategies to engage in collaborative activities toward network goals.</li> <li>b. Participants in networks undertaking endogenous approaches to network change, as opposed to those engaged in exogenously driven network change, will be more likely to use information from network plots through various sense-making strategies to engage in collaborative activities toward whole network goals.</li> </ul>
How participants make sense of plots	<ul style="list-style-type: none"> <li>1. Informants discussed information and understandings that emanated from sources other than the plots in their attempts to make sense of them.</li> <li>2. Informants rarely expressed an individual perspective on the plots (what it meant to them personally or professionally).</li> <li>3. Informants often displayed a perspective I had not initially looked for—that of the client, family or community, which I label as the beneficiary perspective.</li> <li>4. Informants switched orientations between past, present and future depending on the questions I</li> </ul>	<ul style="list-style-type: none"> <li>1. The information from a network plot is just one source of information for network participants that they must integrate with a range of other information sources and perspectives.</li> <li>2. In some cases, informants may display perspectives that they put forth as that of the client, family or community, that surreptitiously privilege their own organization, thus masking their organizational perspective as a beneficent regard for those they serve.</li> <li>3. Rather than sense-making being affected by an individual's general orientation to past, present or future, a greater influence may be 1) a recent</li> </ul>

Domain	Emerging Insights/Findings	Potential Implications
	asked rather than exhibiting a sense-making strategy around one dominant temporal orientation.	change or discontinuity between past and present or 2) a pending change or discontinuity between present and future.
Implications for network managers	<ol style="list-style-type: none"> <li>1. The sense that network participants make of network plots will not necessarily align with that of network managers.</li> <li>2. In addition to supporting possible collaborative action, sense-making could also reinforce the status quo or support resistance to change.</li> <li>3. Some informants articulated known limitations of SNAs, which are true for this study and for SNA more generally, such as framing of the study by the United Way, difficulty in accessing appropriate respondents, that the study reflected a snapshot in time, or that there might be some confusion or discrepancy in how participants categorized relationship types and intensities.</li> </ol>	<ol style="list-style-type: none"> <li>1. If a goal of SNA is for network participants to make use of plots to enable collaborative actions to achieve network goals, then participatory processes, starting with setting network boundaries and defining relationships, will be important to encourage sense-making that supports progress toward network goals.</li> <li>2. If a network plot creates a conflict with network participants' CSS, then they are less likely to use the network plot to guide their collaborative activities in the network.</li> </ol>
If unable to make sense of plots, what did they make of them?	<ol style="list-style-type: none"> <li>1. Some informants saw the SNA as a way for the United Way to justify defunding smaller nonprofits that were not perceived as working to address that entity's new priorities.</li> </ol>	<ol style="list-style-type: none"> <li>1. If a participant was unable to extract any useful information from the network plots for themselves, they may dismiss the utility of the entire analysis for the whole network.</li> <li>2. If a participant perceives that the information presented in network plots is biased, they will marshal other information sources to resist the implications of the study.</li> </ol>
Implications for researchers	<ol style="list-style-type: none"> <li>1. As a researcher/analyst, my sense-making approaches were different from those displayed by most participants.</li> </ol>	<ol style="list-style-type: none"> <li>1. Network participants, network managers and researchers/analysts will make sense of network plots in different ways.</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
	<ol style="list-style-type: none"> <li>2. Informants were confused and frustrated when their important relationships were not shown on network plots.               <ol style="list-style-type: none"> <li>a. Sometimes the relationships were not shown because they were unconfirmed by the other party in the relationship.</li> <li>b. Sometimes the relationships were not shown because they were not reported by the survey respondent for informant's program/organization.</li> <li>c. Sometimes the relationships were not shown because the other program/organization was outside of the network boundary.</li> <li>d. Sometimes the relationships were not shown because relationships of a particular type were unconfirmed because of relationship type confusion.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>2. Because researchers/analysts will often lack the context and experience that participants, who are embedded in the network, will use in their sense-making around network plots, they are likely to make sense of network plots in very different ways than participants.</li> <li>3. When network managers and participants make sense of plots in substantially different ways, it may inhibit network change and performance.</li> <li>4. If a network participant's important relationships are not represented on a plot, they may switch their sense-making strategy from one that enables collaboration to one that resists change or reinforces the status quo.</li> </ol>
Factors influencing sense-making	<p><i>Situation Movement State</i></p> <ol style="list-style-type: none"> <li>1. It was difficult for me to discern an overall situation movement state for informants based on their responses to my interview questions.</li> <li>2. I identified two additional movement related situation movement states – Cruising and Groping along.</li> <li>3. There were not always clear logical connections between situation movement states and the three primary uses of information emerging from this study.</li> </ol> <p><i>Conflicts with CSS</i></p>	<p><i>Situation Movement State</i></p> <ol style="list-style-type: none"> <li>1. The connection between situation movement state and uses of information from SNA may not warrant further exploration; however, a survey approach to gathering data from a larger group of participants might yield more useful insights.</li> </ol> <p><i>Conflicts with CSS</i></p> <ol style="list-style-type: none"> <li>2. If network participants perceive that network plots do not accurately represented their own first order relationships, they will be less likely to use information from the plots to engage in sense-making encouraging change through collaboration</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
	<p>4. Informants identified several potentially important organizations or programs that were left off the survey roster because of the influence of the organization providing access to the field.</p> <p>5. [See #2 in cell above]</p> <p><i>Individual vs. group sense-making</i></p> <p>6. The sense-making seemed to come easier and faster in group interviews vs. individual interviews.</p> <p><i>Type of network change at play</i></p> <p>7. Some informants expressed uncertainty, anxiety or concern about the United Way's pending shift in funding strategy.</p>	<p>and more likely to engage in sense-unmaking to resist change.</p> <p><i>Individual vs. group sense-making</i></p> <p>3. In individual interviews, informants tended to engage in their sense-making out loud rather than have long silent pauses following questions. In group interviews, some respondents could continue reflecting silently on my questions while others spoke, allowing them to refine their sense-making while also building on the sense-making of others.</p> <p>4. A collective model of sensemaking (Weick, 1995) may be better suited to exploring these questions further.</p> <p><i>Type of network change at play</i></p> <p>5. The type of network change at play in a given network may influence how network participants make sense of plots.</p> <ol style="list-style-type: none"> <li>a. Endogenous approaches to network change may be better suited to constructive sense-making enabling collaboration.</li> <li>b. Exogenous approaches to network change may find participants more likely to engage in sense-making strategies that enable resistance to change or reinforcement of the status quo.</li> </ol>
SMM interview methodology	<p>1. Second order triangulation took informants' discussion away from the immediate objects of interest, the network plots, and away from the stated research questions.</p>	<p>1. A more focused set of standard questions asked about the information extracted from each object might have better elucidated participant's sense-making.</p>

Domain	Emerging Insights/Findings	Potential Implications
	<ol style="list-style-type: none"> <li>2. SMM's open, non-directive approach to interviewing did lead to many interesting and unlooked-for insights which were not directly related to the stated research questions.</li> <li>3. Informants engaged in richer sense-making during group interviews.</li> </ol>	<ol style="list-style-type: none"> <li>a. In particular, questions about what information individuals extract from an object, what it means to them and how they might use that information should be closely linked.</li> <li>2. Broader SMM questioning still has potential value, however, researchers may want to complete exploration of all first order objects before turning attention to second order triangulation on emerging elements.</li> </ol>
Boundary setting	<ol style="list-style-type: none"> <li>1. Some potentially important programs identified through the name generator questions were not included on the survey roster.</li> <li>2. Some informants expressed surprise at which programs were included or excluded from the study.</li> </ol>	<ol style="list-style-type: none"> <li>1. When researchers, analysts or sponsors establish network boundaries using a nominalist approach, without the engagement of network participants, network participants might have difficulty "making sense" of the resulting network plots.</li> <li>2. If it is important for network participants to be able to make sense of network plots, then a realist or relational approach to boundary setting may be more appropriate.</li> <li>3. When researchers include only a portion of an organization's programs on a roster used to collect and confirm relationships, aggregating those programs to the organizational scale (combining all listed programs house within an organization into a single node), some observers may have trouble making sense of the organizations position in the network.</li> </ol>
Relationship types	<ol style="list-style-type: none"> <li>1. Some relationships were not shown on particular plots because they were unconfirmed due to relationship type confusion.</li> </ol>	<ol style="list-style-type: none"> <li>1. If it is important for network participants to be able to make sense of network plots, then it may also be important for them to have developed a</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
	<ol style="list-style-type: none"> <li>When looking at a plot of one particular relationship type, informants sometimes misinterpreted the lack of a line between two nodes as meaning there was no relationship of any type (forgetting that other plots may show a relationship).</li> </ol>	<p>shared understanding of the relationship dimensions and attributes prior to researchers collecting relationship data.</p> <ol style="list-style-type: none"> <li>Individuals may have difficulty visually processing network relationships one dimension (relationship type) at a time.</li> </ol>
Tradeoffs between confirmed and unconfirmed ties	<ol style="list-style-type: none"> <li>Informants expressed difficulty making sense of the network plots that displayed many nodes and many unconfirmed ties, such as the broader information sharing or broader resource sharing networks.</li> <li>Some of the instances where informants struggled to make sense of plots because they perceived some important relationships to be missing were possibly the result of unconfirmed ties not being shown on most plots.</li> </ol>	<ol style="list-style-type: none"> <li>When collecting relationship data from a single point-in-time survey using reciprocal nomination, it may be a misnomer to label relationships reported by only one party as unconfirmed, because the other party was not asked to either confirm or refute the reported relationship.</li> <li>If it is important for network participants to be able to make sense of network plots, it may be important for researchers to use a multi-step relational approach to establish an initial roster, identify potential relationships for each respondent and then gather data to confirm those relationships.</li> </ol>
Survey response patterns	<ol style="list-style-type: none"> <li>Different survey respondents used different patterns of responses that may have reflected differing assumptions about the interrelation of the relationship types.</li> </ol>	<ol style="list-style-type: none"> <li>Respondents using a floater response pattern may underreport base information relationships, potentially warranting correction.</li> <li>Respondents using a floater response pattern may be more likely to be involved in relationship type confusion, potentially warranting correction.</li> <li>Respondents using a completer pattern may be overrepresented as participating in robust relationships, potentially warranting correction.</li> </ol>
Multiplex, first-order, ego-centric plots	<ol style="list-style-type: none"> <li>I personally found the multiplex, first-order, ego-centric plots to be visually informative and</li> </ol>	<ol style="list-style-type: none"> <li>The multiplex, first-order, ego-centric plots likely contain too much information, presented too</li> </ol>

Domain	Emerging Insights/Findings	Potential Implications
	<p>useful in understanding the sense-making challenges of some informants.</p>	<p>clearly, for researchers to provide them to participants when survey respondents are promised confidentiality.</p> <ol style="list-style-type: none"> <li>2. If survey respondents are not promised confidentiality, and provide informed consent for their relationship data to be shared with others in the network, there may be certain conditions where it is both appropriate and beneficial to share multiplex, first-order, ego-centric plots; however, lack of confidentiality of responses may introduce other threats to validity.</li> <li>3. The multiplex, first-order, ego-centric plots may be useful for researchers to visually identify situations when the survey respondent may not have adequate knowledge of relationships to provide a complete response on behalf of the organizational/program.</li> </ol>

### **Question 5a: What Existing Theories From the Literature Might Further Elaborate the Process?**

The primary theory from the literature that might further elaborate network participant's sense-making around information from network plots is Weick's (1995) version of sensemaking, which he developed for organizational contexts. I intentionally avoided applying Weick's framework to the network context until I had first explored Dervin's model of sense-making, which has a focus on individual sense-making that enables movement resulting from one's use of information from novel sources (Dervin et al., 2003). I credit the "verbings" element of Dervin's SMM model, as it is implemented through the open and non-directive interviewing approach, with allowing me to hear my informant's perspectives, respecting and honoring their own meanings and labels, which challenged my own preconceptions and which led to some of the more important insights that I gained. However, the overall model elements of context, situation, gaps, bridges, relevances, sources and outcomes (See Figure 11), were less useful in the case I studied, perhaps because of the difficulty I had in identifying connections between those elements from my interview data. I did not have a SMM mentor to guide me through what was my first attempt using the methodology, so the fault may be my own. However, at the end of the day, Mr. Squiggly was a little too squiggly and the labels that Dervin uses within her own model did not emerge as relevant to the same extent as the elements of Weick's (1995) framework, which is discussed below.

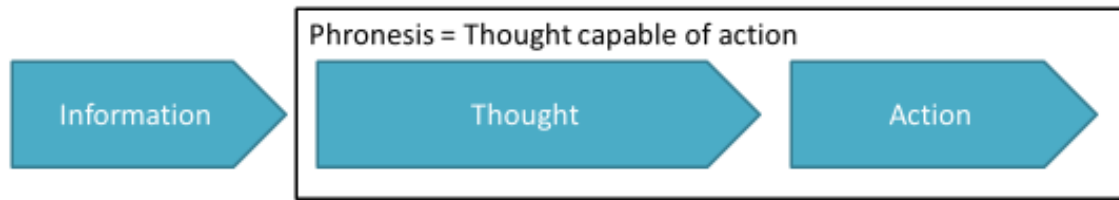
Weick's version of sensemaking incorporates several important elements. It

1. is rooted in identity,
2. employs a retrospective perspective,

3. seeks to reveal the enacted evolution of understanding,
4. is the product of social construction,
5. is iterative and ongoing in character,
6. posits that practitioners extract cues from other actors and forces beyond their own specific frames,
7. understands that those practicing it rely on plausibility more than accuracy (Weick, 1995).

First, let me address the question of a retrospective perspective. Figure 34 depicts my initial framework for sense-making, which I modeled on phronesis or “thought capable of action” overtop an updated version informed by this study’s insights. The initial model describes sense-making as an internal cognitive process that allows an individual to translate information into actions allowing movement across time-space. For this study, the information source was network plots from SNA and the action of interest was collaboration. This updated figure provides a study-derived framework that more closely reflects the insights I gleaned from those I interviewed (shown below my initial framework and concept mapping)—a process incorporating much more than just information extracted from network plots, resulting in more potential uses of information. In this depiction, sensemaking emerges as a retrospective approach to justify an actor's choices to various audiences.

### Initial Abstract Theoretical Framework



### Initial Conceptual Mapping



### Study Derived Framework

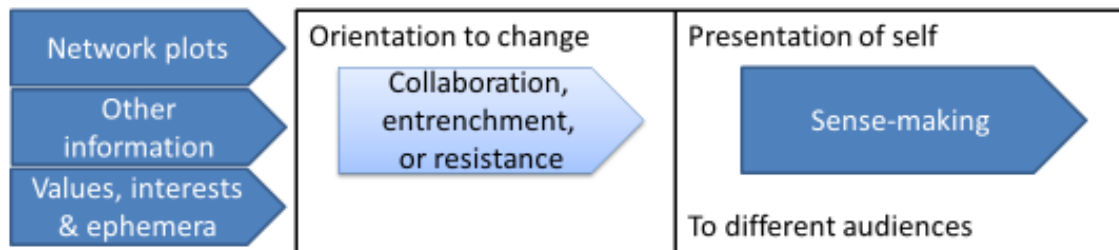


Figure 34. A revised model for sensemaking in networks.

None of this is to suggest that I did not observe the type of sensemaking that I set out to explore. I did; however, it was embedded within a larger layered framework of sense-making in which participants seemed to have to cross certain cognitive thresholds to be able to advance to higher-order sense-making. The following section applies many of the concepts that I employed or that emerged from this study and incorporates them along with Weick's (1995) elements of sensemaking to create a new, more robust, framework for sense-making in networks.

### **Question 5b: What New Theories Could Be Developed or Tested? (Future Research)**

Figure 35 provides a visual representation of a refined framework for sense-making in networks. This analytical approach suggests that individuals must cross

identifiable sense-making thresholds to progress to higher level sense-making and collaborative action. As they move from left to right across each threshold in Figure 35, new uses of information supported by additional sense-making strategies become available to them. If they fail to cross a threshold, they are likely to remain limited to the uses and strategies that occur below it and further to the left.

**How to interpret and use Figure 35.** In the first instance, if individuals are unable to navigate the information extraction threshold, they would be unlikely to participate in any meaningful sense-making that results in use of information. They may simply be unable to extract any information, or they may explain that whatever they obtained was meaningless or unintelligible to them.

If they can extract information they perceive as meaningful, they proceed to the next threshold—information acceptance. If individuals do not accept the information perceived, they may engage in a form of sense-unmaking, a kind of sense-making that prompts resistance to change, or they may make no-sense of the information, thus taking no action at all on it. They may explain this as confusion arising from information that is incomplete, invalid or biased. Additionally, they may explain it as conflicting with current understandings about themselves, their organization or others. The information may disadvantage them, challenge some aspect of their identity, or may simply conflict with other data they deem to be more reliable. However, these distinctions might be difficult for an outside observer to discern from how the individual is likely to present their sense-making.

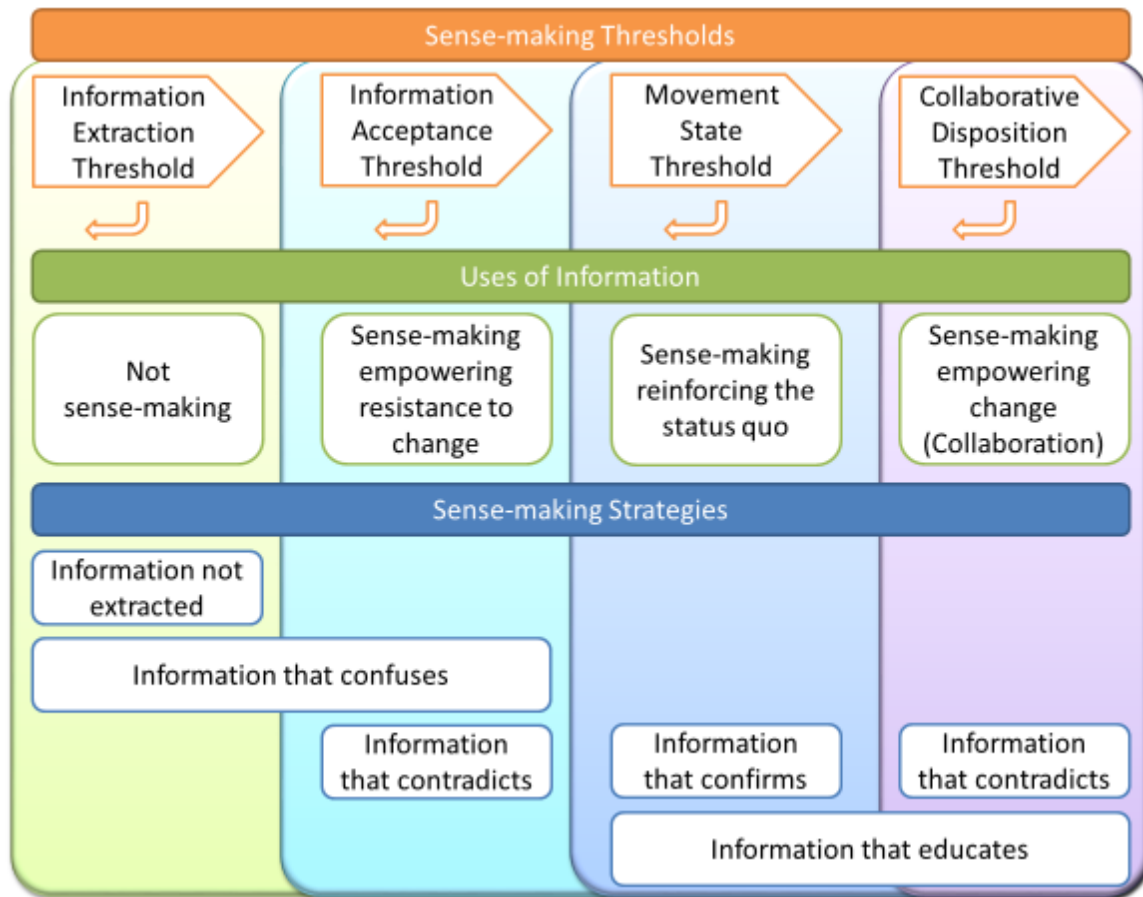


Figure 35. Refined framework for sense-making in networks.

If they successfully navigate this threshold and accept the information, they then proceed to the movement state threshold. Navigating this stage requires that individuals be open to change. If they are not so disposed, they may use the information to reinforce the status quo, they may acknowledge they have acquired new information or they may frame the information as confirming existing beliefs about themselves, their organizations or others. They may still utilize the information uses and strategies further to the left to engage in resistance to change or dismissal of relevance by referencing confusions and contradictions. When such occurs, those dispositions de facto undergird and support the status quo.

If individuals do find themselves in a situation movement state open to change, they still must successfully navigate the collaborative disposition threshold to engage in sense-making that supports change (through collaboration in this context). If individuals are not able to navigate this final threshold because they are not disposed to collaborate or they perceive the challenges of collaboration to outweigh the benefits, they will be limited to sense-making that reinforces the status quo and the uses and strategies to the left. Only if individuals can navigate this last threshold are they able to engage in sense-making that enables change through collaboration, but could still possibly engage in any of the information uses and sense-making strategies to the left along the spectrum of forms of dispositions. Only when they can navigate all these thresholds are individuals able to engage in the type of sense-making that was the initial object of my study. Not all informants in this study were able to navigate all these thresholds with information extracted from a plot and, as a result, some attained only other forms of sense-making that I had not initially considered within my conceptual framework.

Next, I bring some of the various concepts explored in this study (See Figure 36) into this framework along with understandings derived from Weick's (1995) version of sensemaking. I offer suggestions related to SNA conduct and sense-making study design to help enrich findings from future studies. Finally, I propose preliminary propositions



Figure 36. Concepts for mapping.

tied to each sense-making threshold. In each proposition, I identify the broadest group to which the prediction applies, network participants, information participants or individuals. By information participants, I mean information users that are also, in part, the source of the information considered.

**The information extraction threshold.** In Weick's (1995) framework, individuals base sensemaking on "extracted cues." Weick contended that for individuals to begin the sensemaking process, they must first be able to extract useful information from some source. According to Weick, information does not necessarily need to be accurate, but simply plausible, to be useful to an individual for sensemaking. Numerous factors can inhibit a user's ability to extract useful cues from information in a network plot.

Both the size of a network (number of nodes) and its density (number of ties relative to the maximum), may limit the ability of users to make sense of network plots. The network I analyzed was large compared to other networks I have studied in which sensemaking seemed richer. For example, I cannot myself extract much useful information from large dense plots such as the Broader Information Sharing Network we developed for this study (Figure 22). British anthropologist Dunbar (1992) has hypothesized that primates, including humans, can maintain no more than 150 relationships (known as Dunbar's number). Likewise, there may be a measurable upper limit to the size or density of a social network that humans can process visually. Therefore, the ability of individuals to navigate the sense-making information extraction threshold successfully may diminish as the size or density of the network plot increases, dropping to zero at some point.

Determining such limits to perception and cognition would likely require research undertaking a large-N study applying standard statistical techniques to identify both upper boundaries and the extent to which the ability to extract cues diminishes as size or density increases. However, my findings suggest that the density of the information presented in visuals may impact the ability of an individual to navigate the sense-making information extraction because humans' cognitive ability to perceive and process some information visually may fluctuate based on the amount and density of information contained in a single information source.

***Proposition 1.*** Proposition 1 is that the amount or density of data presented in network visuals may influence the sense-making information extraction threshold of individuals.

The network I studied was a composite of many sub-networks, including early childhood, education, health, housing, employment and other ancillary anti-poverty initiatives. A network-of-networks such as that I investigated will contain many programs/organizations within the study boundary that are outside of the normal working relationships of others to the point of being unfamiliar to many beyond their immediate sub-network. Although the term "silo" is often used in a pejorative manner, network clusters are expected structures that sometimes evolve for a purpose; however, improving network participant's understanding of existing clusters offers opportunities for bridging and bonding activities that could be beneficial. However, using SNA as a tool to help network participants see past their existing silos may be an iterative process that necessarily proceeds in small steps that should cycle between visualization/recognition and engagement/connection as new working network boundaries expand. Because

individuals sometimes find it easier to understand familiar objects, the ability of individuals to navigate the sense-making information extraction threshold successfully using visual representations may diminish as the amount of new information or unfamiliar objects increases.

***Proposition 2.*** Proposition 2 is that the amount of new information or unfamiliar objects presented in network visuals may influence the sense-making information extraction threshold of individuals.

The plot that my informants discussed most frequently in their interviews, *Any Confirmed Tie at the Program Level* (Figure 12), was one of only two that attempted to show all relationship types, rather than depicting only one relationship type. In contrast, no informants wished to discuss the other of those two plots, one that showed the robustness of relationships aggregated to the organizational level of analysis (Figures 13 and 14). At times, my interview informants became confused when looking at plots showing a network comprised of only one relationship type, assuming the absence of a tie on that plot meant the absence of a relationship overall. Because some psychological concepts are a gestalt rather than an agglomeration of distinct elements, the ability of individuals to navigate the sense-making information extraction threshold successfully may decrease when concepts they consider a gestalt are fragmented across visual representations.

***Proposition 3.*** Proposition 3 is that the fragmentation of relationships across network visuals may influence the sense-making information extraction threshold of individuals.

Making sense of network plots takes time and experience. Many of this study's informants were sharing 'first impressions' in their interviews. In Weick's (1995) conception, sensemaking is iterative, ongoing and socially constructed. Although it was not my intent, the group interviews I conducted allowed those informants to 'construct' meaning socially and those interactions helped some group participants to move iteratively through their own sensemaking. I conducted one of my later interviews with a group of five informants from the United Way. Because some of them had been involved in the study design and in preparations for an earlier presentation of findings to network participants, some of them had had multiple exposures to the network plots and a longer time the "make sense of them" than most other informants enjoyed. As a result, as a group, they displayed many more attempts at sense-making using a larger range of strategies than I saw in some of my other interviews.

***Proposition 4.*** Proposition 4 is that the ability of individuals to navigate the sense-making information extraction threshold from network visuals successfully will increase with repeated attempts at sense-making and with group interactions.

**The information acceptance threshold.** Barriers to navigating the information acceptance threshold can arise from characteristics of the network participant, the nature of the network, the modes of network change at play or even from aspects of the way researchers conduct network analysis. In Weick's (1995) conception, sensemaking is rooted in identity and depends on plausibility over accuracy. If information in a network plot challenges a viewer's identity (or the identity of their program/organization), they may engage in a form of sense-making that supports resistance to change. Alternatively,

if the representation of the self seems plausible to the observer, even if not completely accurate, they may remain open to a range of sensemaking possibilities.

**Proposition 5.** Proposition 5 is that the ability of information participants to navigate the sense-making information acceptance threshold successfully will increase if they feel the network visual plausibly conforms to their cognitive representation of themselves or their programs/organizations within the network.

The type of network change at play during a SNA can vary substantially. In Chapter 2, I identified a collection of scenarios or “ideal types” of such change across a spectrum of approaches ranging from endogenous to exogenous. The case I studied was an example of what I termed Network Restructuring, the most extreme form of exogenous change. Indeed, some interviewees expressed anxiety about various aspects of the anticipated changes that could have potentially shaped their sense-making approach. Because individuals may be resistant to externally driven change for which they are not yet ready, the willingness of network participants to navigate the sense-making information acceptance threshold successfully will increase if the mode of network change is endogenous rather than exogenous.

**Proposition 6.** Proposition 6 is that the willingness of information participants to navigate the sense-making information acceptance threshold from network visuals successfully will increase if the driver of change is endogenous (internal) rather than exogenous (external).

The way in which researchers/analysts conduct a SNA can result in subtle differences to network plots that may be significant for sense-making. For example, how researchers/analysts or network managers set network boundaries and how they select

programs/organizations for inclusion or exclusion on survey rosters can trigger participant confusion and impede capacity to navigate across information thresholds. In this study, I used a nominalist approach to boundary setting based on the program planning needs of the sponsor who provided access to the field rather than a realist or relational approach that engaged network participants in generating the programs/organizations included. In some cases, because of the nominalist approach used, the plots I provided did not include programs or organizations important to informants, which possibly lowered their acceptance of the information provided. Because individuals may be more likely to accept information that incorporates their understandings and which they have had a role in developing, the willingness of network participants to navigate the sense-making information acceptance threshold successfully may increase if researchers/analysts or network managers use a realist or relational approach to setting study boundaries and establishing rosters of programs/organizations on which to collect relationship data.

***Proposition 7.*** Proposition 7 is that the willingness of information participants to navigate the sense-making information acceptance threshold from network visuals successfully will increase if the creators of the network visuals engage them in information production through authentic participatory processes.

The research team selected the relationship types for this study because we deemed them important for the type of change sought by the United Way and because some of them aligned with other network studies, allowing cross case analysis and learning. United Way representatives helped craft the relationship type definitions to identify the sorts of ties they were interested in encouraging. Meanwhile, members of the

research team focused on providing conceptual clarity to the definitions. Network participants were not involved in selecting or defining the study relationships and although we provided them with detailed definitions and examples, the relationship types we had identified did not necessarily coincide with the way they thought of their ties with others in the network. As a result, there was sometimes confusion concerning how to characterize a relationship and that confusion sometimes resulted in ties remaining unconfirmed on analysis. Because groups of individuals may be more likely to have shared understandings of concepts if they have been involved collectively in developing those concepts, the ability of network participants to navigate the sense-making information acceptance threshold successfully may increase if they are involved in selecting and defining the study relationships (tie types) through a participatory process.

***Proposition 8.*** Proposition 8 is that the ability of information participants to navigate the sense-making information acceptance threshold of network visuals successfully will increase if they are involved in selecting and defining core concepts through a participatory process.

An alternative to defining core concepts through a participatory process is to select concepts that are consistent with implementation in practice. Although the United Way was interested in encouraging the types of relationships I studied as a part of their new strategic funding approach, the selected relationship types were aspirational and had not yet been broadly implemented in practice, meaning network participants possibly interpreted them in different ways. Because groups of individuals may be more likely to have shared understandings of concepts if they have been engaging in activities defined by those concepts over a period of time, the ability of network participants to navigate the

sense-making information acceptance threshold successfully may increase if relationship (tie) types have been operationalized in network activities.

**Proposition 9.** Proposition 9 is that the ability of information participants to navigate the sense-making information acceptance threshold of network visuals successfully will increase if concepts have been operationalized in their shared practices.

**The movement state threshold.** One of the intriguing insights emerging from Dervin et al.'s (2003) SMM is that time-space bound measures (specifically, situation movement states) account for more variance in the use of information sources than do across-time-space and a priori-time-space measures (i.e. demographics or assigned roles). In the study I conducted, I could not clearly discern the situation movement states of my informants based on analysis of the interview transcripts. Informant's situation movement states may have been clearer if I had provided informants with a list of those states and asked them to identify that which they perceived as the best fit. Alternatively, I could have developed a standard set of questions that might have more clearly indicated a specific situation movement state for each interviewee. I remain curious about the potential importance of the situation movement state for understanding how network participants might make use of network plots, but additional research would be required to explore that concern. I was able to identify three primary uses of information that aligned with my theoretical thresholds—uses supporting change, uses supporting resistance to change and uses reinforcing the status quo. Logically, there is likely also a use that challenges the status quo, but it did not emerge from my coding of interview transcripts as a significant use in this case. Table 20 identified potential alignments between the situation movement states and participants' uses of information. Establishing

those connections empirically would require a larger N study of network participants that explicitly gathered situation movement states and potential uses of information to establish possible associations. I offer the following two propositions, one based on navigating the movement state threshold and one based on potential uses of information, both of which align with my inferences in Table 20, and which could be tested in such a study.

First, the ability of network participants to navigate the sense-making movement state threshold successfully will be influenced by their situation movement state. Those in states of Decision, Barrier, Being Led, Waiting or Cruising are looking for and seeking change, so may be more ready to attempt navigating the movement state threshold. Those in states of Spin-Out, Wash-Out, Passing Time, Moving or Groping Along are uncertain about the prospects of their current situation, but may not yet have clear ideas about improved alternative future states, so may be willing, but less motivated to attempt navigating the movement state threshold. Those in situation movement states of Problematic, Out-to-Lunch or Observing are unconcerned with movement, so may be unwilling or resistant to navigating the movement state threshold.

***Proposition 10.*** Proposition 10 is that the willingness of individuals to navigate the sense-making movement state threshold successfully will *increase substantially* if their situation movement state is Decision, Barrier, Being Led, Waiting or Cruising, will *increase moderately* if their situation movement state is Spin-Out, Wash-Out, Passing Time, Moving or Groping Along, and will *decrease* if their situation movement state is Problematic, Out-to-Lunch or Observing.

As for potential uses of information, because they are somewhat satisfied with their current situation, individuals in situation movement states of Waiting, Passing Time, Out-to-Lunch, Observing or Moving may use information to reinforce the status quo. Because they have concerns about the direction of future changes, network participants with situation movement states of Problematic, Spin-Out, Wash-Out or Barrier may use information to enable resistance to change. Network participants with situation movement states of Spin-Out, Wash-Out, Being Led, Passing Time, Moving and Groping are potentially ambivalent about their current situation and open to potential change without preference for a particular direction; therefore, they may use information to support passive acceptance of change. Finally, network participants with situation movement states of Decision, Barrier, Waiting, and Cruising may use information to support active leadership of change because they are actively looking for something better than their current situation.

***Proposition 11.*** Proposition 11 is that those individuals in states of Waiting, Passing Time, Out-to-lunch, Observing or Moving may use information to *reinforce the status quo*, those in situation movement states of Problematic, Spin-Out, Wash-Out or Barrier may use information to *enable resistance to change*, those in situation movement states of Spin-Out, Wash-Out, Being Led, Passing Time, Moving and Groping Along may use information to *support passive acceptance of change*, and those individuals in situation movement states of Decision, Barrier, Waiting, and Cruising may use information to *support active acceptance of change*.

As stated previously, my interviews did not provide an indication that informants' temporal orientation (past, present, future) were factors influencing sense-making

strategies. Instead, it is possible that discontinuities between past and present or perceived disruptions between present and future might be more important. The ability of network participants to navigate the sense-making movement state threshold successfully may increase if they have experienced a recent disruption between past and present situations. Such discontinuities might disrupt the status quo in ways that might lead some individuals towards sense-making that supports movement, but not necessarily so. Some individuals might insist on holding fast to a vanished or vanishing status quo. In terms of the sense-making movement state threshold, I offer the following insights that I may explore in future research.

Because they have recent experience with significant change, the ability of individuals to navigate the sense-making movement state threshold successfully may increase if they have experienced a recent disruption between past and present situations. Because they are anticipating inevitable change, the ability of individuals to navigate the sense-making movement state threshold successfully may increase if they perceive a pending disruption between their present and future situations. Even if a recent or pending disruption to the status quo increases a network participant's ability to navigate the sense-making movement state threshold successfully, other factors will influence whether they select strategies to support change, resist change or reinforce a vanished or vanishing status quo. Because individual may react to changes in the status quo in a range of ways, even if a recent or pending disruption to the status quo increases an individual's ability to navigate the sense-making movement state threshold successfully, other factors may influence whether they select strategies to support change, resist change or reinforce a vanished or vanishing status quo.

**The collaborative disposition threshold.** Just because an individual (or their program/organization) is ready for change, does not necessarily mean they are open or prepared for collaboration to accomplish that change. Additional SMM-based research could investigate the movement state propositions above and provide a stronger foundation for new propositions relating to the final threshold—the collaborative disposition threshold. Specifically, I would suggest an interview approach that first probes to establish the informant’s situation movement state, then asks the following four questions about network plots.

1. What do you see? What do you learn from it? What do you take away?
2. What about it surprises or confuses, or does it confirm your current understandings?
3. How would you use that?
4. What does that mean to you? Why is that important?

Only after using these questions to connect the information that an interviewee has gleaned from examining a plot with their sense-making strategies and the potential use of information, would I suggest returning to each response that indicated a use *supporting change* to explore as a second-level element with a broader roster of SMM questions. Such a study might better illuminate the ways network plots could influence collaborative potentials. This approach might identify patterns that align with Agranoff and McGuire’s (2001) conception of network management processes (See Table 17). Or, its results might align with other theories of collaboration or network change. However, to gain and be able to share such insights, informants need to be able first to navigate the

collaborative disposition threshold. Below are some insights relating to a network participant's ability to navigate that final threshold that I may explore in future research.

Where command and control mechanisms are weak, the ability of individuals to navigate the sense-making collaborative disposition threshold successfully may increase if the collaborative motivations are endogenous rather than exogenous. Because individuals tend to act in their own best interest, the ability of a individuals to navigate the sense-making collaborative disposition threshold successfully may increase if their goals align with those of their collaborators.

I anticipate that further interviews as described above could shed additional light on factors that assist or inhibit network participant's abilities to navigate the collaborative disposition barrier. For example, for those network participants that seem to be in a theoretically suitable situation movement state as posited above, but are unable to cross the collaborative disposition threshold, what factors may be responsible? They may be ready for change, but not always collaboration. Also, which collaborative challenges identified in this research (lack of collaborative slack, competition for resources, or lack of disposition or skills to do so) present the greatest obstacles and how could they be measured? I offer the following preliminary insights concerning this issue that I may explore in future research.

Because collaboration takes time and is sometimes inefficient, the ability of individuals to navigate the sense-making collaborative disposition threshold successfully may decrease if they lack collaborative slack. Because collaboration requires compromise and loss of some control, the ability of individuals to navigate the sense-making collaborative disposition threshold successfully may decrease if they lack a collaborative

disposition. Because collaboration sometimes requires specialized skills, the ability of individuals to navigate the sense-making collaborative disposition threshold successfully may decrease if they lack collaborative skills. Lastly, because collaboration sometimes changes current resource allocations, the ability of individuals to navigate the sense-making collaborative disposition threshold successfully may decrease if they perceive competition for resources.

### **Future Methodological Research Directions**

**Response patterns.** I remain curious about the impact of response patterns on resulting network plots of robustness or multiplexity. I wonder if the phenomenon appears in other network studies using a survey instrument similar to the one I used. Although other researchers may be limited in their ability or interest in sharing such information, it is something I may try to explore. If response patterns do emerge in other similar situations, are they a problem that researchers need to address? Although I am not familiar with the specific techniques, there are a variety of ways researchers have used theories such as homophily to predict ties based on node attributes, among other factors (Abdolhosseini-Qomi et al., 2020). I wonder if response patterns were treated as a node attribute, what power that characteristic would have when predicting ties, specifically multiplex ties.

In a way, the Completer response pattern is a tautology. Respondents are more likely to be represented as having robust multiplex ties, because they *define* all their relationships as robust and multiplex by the way they complete the survey instrument. It would be interesting to interview individuals displaying different response patterns to discern their thinking. If interviews indicate that Completers interpreted a tie intensity of

1 in a way similar to the way individuals with other response patterns thought of a blank/no response, there may be some justification for researchers to adjust responses to address this issue. Perhaps researchers could produce plots that only represent ties confirmed with an intensity of 2 or greater to address the issue, as has been done in other analyses where low intensity ties had the potential to skew results (Lemaire, Provan, Mercken, & Leischow, 2017). Comparing the two approaches to see which plots make more sense to network participants might be another interesting research thread to investigate. I had no informant select the multiplexity/robustness plots for discussion, so I was not able to gain any insights into that issue.

Lastly, when some survey respondents do not consider the logical or definitional connections between tie types, there may be justification for researchers to infer such connections from available data. For example, in this study, information sharing served as a logical precursor to coordinated referrals, integrated services or resource sharing. Individuals displaying a Floater response pattern often indicated higher order relationships without indicating an information sharing relationship. If interviewed about their thinking, they might indicate that the information sharing relationship was implied in their response instead of being made explicit. In that case, investigators might be safe in making the same assumption. In the case of this inquiry, this adjustment would have made the *Information Sharing Network* the same as the *Any Confirmed Tie at the Program Level* representation. This may or may not have made much of a difference to participant's sense-making for this inquiry, but it would be an interesting issue to explore further.

**Egocentric plots.** I am also interested in further investigating the potential uses and limitations of the visual representations of multiplex, first-order ego-centric network plots as they relate to sense-making. If researchers promise respondents confidentiality, that may limit the ability of researcher to provide these plots to network participants for use in their own sense-making, but plots may still be useful to researchers as visual tools to identify patterns or issues that are not obvious in raw numerical data. I would be interested in working with other network researchers to produce the plots for some of the networks they are studying and then doing a modified SMM interview with qualitative analysis to see what information researchers are able to extract visually from such plots and how they might use it. I suspect that certain characteristics of such plots would allow researchers to predict which program/organizational representatives might have difficulty navigating the sense-making information acceptance threshold. I also suspect these visualizations could indicate to researchers when they might have a survey respondent who is not fully representing their program/organization, indicating a need to identify and survey additional respondents. Determining the potential usefulness to researchers would be a necessary first step to see if any further efforts along this research thread are warranted.

If multiplex, first-order ego-centric plots are a useful visualization for researchers, the next hurdle would be making them more generally accessible and easier to create. My effort to create such plots required extensive manual effort. Some of that process could be streamlined by creating an algorithm to generate the required matrix for each node from a standard set of matrices (usually  $x \times n \times n$  matrices where  $x$  is the number of distinct tie types and  $n$  is the number of nodes in the network). I did this work manually with a

combination of MS Access and MS Excel to create the matrices for input into UCInet. However, perhaps I could identify some collaborators with whom to work to design and code an automated matrix manipulation process to integrate into network analysis software to create such translations. I also manually manipulated the standard output from NetDraw to group alters with similar relationship patterns—a very time-consuming process. Perhaps I could also identify collaborators to design and code a specific process to make available within the network rendering software to facilitate that process. My point in laying out some of these potential tools-related paths arising from this inquiry that tools sometimes drive innovation as they have throughout the evolution of SNA (Klovdahl, 1981). If improved tools make this form of analysis more accessible and easier to use, then researchers and analysts are more likely utilize them when appropriate.

Although I acknowledge that network participants' use of these visualizations by network participants may be limited when respondent confidentiality must be maintained, there may be circumstances when confidentiality may not be a necessary condition of data collection. For example, a small high-trust endogenously-driven network might wish to conduct a SNA for its members' own purposes and these visualizations such as those described here might help them to make sense of their network. However, even if research ethics and IRB protocols are not factors in a particular study, anyone using this approach with informed consent but without offering confidentiality to survey respondents should understand the social threats to validity that could result with individuals answering questions less honestly or forthrightly because their answers might be discernable to others in their networks. Providing confidentiality is a trade-off that produces different threats to validity when it is in place and when it is not.

**User roles.** Although it was not one of the central purposes of my research to explore differences in sense-making approaches utilized by network participants, managers and researchers/analysts, I do believe this case demonstrated that such differences exist and that they are an important reason to continue to explore this research approach. Addressing such differences would probably require a multiple case study design and a quantitative approach to identify correlations between information user roles (participant, manager, researcher/analyst) and sense-making strategies. However, finding network managers and researchers willing to put their sense-making to the scrutiny of this sort of analysis may prove difficult.

**Approaches to tie confirmation.** In this study we collected relationship data from participant self-reports using a single point-in-time survey. We used a two-step process to confirm relationships within that survey instrument. First, we asked respondents to identify all programs/organizations with which they had service relationships from a roster. In a subsequent question, we asked respondents to identify the relationship type and intensity for those programs/organizations they identified in the first step. We considered relationships to be confirmed if the same relationship type was reported by both parties in the potential dyad. This approach is known as ‘reciprocal nomination’ (Stork & Richards, 1992), or perhaps it would be more accurate to label it as *blind* reciprocal nomination because no respondent knows who other respondents have nominated. Many potentially existing relationships were not reported or were reported by only one party, causing sense-making challenges for some participants. When researchers use subjective self-reported data as the basis for ties in SNA, rather than using more objective measures, it becomes important to confirm ties by some method in order to

address limitations in human recollection of relationships (Freeman, Romney, & Freeman, 1987; Marsden, 1990) and to address some forms of survey response bias such as the response patterns discussed above (Wasserman & Faust, 1994). However, there are several approaches researchers can use to confirm ties, each of which has trade-offs. For example, researchers could attempt to confirm ties collected from a survey instrument through participant observation, secondary sources or in-depth interviews, all of which may be prohibitively labor intensive.

I am interested in exploring an alternative approach to tie confirmation that might improve participant sense-making without being unduly labor intensive or potentially skewing whole network analysis. To understand when this approach might be most appropriate, I would explore two cases, one where researchers use a nominalist approach to establishing the study boundaries and survey roster, and one where they use a realist or relational approach. In both cases, I would use a two-step data collection process using two point-in-time surveys separated by a short interval, preferably about one week. In the first survey, I would ask respondents to identify their relevant relationships from a roster, just as we did in this study. However, instead of collecting relationship type and intensity in the first survey, I would collect it in the second survey. In that survey, I would create an individualized roster for each respondent that consists of relationships with other organizations that they reported and relationships that other organizations reported with them. In addition to collecting both relationship type and intensity (or some other measure of tie strength) in this survey, I would give the respondent the opportunity to indicate explicitly that no relationship exists or to provide the name of another individual with their organization that might be able to provide the needed information.

Although there is a potential threat to validity from respondent morbidity (those programs/organizations that respond to the first survey, but fail to respond to the second) the approach I outline has the benefit of preserving the data from the blind reciprocal nomination approach that I can compare with the alternative method. From this data, I can produce two sets of network plots and whole network statistics—one that uses only those relationships confirmed blindly in the first survey and one that uses all relationships confirmed through the second survey. I could then use a SMM interview approach to explore network participants' sense-making around each version. I expect that participants might find it easier to cross the sense-making information acceptance threshold with the plots from the alternative approach, because it might better represent their first order relationships. However, I also expect that the additional network density that would result from adding additional confirmed ties could reduce the ability of network participant to observe structural elements such as isolates, fragments, sub-networks or bridges—perhaps making it more difficult to cross the earlier information extraction threshold. I am less sure how the two confirmation methods might affect whole network variables, other than obviously increasing density somewhat with the alternative approach. However, I would need to also consider those repercussions to determine the sense-making verses analytic trade-offs or to identify situations where the alternative approach might be warranted.

### **Implications and Concluding Thoughts**

It was a formidable challenge to study and write about sense-making in the era of the Donald Trump presidency, COVID-19, the 2020 election and the Capitol insurrection—a time when strained sense-making was on daily display. It spurred me to

consider sense-making in broader terms than I had initially intended. These external influences played no small part in my eventual concession that sense-making did not act as an intermediary between information and action, but rather as a retrospective justification for sometimes illogical beliefs or forgone conclusions. Our failure to grasp the opaque dynamics of sense-making in social media networks certainly seems more profound and important than what participants in human service networks make of network plots. Although my case ended up being somewhat ill-suited to exploring the sense-making that precedes collaborative action, finding ways to make interorganizational SNA of practical use to participants in networks seeking to improve performance remains my main interest.

The refined framework for sense-making in networks (Figure 35) that I developed in this chapter is intentionally broad and could apply across many other contexts beyond network management and could address the use of information from many sources for a range of collaborative or public purposes. Network plots are an interesting and intriguing focal point for sense-making in networks, but there are certainly others. Most networks operate without the benefit of SNA or network plots and those likely evidence similar sense-making dynamics around other, more traditional, focal objects such as strategic plans, goal setting processes or even SWOT analyses. The sense-making framework I developed in this chapter could be applied broadly to many such focal objects and events that inform collaborative enterprises. If network managers and researcher/analysts present information from any source to network participants, it would be wise for those individuals to understand better how participants might use the information provided. This investigation showed that network participants may not always use information from

SNA in ways that conduce to collaboration toward network goals and the same would probably be the case for many other types of information. My research raised fresh questions and much work remains to understand sense-making in networks and how such contributes to or detracts from network performance.

In a similar fashion, the survey response patterns that I identified could also be an important but hidden phenomenon that has underappreciated influences on other kinds of efforts using participant self-reported data collected through online survey instruments. When researchers use data that has been stripped from the context in which it was collected, even if that context is as simple as the layout of a survey questionnaire, they may miss patterns that illuminate the assumptions of their data sources. The trend toward transparency and open data reporting for scholarly publications (King, 1995; Lupia & Elman, 2014) may make it easier to explore this potential issue and its broader repercussions.

The simplified models of network change that I developed in Chapter 2 are potentially useful for delimiting findings from many kinds of network studies to help researchers bound phenomena and communicate to others where their findings might be most relevant; though I have significant work to make them useful as ideal types of network change. Regardless, I and other researchers could use them to model additional factors, beyond the introduction of network plots, that could affect network performance. Much as I did above, I or others could develop propositions for how changes in the model's variables might affect each scenario differently.

I have suggested several approaches to network analysis that may help participants cross sense-making thresholds to reach a point where the information from

plots is more useful to them for collaboration, most of which involve including network members in participatory processes beginning with study design. Likewise, as Provan et al. (2005) have asserted, SNA “will only have practical value to communities if it can be effectively presented, discussed, *accepted, and acted on* by community leaders and *network participants* [emphasis added]” (p. 610). Ongoing cultivation of networks with SNA at the center of engaged and participatory processes is an exciting and fruitful research agenda for translating research into practice (Berthod et al., 2017), and I hope to be a part of future translational scholarly efforts with that aim.

## References

- Abdolhosseini-Qomi, A. M., Jafari, S. H., Taghizadeh, A., Yazdani, N., Asadpour, M., & Rahgozar, M. (2020). Link prediction in real-world multiplex networks via layer reconstruction method. *Royal Society Open Science*, 7. doi:10.1098/rsos.191928
- Agranoff, R., & McGuire, M. (2001). Big questions in public network management research. *Journal of Public Administration Research and Theory*, 11(3), 295–326. doi: 10.1093/oxfordjournals.jpart.a003504
- Ahuja, G., Soda, G., & Zaheer, A. (2012). The genesis and dynamics of organizational networks. *Organization Science*, 23(2), 434–448. doi:10.1287/orsc.1110.0695
- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*, 18(4), 543–571. doi:10.1093/jopart/mum032
- Bailey, C. A. (2007). *A guide to qualitative field research* (2nd ed.). Thousand Oaks, CA: Pine Forge Press.
- Barnard, C. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.
- Berry, F. S., Brower, R. S., Choi, S. O., Goa, W. X., Jang, H., Kwon, M., & Word, J. (2004). Three traditions of network research: What the public management research agenda can learn from other research communities. *Public Administration Review*, 64(5), 539–552. doi:10.2307/3542536
- Berthod, O., Grothe-Hammer, M., & Sydow, J. (2017). Network ethnography: A mixed-method approach for the study of practices in interorganizational settings. *Organizational Research Methods*, 20(2), 299–323. doi:10.1177/1094428116633872
- Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2018). *Analyzing social networks* (2nd ed.). Los Angeles, CA: Sage.
- Borgatti, S. P., & Molina, J. L. (2003). Ethical and strategic issues in organizational social network analysis. *Journal of Applied Behavioral Science*, 39(3), 337–349. doi: 10.1177/0021886303258111
- Brandes, U., Kenis, P., Raab, J., Schneider, V., & Wagner, D. (1999). Explorations into the visualization of policy networks. *Journal of Theoretical Politics*, 11(1), 75–106. doi: 10.1177/0951692899011001004
- Brands, R. A. (2013). Cognitive social structures in social network research: A review. *Journal of Organizational Behavior*, 34(Suppl. 1), S82–S103. doi:10.1002/job.1890

- Brass, D. J., Galaskiewicz, J., Greve, H. R., & Tsai, W. (2004). Taking stock of networks and organizations: A multilevel perspective. *Academy of Management Journal*, *47*, 795–817. doi:10.2307/20159624
- Bryson, J. M., Crosby, B. C., & Stone, M. M. (2006). The design and implementation of cross-sector collaborations: Propositions from the literature. *Public Administration Review*, *66*, 44–55. doi:10.1111/j.1540-6210.2006.00665.x
- Bryson, J. M., Crosby, B. C., & Stone, M. M. (2015). Designing and implementing cross-sector collaborations: Needed and challenging. *Public Administration Review*, *75*, 647–663. doi:10.1111/puar.12432
- Burt, R. S., Kilduff, M., & Tasselli, S. (2013). Social network analysis: Foundations and frontiers on advantage. *Annual Review of Psychology*, *64*(1), 527–547. doi:10.1146/annurev-psych-113011-143828
- Calloway, M., Morrissey, J. P., & Paulson, R. I. (1993). Accuracy and reliability of self-reported data in interorganizational networks. *Social Networks*, *15*(4), 377–398. doi:10.1016/0378-8733(93)90013-B
- Carboni, J. L., Saz-Carranza, A., Raab, J., & Isett, K. R. (2019). Taking dimensions of purpose-oriented networks seriously. *Perspectives on Public Management and Governance*, *2*(3), 187–201. doi:10.1093/ppmgov/gvz011
- Conway, S. (2014). A cautionary note on data inputs and visual outputs in social network analysis data inputs and visual outputs in social network analysis. *British Journal of Management*, *25*(1), 102–117. doi:10.1111/j.1467-8551.2012.00835.x
- Dervin, B. (1983, Month). *An overview of sense-making research: Concepts, methods and results*. Paper presented at the International Communication Association Annual Meeting, Dallas, TX. Retrieved from <http://faculty.washington.edu/wpratt/MEBI598/Methods/An%20Overview%20of%20Sense-Making%20Research%201983a.htm>
- Dervin, B. (2015). Dervin's sense-making theory. In M. N. Al-Suqri & A. D. Al-Aufi (Eds.), *Information seeking behavior and technology adoption: Theories and trends* (pp. 59–80). Hershey, PA: IGI Global.
- Dervin, B., Foreman-Wernet, L., & Lauterbach, E. (2003). *Sense-making methodology reader: Selected writings of Brenda Dervin*. Cresskill, NJ: Hampton.
- Dunbar, R. I. M. (1992). Neocortex size as a constraint on group size in primates. *Journal of Human Evolution*, *22*(6), 469–493. doi:10.1016/0047-2484(92)90081-J
- Eckstein, H. (1992). Case study and theory in political science. In *Regarding Politics* (pp. 117-178). Oxford, England: University of California Press.

- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 22(1), 1–29. doi:10.1093/jopart/mur011
- Eschenfelder, B. (2011). Funder-initiated integration partnership challenges and strategies. *Nonprofit Management & Leadership*, 21(3), 273–288. doi:10.1002/nml.20025
- Flyvbjerg, B. (1998). Case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of qualitative inquiry* (pp. PP–PP). Thousand Oaks, CA: Sage.
- Flyvbjerg, B. (2001). *Making social science matter: Why social inquiry fails and how it can succeed again*. Oxford, United Kingdom: Cambridge University Press.
- Flyvbjerg, B., Landman, T., & Schram, S. (2012). *Real social science: Applied phronesis*. Cambridge, United Kingdom: Cambridge University Press.
- Freeman, L. C., Romney, A. K., & Freeman, S. C. (1987). Cognitive structure and informant accuracy. *American Anthropologist*, 89(2), 310–325. doi:10.1525/aa.1987.89.2.02a00020
- Goffman, E. (1973). *The presentation of self in everyday life*. New York, NY: Overlook Press.
- Goldsmith, S., & Eggers, W. (2004). *Governing by network: The new shape of the public sector*. Washington, DC: Brookings Institution Press.
- Gulati, R., & Gargiulo, M. (1999). Where do interorganizational networks come from? *American Journal of Sociology*, 104, 1439–1493. doi:10.1086/210179
- Gulati, R., Lavie, D., & Madhavan, R. (2011). How do networks matter? The performance effects of interorganizational networks. *Research in Organizational Behavior*, 31, 207–224. doi:10.1016/j.riob.2011.09.005
- Gulati, R., Wohlgezogen, F., & Zhelyazkov, P. (2012). The two facets of collaboration: Cooperation and coordination in strategic alliances. *Academy of Management Annals*, 6, 531–583. doi:10.1080/19416520.2012.691646
- Herranz, J. (2010). Multilevel performance indicators for multisectoral networks and management. *American Review of Public Administration*, 40(4), 445–460. doi:10.1177/0275074009341662
- Hjern, B., & Porter, D. O. (1981). Implementation structures: A new unit of administrative analysis. *Organization Studies*, 2(3), 211–227. doi:10.1177/017084068100200301

- Huang, K., & Provan, K. G. (2007). Resource tangibility and patterns of interaction in a publicly funded health and human services network. *Journal of Public Administration Research and Theory*, 17(3), 435–454. doi:10.1093/jopart/mul011
- Huisman, M. (2009). Imputation of missing network data: Some simple procedures. *Journal of Social Structure*, 10, 1-29. doi:10.1007/978-1-4614-61170-8\_394
- Human, S. E., & Provan, K. G. (1997). An emergent theory of structure and outcomes in small-firm strategic manufacturing networks. *Academy of Management Journal*, 40(2), 368–403. doi:10.2307/256887
- Human, S., & Provan, K. (2000). Legitimacy building in the evolution of small-firm multilateral networks: A comparative study of success and demise. *Administrative Science Quarterly*, 45(2), 327–365. doi:10.2307/2667074
- Innes, J. E., & Booher, D. E. (1999). Consensus building and complex adaptive systems—A framework for evaluating collaborative planning. *Journal of the American Planning Association*, 65(4), 412–423. doi:10.1080/01944369908976071
- Isett, K. R., Mergel, I. A., LeRoux, K., Mischen, P. A., & Rethemeyer, R. K. (2011). Networks in public administration scholarship: Understanding where we are and where we need to go. *Journal of Public Administration Research and Theory*, 21, 1157–1173. doi:10.1093/jopart/muq061
- Isett, K. R., & Provan, K. G. (2005). The evolution of dyadic interorganizational relationships in a network of publicly funded nonprofit agencies. *Journal of Public Administration Research and Theory*, 15(1), 149–165. doi:10.1093/jopart/mui008
- Johansen, M., & LeRoux, K. (2013). Managerial networking in nonprofit organizations: The impact of networking on organizational and advocacy effectiveness. *Public Administration Review*, 73(2), 355–363. doi:10.1111/puar.12017
- Kamensky, J. M. (2020). Practitioners. In J. Voets, R. Keast, & C. Koliba (Eds.), *Networks and collaboration in the public sector: Essential research approaches, methodologies and analytic tools* (pp. PP–PP). London, United Kingdom: Routledge.
- Keast, R., Mandell, M. P., & Agranoff, R. (2013). *Network theory in the public sector: Building new theoretical frameworks*. London, United Kingdom: Taylor & Francis.
- Kenis, P., & Provan, K. G. (2009). Towards an exogenous theory of public network performance. *Public Administration*, 87(3), 440–456. doi:10.1111/j.1467-9299.2009.01775.x

- Kettl, D. (2008). *The next government of the United States*. New York, NY: W.W. Norton.
- Kickert, W. J. M., Klijn, E.-H., & Koppenjan, J. F. M. (1997). *Managing complex networks*. London, United Kingdom: Sage.
- Kilduff, M., & Tsai, W. (2003). *Social networks and organizations*. London, United Kingdom: Sage.
- King, G. (1995). Replication, replication. *PS: Political Science and Politics*, 28(3), 444–452. doi:10.2307/420301
- Klov Dahl, A. S. (1981). A note on images of networks. *Social Networks*, 3(3), 197–214. doi:10.1016/0378-8733(81)90016-2
- Knoke, D., & Yang, S. (2008). *Social network analysis*. doi:10.4135/9781412985864
- Krackhardt, D. (1987). Cognitive social structures. *Social Networks*, 9(2), 109–134. doi:10.1016/0378-8733(87)90009-8
- Krackhardt, D., & Kilduff, M. (1999). Whether close or far: Social distance effects on perceived balance in friendship networks. *Journal of Personality and Social Psychology*, 76, 770–782. doi:10.1037/0022-3514.76.5.770
- Laumann, E. O., Marsden, P. V., & Prensky, D. (1989). The boundary specification problem in network analysis. In Ronald Burt and Michael Minor (Eds.), *Research methods in social network analysis* (pp. 18–34). Fairfax, VA: George Mason University Press.
- Lecy, J. D., Mergel, I. A., & Schmitz, H. P. (2014). Networks in public administration: Current scholarship in review. *Public Management Review*, 16, 643–665. doi:10.1080/14719037.2012.743577
- Lemaire, R. H. (2012). *The functions of the network executive: A case study of network management, leadership and governance*. Tucson, AZ: University of Arizona.
- Lemaire, R. (2020). What is our purpose here? Network relationships and goal congruence in a goal-directed network. *American Review of Public Administration*, 50(2), 176–192. doi:10.1177/0275074019879506
- Lemaire, R. H., & Provan, K. G. (2018). Managing collaborative effort: How Simmelian ties advance public sector networks. *The American Review of Public Administration*, 48(5), 379–394. doi:10.1177/0275074017700722
- Lemaire, R. H., Provan, K. G., Mercken, L., & Leischow, S. J. (2017). Shaping the evolution of the information flow: The centralizing mechanisms in the evolution of the North American Tobacco Quitline Consortium. *International Public Management Journal*, 20(3), 467–488. doi:10.1080/10967494.2016.1276034

- Lemaire, R. H., & Raab, J. (2020). Social and dynamic network analysis. In J. Voets, R. Keast, & C. Koliba (Eds.), *Networks and collaboration in the public Sector: Essential research approaches, methodologies and analytic tools*: London: Routledge.
- Lupia, A., & Elman, C. (2014). Openness in political science: Data access and research transparency. *PS: Political Science & Politics*, 47(1), 19–42. doi:10.1017/S1049096513001716
- Markovic, J. (2017). Contingencies and organizing principles in public networks. *Public Management Review*, 19(3), 361–380. doi:10.1080/14719037.2016.1209237
- Marsden, P. V. (1987). Core discussion networks of Americans. *American Sociological Review*, 52(1), 122–131. doi:10.2307/2095397
- Marsden, P. V. (1990). Network data and measurement. *Annual Review of Sociology*, 16(1), 435–463. doi:10.1146/annurev.so.16.080190.002251
- McGuire, M. (2002). Managing networks: Propositions on what managers do and why they do it. *Public Administration Review*, 62(5), 599–609. doi:10.1111/1540-6210.00240
- Meier, K. J., & O’Toole, L. J. (2003). Public management and educational performance: The impact of managerial networking. *Public Administration Review*, 63(6), 689–699. doi:10.1111/1540-6210.00332
- Meier, K. J., & O’Toole, L. J. (2005). Managerial networking—Issues of measurement and research design. *Administration & Society*, 37(5), 523–541. doi:10.1177/0095399705277142
- Monroe, A. S., & Butler, W. H. (2016). Responding to a policy mandate to collaborate: Structuring collaboration in the collaborative forest landscape restoration program. *Journal of Environmental Planning and Management*, 59, 1054–1072. doi:10.1080/09640568.2015.1053562
- Nowell, B. L., & Kenis, P. (2019). Purpose-oriented networks: The architecture of complexity. *Perspectives on Public Management and Governance*, 2(3), 169–173. doi:10.1093/ppmgov/gvz012
- Nowell, B. L., Velez, A.-L. K., Hano, M. C., Sudweeks, J., Albrecht, K., & Steelman, T. (2018). Studying networks in complex problem domains: Advancing methods in boundary specification. *Perspectives on Public Management and Governance*, VV, PP–PP. doi:10.1093/ppmgov/gvx015
- O’Toole, L. J. (1997). Treating networks seriously: Practical and research-based agendas in public administration. *Public Administration Review*, 57(1), 45–52. doi:10.2307/976691

- O'Toole, L. J. (2015). Networks and networking: The public administrative agendas. *Public Administration Review*, 75(3), 361–371. doi:10.1111/puar.12281
- O'Toole, L. J., & Meier, K. J. (2004). Public management in intergovernmental networks: Matching structural networks and managerial networking. *Journal of Public Administration Research and Theory*, 14(4), 469–494. doi:10.1093/jopart/muh032
- Ospina, S. M., & Dodge, J. (2005). It's about time: Catching method up to meaning—The usefulness of narrative inquiry in public administration research. *Public Administration Review*, 65(2), 143–157. doi:10.1111/j.1540-6210.2005.00440.x
- Powell, W. W. (1990). Neither market nor hierarchy: network forms of organization. In Staw, B. M. & Cummings, L. L. (Eds.), *Research in Organizational Behavior*, 12, pp. 295-336. Greenwich, CT: JAI Press.
- Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management*, 33(3), 479–516. doi:10.1177/0149206307302554
- Provan, K. G., & Huang, K. (2012). Resource tangibility and the evolution of a publicly funded health and human services network. *Public Administration Review*, 72(3), 366–375. doi:10.1111/j.1540-6210.2011.02504.x
- Provan, K. G., Huang, K., & Milward, H. B. (2009). The evolution of structural embeddedness and organizational social outcomes in a centrally governed health and human services network. *Journal of Public Administration Research and Theory*, 19, 873–893. doi:10.1093/jopart/mun036
- Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, 18(2), 229–252. doi:10.1093/jopart/mum015
- Provan, K. G., & Lemaire, R. H. (2012). Core concepts and key ideas for understanding public sector organizational networks: Using research to inform scholarship and practice. *Public Administration Review*, 72, 638–648. doi:10.1111/j.1540-6210.2012.02595.x
- Provan, K. G., & Milward, H. B. (1995). A preliminary theory of interorganizational network effectiveness—A comparative-study of 4 community mental-health systems. *Administrative Science Quarterly*, 40(1), 1–33. doi:10.2307/2393698
- Provan, K. G., & Milward, H. B. (2001). Do networks really work? A framework for evaluating public-sector organizational networks. *Public Administration Review*, 61(4), 414–423. doi:10.1111/0033-3352.00045

- Provan, K. G., & Sebastian, J. G. (1998). Networks within networks: Service link overlap, organizational cliques, and network effectiveness. *Academy of Management Journal*, 41(4), 453–463. doi:10.2307/257084
- Provan, K. G., Sebastian, J. G., & Milward, H. B. (1996). Interorganizational cooperation in community mental health: A resource-based explanation of referrals and case coordination. *Medical Care Research and Review*, 53(1), 94–119. doi:10.1177/107755879605300105
- Provan, K. G., Veazie, M. A., Staten, L. K., & Teufel-Shone, N. I. (2005). The use of network analysis to strengthen community partnerships. *Public Administration Review*, 65, 603–613. doi:10.1111/j.1540-6210.2005.00487.x
- Provan, K., Veazie, M., Teufel-Shone, N., & Huddleston, C. (2004). Network analysis as a tool for assessing and building community capacity for provision of chronic disease services. *Health Promotion Practice*, 5, 174–181. doi:10.1177/1524839903259303
- Raab, J., Mannak, R. S., & Cambré, B. (2015). Combining structure, governance and context: A configurational approach to network effectiveness. *Journal of Public Administration Research and Theory*, 25(2), 479–511. doi:10.1093/jopart/mut039
- Rho, E. (2013). *Network dynamics in local governments: Exogenous and endogenous determinants of changes in managerial networking*. Athens: The University of Georgia.
- Saz-Carranza, A., Iborra, S. S., & Albareda, A. (2016). The power dynamics of mandated network administrative organizations. *Public Administration Review*, 76(3), 449–462. doi:10.1111/puar.12445
- Scott, J. (2000). *Social network analysis: A handbook* (2nd ed.). London, United Kingdom: Sage.
- Scott, T. A., & Ulibarri, N. (2019). Taking network analysis seriously: Methodological improvements for governance network scholarship. *Perspectives on Public Management and Governance*, 2(2), 89–101. doi:10.1093/ppmgov/gvy011
- Segato, F., & Raab, J. (2019). Mandated network formation. *The International Journal of Public Sector Management*, 32(2), 191–206. doi:10.1108/IJPSM-01-2018-0018
- Silvia, C., & McGuire, M. (2010). Leading public sector networks: An empirical examination of integrative leadership behaviors. *Leadership Quarterly*, 21(2), 264–277. doi:10.1016/j.leaqua.2010.01.006
- Stork, D., & Richards, W. D. (1992). Nonrespondents in communication network studies problems and possibilities. *Group & Organization Management*, 17(2), 193–209. doi:10.1177/1059601192172006

- Strassheim, H. (2019). Behavioural mechanisms and public policy design: Preventing failures in behavioural public policy. *Public Policy and Administration*, 63(2), 187–204. doi:10.1177/0952076719827062
- Ulibarri, N., & Scott, T. A. (2017). Linking network structure to collaborative governance. *Journal of Public Administration Research and Theory*, 27(1), 163–181. doi:10.1093/jopart/muw041
- Wamsley, G. L. (1996). A public philosophy and ontological disclosure as the basis for normatively grounded theorizing in public administration. In G. L. Wamsley & J. F. Wolf (Eds.), *Refounding democratic public administration: Modern paradoxes, postmodern challenges* (pp. 351–380). Thousand Oaks, CA: Sage.
- Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press.
- Weber, E. R., & Khademian, A. M. (2008). Wicked problems, knowledge challenges, and collaborative capacity builders in network settings. *Public Administration Review*, 68(2), 334–349. doi:10.1111/j.1540-6210.2007.00866.x
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.
- Yin, R. K. (2003). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.
- Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior*, 24, 1816–1836. doi:10.1016/j.chb.2008.02.012

## Appendix A

### Institutional Review Board Documents—Survey Phase

#### Recruitment Letter – Main Group

Dear \*\*\*:

I write to invite you to participate in a new project being launched in collaboration between the United Way Roanoke Valley (UWRV) and researchers at the Center for Public Administration and Policy (CPAP) at Virginia Tech. The aim of the project is to gather baseline information that will help launch a community initiative to enhance family self-sufficiency. The effort to help families in any community reach their full potential never takes place in a vacuum: health/wellness, education, economic circumstance, home life, and myriad other factors affect a family's ability to develop, learn, and grow. By bringing together all of those committed to family self-sufficiency in the Roanoke Valley, the goal is to integrate efforts to address the problems that exist for so many families across the Roanoke Valley and for the organizations committed to serving those families.

You are being invited to voluntarily participate in the UWRV Family Self-Sufficiency Network research project. The purpose of this project is to document the relationships between and among organizations across the Roanoke Valley that are committed to helping families achieve self-sufficiency, as well as opportunities for developing shared solutions. You are being invited because your organization/program has been identified as providing a service related to family self-sufficiency in the region and therefore your knowledge and insights are important.

If you agree to participate, you will be invited to attend a meeting hosted by the United Way Roanoke Valley. At this meeting, you will be asked to complete a survey indicating which organizations/programs your organization/program works with and your perceptions of opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency. The survey should take approximately 30-45 minutes to complete and the research team will be present on site to answer any questions you may have during the process. If you are unable to attend the in-person meeting, you will be able to complete the survey online and the research team will be available by phone to answer any questions you may have during the process.

While there are no direct monetary benefits or other compensation associated with participation in this research, individuals who attend one of the group sessions will be included in a door prize drawing for a \$50 gift certificate from the United Way. You are free to decline participation at any time. Aside from your time, there are no costs for taking part in the study. **The results of this survey will be aggregated with other survey data, and will in no way be linked back to you as an individual.** Any

identifying information you submit will be used for tracking purposes only, and access to this information will be limited to the principle investigator. The results of this study may be published, and will be shared (in aggregate form) with the UWRV for purposes of informing their future efforts to enhance the capacity of community-wide efforts to address family self-sufficiency and help lift families out of poverty.

The information gathered through this project should benefit the children and families in the region by providing an analysis of the current state of collaboration and integration of services and activities to family self-sufficiency. The findings will be used to assist the organizations involved in these issues to improve the way they work together to advance the goals of family self-sufficiency. Therefore, we sincerely hope you are willing to participate.

A staff member at the United Way of Roanoke Valley will soon send an invitation to the in-person meeting at which time you will be able to notify us of your intent to attend the meeting, complete the survey online on your own, or not participate in the project. In the meantime, if you have any questions, or would like more information about this research, please contact Robin Lemaire at [rlemaire@vt.edu](mailto:rlemaire@vt.edu) or 540-231-0664.

Sincerely,

Robin H. Lemaire, PhD.  
Principle Investigator  
Asst. Professor  
Center for Public Administration and Policy  
School of Public and International Affairs  
Virginia Tech  
(540) 231-0664  
[rlemaire@vt.edu](mailto:rlemaire@vt.edu)

## Recruitment Letter – Secondary Group

Dear \*\*\*:

I write to invite you to participate in a new project being launched in collaboration between the United Way Roanoke Valley (UWRV) and researchers at the Center for Public Administration and Policy (CPAP) at Virginia Tech. The aim of the project is to gather baseline information that will help launch a community initiative to enhance family self-sufficiency. The effort to help families in any community reach their full potential never takes place in a vacuum: health/wellness, education, economic circumstance, home life, and myriad other factors affect a family's ability to develop, learn, and grow. By bringing together all of those committed to family self-sufficiency in the Roanoke Valley, the goal is to integrate efforts to address the problems that exist for so many families across the Roanoke Valley and for the organizations committed to serving those families.

You are being invited to voluntarily participate in the UWRV Family Self-Sufficiency Network research project. The purpose of this project is to document the relationships between and among organizations across the Roanoke Valley that are committed to helping families achieve self-sufficiency, as well as opportunities for developing shared solutions. You are being invited because your organization/program has been identified as having important relationships with other organizations providing a service related to family self-sufficiency in the region and therefore your knowledge and insights are important.

If you agree to participate, you will be asked to complete an online survey indicating which organizations/programs your organization/program works with and your perceptions of opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency. The survey should take approximately 15-20 minutes to complete and the research team will be present on site to answer any questions you may have during the process. The research team will be available by phone to answer any questions you may have during the process.

There are no direct monetary benefits or other compensation associated with participation in this research, and you are free to decline participation at any time. Aside from your time, there are no costs for taking part in the study. **The results of this survey will be aggregated with other survey data, and will in no way be linked back to you as an individual.** Any identifying information you submit will be used for tracking purposes only, and access to this information will be limited to the principle investigator. The results of this study may be published, and will be shared (in aggregate form) with the UWRV for purposes of informing their future efforts to enhance the capacity of community-wide efforts to address family self-sufficiency and help lift families out of poverty.

The information gathered through this project should benefit the children and families in the region by providing an analysis of the current state of collaboration and integration of services and activities to family self-sufficiency. The findings will be used to assist the organizations involved in these issues to improve the way they work together to advance the goals of family self-sufficiency. Therefore, we sincerely hope you are willing to participate.

A member of the research team will soon follow-up with an invitation to complete the survey online on your own, or not participate in the project. In the meantime, if you have any questions, or would like more information about this research, please contact Robin Lemaire at [rlemaire@vt.edu](mailto:rlemaire@vt.edu) or 540-231-0664.

Sincerely,

Robin H. Lemaire, PhD.  
Principle Investigator  
Asst. Professor  
Center for Public Administration and Policy  
School of Public and International Affairs  
Virginia Tech  
(540) 231-0664  
[rlemaire@vt.edu](mailto:rlemaire@vt.edu)

## Recruitment E-mail – United Way

Good afternoon United Way Partners and Friends,

As many of you know, the United Way Board of Directors approved the vision to “elevate 10,000 families to self-sufficiency by 2030” in late 2015. While staff continues to work on the tactical plan supporting our strategic direction, we are also mindful to begin engaging you in these conversations as early as we can.

Therefore, we are excited to announce our next engagement opportunity, which is a network analysis study scheduled for the week of [insert]. The study will be conducted by Virginia Tech Assistant Professor Dr. Robin Lemaire and Senior Research Faculty member David Moore. The network analysis is intended to document partnerships across currently funded programs, as well as other community entities that play a key role in helping families achieve self-sufficiency. The findings of the study will be shared with partners to stimulate discussion and exploration of partnership opportunities that will help connect families with other resources and programs as we continue our journey to bring our community to self-sufficiency. In addition, this year’s Community Investment reporting process will include questions that will begin introducing the guiding principles which make up United Way’s self-sufficiency framework and gather information from programs on how they are addressing these areas in their work with families.

Provided below are registration links to attend one of four sessions that are part of the network analysis study. The first 30 minutes of each session will focus on the content of this year’s Community Investment Process – Reporting Process, and the remainder of the time will be on the network analysis itself.

*It will be helpful to have the staff member who is filling out the United Way report to be present for the first thirty minutes. Additionally, many of you may have multiple programs funded through our process. Please note that each program will need a contact person for this survey, and our staff will be reaching out to you to identify those additional persons who can represent your programs in this process.*

Please see the dates below for this important study, and make sure that the person most knowledgeable of program operations can attend and participate in one of them. The meeting will be held at the Roanoke Higher Education Center, and each session can accommodate around 24 people at most.

[Insert dates/times for sessions and hyperlinks for registering]

Thank you for your continued interest in partnering with United Way and each other as we prepare to embark on this life-changing journey for families in our community!

Abby

**Abby Verdillo / Vice President, Community Impact**  
[\(540\) 777-4206](tel:5407774206)/ [abby@uwrv.org](mailto:abby@uwrv.org)

United Way of Roanoke Valley [\(540\) 777-4206](tel:5407774206)/ Fax: [\(540\) 344-4304](tel:5403444304)  
325 Campbell Avenue, S.W. Roanoke, VA 24016  
[www.uwrv.org](http://www.uwrv.org)

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**

**Informed Consent for Participants  
in Research Projects Involving Human Subjects**

**Title of Project:** United Way Roanoke Valley Family Self-Sufficiency Network Analysis

**Investigator(s):** Robin Lemaire, PhD: rlemaire@vt.edu / 540-231-0664  
David Moore, MPA: dmoore@vt.edu / 540-553-1454

**I. Purpose of this Research Project**

Research has shown that lifting families out of a cycle of poverty and into self-sufficiency requires two-generation approaches and a range of supports that cross the boundaries of education, income and health. Achieving self-sufficiency is not simply about addressing a lack of financial resources; it also includes addressing unstable or crowded housing, unemployment, food insecurity, exposure to violence, addiction, incarceration, and undereducated adults. Attaining the range of support, though, involves trying to make sense of a complex system and connecting with numerous agencies to get help.

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are seeking to work collaboratively to lift families out of poverty.

The research will examine the current state of collaboration and integration of services and activities to benefit family self-sufficiency. This information will in turn be used to analyze where there are opportunities to assist the organizations involved in family self-sufficiency issues to improve the way they work together to advance the goals of poverty alleviation in the region. The information gathered through this project should benefit the Roanoke Valley and ultimately the children and families in the region by providing a comprehensive network map of the organizations involved across the spectrum of family self-sufficiency in the area and where the opportunities are for integration.

It is expected that approximately 90-130 survey participants may be involved in the research. The aggregated research results may be published in a dissertation, academic journals and provided in a report to the United Way of the Roanoke Valley to support its efforts to fund integration initiatives.

**II. Procedures**

**By clicking “I agree” below, you will be led through an online survey that should require approximately 30-45 minutes to complete.** The survey consists of questions inquiring which organizations or programs your organization/program works with and your perceptions opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency.

**III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

#### **IV. Benefits**

While there are no direct monetary benefits or other compensation associated with participation in this research, individuals who attend one of the group sessions will be included in a door prize drawing for a \$50 gift certificate from the United Way. You are free to decline participation at any time. The findings, however, will inform the organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

#### **V. Extent of Anonymity and Confidentiality**

All data collected through surveys and interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone number, etc.). The research team will have exclusive access to the data during the collection and analysis process, and all stored data will be password protected. The aggregate data (void of identifying information) may be shared with the United Way of the Roanoke Valley.

Visual depictions of network ties will be shared back with all study participants in a way that identify the type, number, intensity and reciprocity of ties. Ties and other data related to relationship quality will not be depicted in ways that identify respondents.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

#### **VII. Subject's Consent**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent (please confirm by clicking "I have read the attached consent form and agree to participate in this research" below).

#### **VIII. Freedom to Withdraw**

You are free to withdraw from this study at any time without penalty. You are free to choose not to answer any questions that you choose, or not respond to what is being asked of you, without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

#### **IX. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

-----

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**

**Informed Consent for Participants  
in Research Projects Involving Human Subjects**

**Title of Project:** United Way Roanoke Valley Family Self-Sufficiency Network Analysis

**Investigator(s):** Robin Lemaire, PhD: rlemaire@vt.edu / 540-231-0664  
David Moore, MPA: dmoore@vt.edu / 540-553-1454

**I. Purpose of this Research Project**

Research has shown that lifting families out of a cycle of poverty and into self-sufficiency requires two-generation approaches and a range of supports that cross the boundaries of education, income and health. Achieving self-sufficiency is not simply about addressing a lack of financial resources; it also includes addressing unstable or crowded housing, unemployment, food insecurity, exposure to violence, addiction, incarceration, and undereducated adults. Attaining the range of support, though, involves trying to make sense of a complex system and connecting with numerous agencies to get help.

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are seeking to work collaboratively to lift families out of poverty.

The research will examine the current state of collaboration and integration of services and activities to benefit family self-sufficiency. This information will in turn be used to analyze where there are opportunities to assist the organizations involved in family self-sufficiency issues to improve the way they work together to advance the goals of poverty alleviation in the region. The information gathered through this project should benefit the Roanoke Valley and ultimately the children and families in the region by providing a comprehensive network map of the organizations involved across the spectrum of family self-sufficiency in the area and where the opportunities are for integration.

It is expected that approximately 90-130 survey participants may be involved in the research. The aggregated research results may be published in a dissertation, academic journals and provided in a report to the United Way of the Roanoke Valley to support its efforts to fund integration initiatives.

**II. Procedures**

**By clicking “I agree” below, you will be led through an online survey that should require approximately 15-20 minutes to complete.** The survey consists of questions inquiring which organizations or programs your organization/program works with and your perceptions opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency.

**III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

#### **IV. Benefits**

There are no direct monetary benefits or individual recognition resulting from participation in this research. The findings, however, will inform the organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

#### **V. Extent of Anonymity and Confidentiality**

All data collected through surveys and interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone number, etc.). The research team will have exclusive access to the data during the collection and analysis process, and all stored data will be password protected. The aggregate data (void of identifying information) may be shared with the United Way of the Roanoke Valley.

Visual depictions of network ties will be shared back with all study participants in a way that identify the type, number, intensity and reciprocity of ties. Ties and other data related to relationship quality will not be depicted in ways that identify respondents.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

#### **VII. Subject's Consent**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent (please confirm by clicking "I have read the attached consent form and agree to participate in this research" below).

#### **VIII. Freedom to Withdraw**

You are free to withdraw from this study at any time without penalty. You are free to choose not to answer any questions that you choose, or not respond to what is being asked of you, without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

#### **IX. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

---

## Survey Handout

# UWRV Family Self-Sufficiency Network Survey Handout

### Family Self-sufficiency

Programs relating to family self-sufficiency include both programs working with parents (adults with children) and those working with children and/or youth. They may be two-generation approaches (involving both children and adult family members) or they may be more targeted programs in areas of education, health, income or basic needs.

### Links to Other Organizations Targeting Family Self-sufficiency

In **question 2b** of the survey, we are asking you about several types of involvement your organization might have with other organizations. Please only consider relationships related to family self-sufficiency over the past 12 months that have value to your organization and are more than incidental. Below are the types of involvement along with examples:

<b>Information Sharing</b>	Relationships that involve routine conversations between program staff, sharing information about the other program with your clients, making referrals to that program (but not actively connecting clients to the other program)	Example: A client is enrolled in your employment program and your staff provides information about a counseling program. Your staff does not follow through to see if the client is eligible, if he seeks the service, or what the outcome is.
<b>Coordinated Referrals</b>	Formal relationships for channeling and managing referrals that ensure follow up, prescreening referrals for eligibility for the other program, joint client applications/intake, referral confirmation, and consent to share client information across agencies programs	Example: A client is enrolled in your substance abuse recovery program and your staff assists the client in getting connected with a job training program. Your staff follows up on the referral and ensures the client is enrolled and participating. Your staff and the job training staff jointly support the client until a job is secured.
<b>Integrated Services</b>	Planned service coordination, collaborative case management, cross-agency staffing, shared personnel, co-location, or shared data tracking	Example: Clients in your early childhood program needs access to healthy foods. The food distribution program sets up on-site, your two programs track improvement in healthy food consumption for clients and share responsibility for educating clients on nutrition.
<b>Shared Resources</b>	Shared financial resources, purchased services, grant partnerships, or contractual obligations	Example: Your shelter program works alongside 4 other programs to apply for a collaborative grant and share the resources to serve the same target population. Clients are collaboratively case managed.

We are also asking about the **intensity** of the relationship in regard to each of the involvement activities, using the options below:

- 1 = Low intensity involvement (not an especially important or frequent link)
- 2 = Moderate intensity involvement (a moderately important or moderately frequent link)
- 3 = High intensity involvement (on-going interactions or a link that is very important to your organization)

## Organizations Targeting Family Self-Sufficiency

We are asking about the relationship your organization has with the following list of organizations in question 2 of the survey. These organizations have been included because their services and /or mission are directly targeted to family self-sufficiency

### Cross-Cutting Programs

CCS - 211

CCS - Blue Ridge Community Assistance Network

CCS - Community Housing Resource Center

Commonwealth Catholic Charities - Refugee Resettle

Family Service - Domestic Violence Counseling (for offe

Family Service - Youth Programs (Reinforcing Families T

Feeding America Southwest Virginia - Food Distribution

Freedom First Credit Union - Responsible Rides

Prevention Council

RADAR

Roanoke Area Youth Substance Abuse Coalition

Roanoke City Central Intake

TAP - Domestic Violence Services

TAP - Housing Counseling

TAP - Housing Repair (Emergency Home Repair, Indoor

TAP - Veterans Services (job training and placement, ho

TAP - Virginia CARES (ex-offender/returning citizen serv

The Salvation Army - Red Shield Lodge

The Salvation Army - Turning Point

United Methodist Community Outreach Program

Valley Metro

### Education

Big Brothers Big Sisters

Blue Ridge Legal

Blue Ridge Literacy

Boys & Girls Clubs

Burton - Center for Arts and Technology

Carilion - Reach Out and Read

Craig County Child Care Center

Family Service - Adult Counseling Programs

Family Service - Older Adult Counseling Programs

Greenvale School

PCC - Pathways for Youth Afterschool Program

Planned Parenthood Health and Sexuality Education

TAP - Head Start

TAP - Youth and Adult Education (Project Discovery, Fat

VA Western Community College - Community College A

VA Western Community College - Workforce Solutions

VA Western Community College (General)

West End Center

### Health

Adult Day Care Center

American Red Cross

ARCH - Bethany Hall

ARCH - Trust House

Blue Ridge Behavioral Healthcare

Bradley Free Clinic

Carilion - Care Connection

Carilion - School Health Clinics

Children's Trust - Abuse Prevention

Children's Trust - Children's Advocacy Center

CHIP

Happy Healthy Cooks

LEAP

LOA Meals on Wheels

Mental Health America of Roanoke Valley

New Horizons Dental Care

New Horizons Primary Care

Roanoke Commission Garden Association

TAP - Oral Health Loan Program

VA Cooperative Extension

Virginia Tech Carilion Research Institute

### Income

Goodwill Employment Programs

Goodwill Reality Check

Roanoke Technical Education Center

TAP - Employment Training (Youth Build, CNA, SwiftStart, etc.)

TAP - Small business loans and microlending

TAP - Tax Clinic

Western Virginia Workforce Development Board

### United Way Initiatives

Bank On Roanoke Valley

Healthy Roanoke Valley

Rehousing Youth for Success in Education

Smart Beginnings Greater Roanoke

## Other Organizations:

In question 3, we are asking about the intensity and quality of your organization's relationship with the following list of other organizations:

### Ancillary, Community and Faith-based

Feeding America - Veggie Mobile  
Presbyterian Community Center Financial Services (RAM House)  
Roanoke Chamber of Commerce  
Roanoke Valley Speech and Hearing Center  
Salem - Roanoke County Chamber of Commerce  
Salvation Army Financial Services (rent/utility assist)  
SARA  
TAP - Sabrina's Place  
YMCA

### Businesses/Employers

Appalachian Power  
Carilion Clinic  
GE Drives and Controls, Inc.  
Gentry Locke Attorneys  
Kroger Mid-Atlantic  
LewisGale Regional Health System  
RGC Resources, Inc.  
Steel Dynamics Roanoke Bar Division  
The Roanoke Times  
TMEIC  
Trane  
United Parcel Service  
WDBJ7  
Wells Fargo  
WSLS 10

### Governmental Units

Botetourt County Public Libraries  
Botetourt County Social Services  
Continuum of Care (Homeless Collaborative)  
Craig County Social Services  
Roanoke City (general)  
Roanoke City Health Department  
Roanoke City Public Libraries  
Roanoke City Social Services  
Roanoke County Public Libraries  
Roanoke County/Salem Social Services  
Roanoke Redevelopment and Housing Authority  
VA Medical Center  
Higher Education  
Hollins University  
Jefferson College of Health Sciences  
Roanoke College  
Public Schools  
Botetourt County Public Schools  
Craig County Public Schools  
Roanoke City Public Schools - K-12  
Roanoke City Public Schools - Preschool  
Roanoke County Public Schools - K-12  
Roanoke County Public Schools - Preschool and special education  
Salem City Public Schools

## Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators:

Principle Investigator: Robin Lemaire, PhD: [rlemaire@vt.edu](mailto:rlemaire@vt.edu) / 540-231-0664

Co-Investigator: David Moore, MPA: [dmoore@vt.edu](mailto:dmoore@vt.edu) / 540-230-6914

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

## Survey – Main Group

### **Informed Consent**

#### **VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent for Participants in Research Projects Involving Human Subjects**

**Title of Project:** United Way Roanoke Valley Family Self-Sufficiency Network Analysis  
**Investigator(s):** Robin Lemaire, PhD: rlemaire@vt.edu / 540-231-0664  
David Moore, MPA: dmoore@vt.edu / 540-553-1454

#### **I. Purpose of this Research Project**

Research has shown that lifting families out of a cycle of poverty and into self-sufficiency requires two-generation approaches and a range of supports that cross the boundaries of education, income and health. Achieving self-sufficiency is not simply about addressing a lack of financial resources; it also includes addressing unstable or crowded housing, unemployment, food insecurity, exposure to violence, addiction, incarceration, and undereducated adults. Attaining the range of support, though, involves trying to make sense of a complex system and connecting with numerous agencies to get help.

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are seeking to work collaboratively to lift families out of poverty.

The research will examine the current state of collaboration and integration of services and activities to benefit family self-sufficiency. This information will in turn be used to analyze where there are opportunities to assist the organizations involved in family self-sufficiency issues to improve the way they work together to advance the goals of poverty alleviation in the region. The information gathered through this project should benefit the Roanoke Valley and ultimately the children and families in the region by providing a comprehensive network map of the organizations involved across the spectrum of family self-sufficiency in the area and where the opportunities are for integration.

It is expected that approximately 90-130 survey participants may be involved in the research. The aggregated research results may be published in a dissertation, academic journals and provided in a report to the United Way of the Roanoke Valley to support its efforts to fund integration initiatives.

#### **II. Procedures**

**By clicking “I agree” below, you will be led through an online survey that should require approximately 30-45 minutes to complete.** The survey consists of questions inquiring which organizations or programs your organization/program works with and your perceptions opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency.

#### **III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

#### **IV. Benefits**

While there are no direct monetary benefits or other compensation associated with participation in this research, individuals who attend one of the group sessions will be included in a door prize drawing for a \$50 gift certificate from the United Way. You are free to decline participation at any time. The findings, however, will inform the organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

#### **V. Extent of Anonymity and Confidentiality**

All data collected through surveys and interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone

## Introduction

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are committed to improving family self-sufficiency and to learning about the shared challenges and the opportunities for developing shared solutions to the problems that exist for families trapped in a cycle of poverty. No effort to produce collaborative, community-supported change will be effective without support from the myriad of players involved, so we greatly appreciate your willingness to share your knowledge, insights, and input. The purpose of this survey is to understand the current capacity of the family self-sufficiency efforts in the Roanoke Valley, as well as the challenges and opportunities for future collaboration. For the purpose of this research, **programs relating to family self-sufficiency include both programs working with parents (adults with children) and those working with children and/or youth. They may be two-generation approaches (involving both children and adult family members) or they may be more targeted programs in areas of education, health, income or basic needs.**

---

Your Name (for tracking responses only)

---

Your email (for follow up purposes only)

---

Name of your organization

---

Name of your program (the one for which you are providing responses)

---

How many years have you worked in the program for which you are responding?

---

1) How important would you say services or programs that support family self-sufficiency are to the overall mission of your organization? Please use a scale ranging from 1 = very little importance, to 5 = great importance.

1                      2                      3                      4                      5

## Links to other core service providers

Links to Other Organizations Targeting Family Self-Sufficiency

---

**2a)** Listed below are core organizations/programs targeting family self-sufficiency in the Roanoke Valley. We would like to know which organizations/programs, if any, your organization/program maintains relationships with when engaging in services, programs, or activities supporting family self-sufficiency. Please select all those organizations with whom your organization has an established relationship. If your organization does not maintain a relationship with any of these listed, please leave this question blank and move on to the next. If there are other organizations you feel are missing from the list, you will have the chance to provide the names of those organizations as a response to another question.

---

### **Cross-Cutting Programs**

- CCS - 211
- CCS - Blue Ridge Community Assistance Network
- CCS - Community Housing Resource Center
- Commonwealth Catholic Charities - Refugee Resettlement
- Family Service - Domestic Violence Counseling (for offenders)
- Family Service - Youth Programs (Reinforcing Families Together, Talking ACTION Together, TOP, etc.)
- Feeding America Southwest Virginia - Food Distribution
- Freedom First Credit Union - Responsible Rides
- Prevention Council
- RADAR
- Roanoke Area Youth Substance Abuse Coalition
- Roanoke City Central Intake
- TAP - Domestic Violence Services
- TAP - Housing Counseling
- TAP - Housing Repair (Emergency Home Repair, Indoor Plumbing, Weatherization)
- TAP - Veterans Services (job training and placement, housing)
- TAP - Virginia CARES (ex-offender/returning citizen services)
- The Salvation Army - Red Shield Lodge
- The Salvation Army - Turning Point
- United Methodist Community Outreach Program
- Valley Metro

### **Education**

- Big Brothers Big Sisters
- Blue Ridge Legal
- Blue Ridge Literacy
- Boys & Girls Clubs
- Burton - Center for Arts and Technology
- Carilion - Reach Out and Read
- Craig County Child Care Center

- Family Service - Adult Counseling Programs
- Family Service - Older Adult Counseling Programs

**2b)** Below are listed several types of relationships that may describe the type of involvement your organization might have with other organizations. Examples are also listed for each type of relationship.

**Information Sharing** - routine conversations between staff, providing information about other programs with your clients

**Coordinated Referrals** – formal relationships for channeling and managing referrals to ensure follow up, includes prescreening referrals for eligibility fit for another's program, joint applications, referral confirmation, and/or consent to share client information across agencies/programs, **does not include simply providing information and contacts to clients**

**Integrated Services** – planned service coordination, collaborative case management, cross-agency staffing, shared personnel, co-location

**Shared Resources** – shared financial resources, purchased services, grant partnerships, contractual obligations

Please go through the list of core organizations you indicated your organization has a relationship with and select the activities that describe the intensity of the relationship your organization has with that other organization for the provision or support of services, programs, or activities related to family self-sufficiency over the **past 12 months**. Please select any and all activities that describe your relationship, but **please only consider those activities that have value to your organization and are more than incidental.**

For each type of activity, indicate the number 1, 2, or 3, which corresponds to the following scale:

Blank = No relationship of this type (default if left unanswered)

1 = Low intensity involvement (not an especially important or frequent link)

2 = Moderate intensity involvement (a moderately important or moderately frequent link)

3 = High intensity involvement (on-going interactions or a link that is very important to your organization)

---

	Information Sharing	Coordinated Referrals	Integrated Services	Shared Resources
» CCS - 211				
» CCS - Blue Ridge Community Assistance Network				
» CCS - Community Housing Resource Center				
» Commonwealth Catholic Charities - Refugee Resettlement				
» Family Service - Domestic Violence Counseling (for offenders)				
» Family Service - Youth Programs (Reinforcing Families Together, <a href="#">Taking ACTION</a> Together, TOP, etc.)				
» Feeding America Southwest Virginia - Food Distribution				
» Freedom First Credit Union - Responsible Rides				
» Prevention Council				
» RADAR				
» Roanoke Area Youth Substance Abuse Coalition				
» Roanoke City Central Intake				
» TAP - Domestic Violence Services				
» TAP - Housing Counseling				
» TAP - Housing Repair (Emergency Home Repair, Indoor Plumbing, Weatherization)				
» TAP - Veterans Services (job training and placement, housing)				
» TAP - Virginia CARES (ex-offender/returning citizen services)				
» The Salvation Army - Red Shield Lodge				
» The Salvation Army - Turning Point				
» United Methodist Community Outreach Program				
» Valley Metro				
» Big Brothers Big Sisters				
» Blue Ridge Legal				
» Blue Ridge Literacy				

**2c)** Considering the set of organizations you indicated you have a working relationship above, and the people who work for these organizations, please answer the questions below using the following scale:

	Absolutely None	Hardly Any	Less than half	About Half	More than Half	Almost All	Every Single One
How many organizations do you trust to hold to their commitments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many organizations do you feel have similar values to your own?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many of the organizations do you trust to do high quality work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many of the organizations do you feel have your own organization's best interests in mind?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3a) In some cases, implementing family self-sufficiency programs requires relationships with ancillary organizations, faith organizations, civic organizations, general governmental units, schools, or businesses/employers. Please select which of the organizations/programs in the following list you have an established relationship with in regard to supporting family self-sufficiency. If your organization does not maintain a relationship with any of these organizations/programs, please leave this question blank and move on to the next.

---

### **Ancillary, Community and Faith-based**

- Feeding America - Veggie Mobile
- Presbyterian Community Center Financial Services (rent/utility assistance)
- RAM House
- Roanoke Chamber of Commerce
- Roanoke Valley Speech and Hearing Center
- Salem - Roanoke County Chamber of Commerce
- Salvation Army Financial Services (rent/utility assistance)
- SARA
- TAP - Sabrina's Place
- YMCA

### **Governmental Unit**

- Botetourt County Public Libraries
- Botetourt County Social Services
- Continuum of Care (Homeless Collaborative)
- Craig County Social Services
- Roanoke City (general)
- Roanoke City Health Department
- Roanoke City Public Libraries
- Roanoke City Social Services
- Roanoke County Public Libraries
- Roanoke County/Salem Social Services
- Roanoke Redevelopment and Housing Authority
- VA Medical Center

### **Business/Employer**

- Appalachian Power
- Carilion Clinic
- GE Drives and Controls, Inc.
- Gentry Locke Attorneys
- Kroger Mid-Atlantic

- LewisGale|Regional Health System
- RGC Resources, Inc.
- Steel Dynamics Roanoke BarDivision

**3b)** Using the same intensity scale as in question 2, please rate the intensity of your organization's relationship with ancillary organizations, general governmental units, civic organizations, or for-profit businesses with whom you indicated you maintain a relationship.

**Information Sharing** - routine conversations between staff, providing information about other programs with your clients

**Shared Resources** – shared financial resources, purchased services, grant partnerships, contractual obligations

Relationship Intensity

Blank = No relationship of this type (default if left unanswered)

1 = Low intensity involvement (not an especially important or frequent link)

2 = Moderate intensity involvement (a moderately important or moderately frequent link)

3 = High intensity involvement (on-going interactions or a link that is very important to your organization)

---

	Information Sharing	Shared Resources
» Feeding America - Veggie Mobile		
» Presbyterian Community Center Financial Services (rent/utility assistance)		
» RAM House		
» Roanoke Chamber of Commerce		
» Roanoke Valley Speech and Hearing Center		
» Salem - Roanoke County Chamber of Commerce		
» Salvation Army Financial Services (rent/utility assistance)		
» SARA		
» TAP - Sabrina's Place		
» YMCA		
» Botetourt County Public Libraries		
» Botetourt County Social Services		
» Continuum of Care (Homeless Collaborative)		
» Craig County Social Services		
» Roanoke City (general)		
» Roanoke City Health Department		
» Roanoke City Public Libraries		
» Roanoke City Social Services		
» Roanoke County Public Libraries		
» Roanoke County/Salem Social Services		
» Roanoke Redevelopment and Housing Authority		
» VA Medical Center		
» Appalachian Power		
» Carilion Clinic		
» GE Drives and Controls, Inc.		
» Gentry Locke Attorneys		
» Kroger Mid-Atlantic		
» LewisGale Regional Health System		
» RGC Resources, Inc.		
» Steel Dynamics Roanoke Bar Division		
» The Roanoke Times		
» TMEIC		
» Trane		
» United Parcel Service		
» WDBJ7		

For questions 4-7, feel free to consider any organization, including but not limited to those listed in questions 2 and 3.

---

4) **Importance:** Regardless of whether you have an existing relationship, which organizations do you feel are important for your program to have a relationship with for the sake of your family self-sufficiency operations in the Roanoke Valley? Again, please list up to five.

---

- 1)
- 2)
- 3)
- 4)
- 5)

5) **Influence:** Because most organizations are involved with other organizations in one way or another, they must often consider these other organizations when making decisions. Please list up to five (5) organizations whose needs, goals, decisions, and/or expectations are generally taken into consideration by your organization when major decisions are made. If you feel that your organization's decisions are affected by fewer than five other organizations, list only those.

---

- 1)
- 2)
- 3)
- 4)
- 5)

6) **Admiration:** Which organizations, other than your own, do you most admire for doing an especially good job of their work in the Roanoke Valley in general? Again, please list up to five.

---

- 1)
- 2)
- 3)
- 4)
- 5)

7) Indicate any organizations/programs that were not included in the previous questions but which you think would be important to include in this study either because they are directly involved in family self-sufficiency or because of their work in the community in general.

---

### Other Questions

8) The UWRV Community Listening Tour identified the following six gaps in the family self-sufficiency system as it exists in the Roanoke Valley. Please drag and drop into the box on the right 1-3 gaps your organization would like to help address to better support families in achieving family self-sufficiency and rising out of poverty. Once you have your 1-3 dragged to the box on the right, please rank your interest in participating in addressing them in order from greatest (1) to least (3).

**Basic Needs** – Connecting families/individuals to holistic set of supports (safe and affordable housing, nutritious food, health and wellness services, etc.) that meet their basic needs in the short-term, and follows up with programming that will put them towards the path toward stability.

**Financial education/coaching** – Ensuring that program participants have access and opportunity to join safe mainstream banking with a checking and/or savings account to protect assets, then based on their self-sufficiency goals provide opportunities to increase financial wellness through financial education workshops, classes, and asset-building supports.

**Transportation** – Ensuring that program participants have access to needed transportation for themselves and their family to attend school, training, and employment opportunities to increase income and economic opportunity.

**Employment** – Providing opportunity for clients to move beyond basic employment to their chosen career path option within their industry, including accessing higher education, career, technical and trade options.

**Early Education** – Ensuring that program participants have access to quality and affordable child care options for children of all age, and that families served in quality childcare options are connected to holistic supports and resources necessary for school readiness and success.

**Youth Academic and Development Supports** – Having a continuum of services and supports as students transition from early grades to adolescence, including affordable, flexible and broader extra-curricular options for youth that prepares them for, and supports them in college and career. Services are provided throughout the community (including Northeast Roanoke City, Roanoke, Botetourt, and Craig Counties.)

<b>Items</b> Basic Needs Financial Education Coaching Transportation Employment Early Education Youth Academic and Development Supports	Up to three gaps your program would like to help address with the greatest on the top to the least on the bottom
---	--

9) Please indicate the extent to which you agree with the statements below using the following scale:

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I am generally a trusting person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that there are general procedures and processes in place when collaborating with other organizations to ensure everything is fair.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel it's best to be cautious when dealing with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust that when we collaborate with other organizations, everyone's interests are protected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10) Please use the space below to include any additional thoughts or concerns you may have on family self-sufficiency in the Roanoke Valley.

---

**Organizational Demographics**

11) How many years has your program been in existence in the Roanoke Valley?

---

12) Which category best describes the organization that operates your program

---

- Unincorporated community group
- Church or faith-based initiative
- Nonprofit organization
- For-profit organization
- Local government led program
- State government led program
- Federal government led program

13) Which Roanoke Valley localities does your program serve?

---

- Roanoke City
- Roanoke County
- Salem City
- Craig County
- Botetourt County
- Other

14) Please tell about the age groups that you serve and the types of family self-sufficiency services you offer.

---

	Education	Mentoring/ Coaching	Resources/ Support	Other Services
Children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Youth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15) Approximately how many employees (full or part time) work in your program within the Roanoke Valley?

---

16) What is the approximate annual operating budget for your program?

---

- Less than \$10,000
- Between \$10,000 and \$50,000
- Between \$50,000 and \$100,000
- Between \$100,000 and \$250,000
- Between \$250,000 and \$500,000
- Between \$500,000 and \$1,000,000
- Over \$1,000,000
- Don't know or don't wish to reply

17) Different sources of funding are important to different programs. Please drag and drop into the box on the right 1-3 funding sources your organization depends upon the most to support families in achieving family self-sufficiency. Once you have your 1-3 dragged to the box on the right, please rank them in order from most important (1) to least important (3).

Items	Three most important funding sources
Government grants Foundation or philanthropic grants Direct individual and/or corporate giving Fees for services Endowment or investment income Social entrepreneurship or unrelated business income	

## Survey – Secondary Group

### Informed Consent

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**  
**Informed Consent for Participants**  
**in Research Projects Involving Human Subjects**

**Title of Project:** United Way Roanoke Valley Family Self-Sufficiency Network Analysis  
**Investigator(s):** Robin Lemaire, PhD: rlemaire@vt.edu / 540-231-0664  
David Moore, MPA: dmoore@vt.edu / 540-553-1454

#### **I. Purpose of this Research Project**

Research has shown that lifting families out of a cycle of poverty and into self-sufficiency requires two-generation approaches and a range of supports that cross the boundaries of education, income and health. Achieving self-sufficiency is not simply about addressing a lack of financial resources; it also includes addressing unstable or crowded housing, unemployment, food insecurity, exposure to violence, addiction, incarceration, and undereducated adults. Attaining the range of support, though, involves trying to make sense of a complex system and connecting with numerous agencies to get help.

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are seeking to work collaboratively to lift families out of poverty.

The research will examine the current state of collaboration and integration of services and activities to benefit family self-sufficiency. This information will in turn be used to analyze where there are opportunities to assist the organizations involved in family self-sufficiency issues to improve the way they work together to advance the goals of poverty alleviation in the region. The information gathered through this project should benefit the Roanoke Valley and ultimately the children and families in the region by providing a comprehensive network map of the organizations involved across the spectrum of family self-sufficiency in the area and where the opportunities are for integration.

It is expected that approximately 90-130 survey participants may be involved in the research. The aggregated research results may be published in a dissertation, academic journals and provided in a report to the United Way of the Roanoke Valley to support its efforts to fund integration initiatives.

#### **II. Procedures**

**By clicking “I agree” below, you will be led through an online survey that should require approximately 15-20 minutes to complete.** The survey consists of questions inquiring which organizations or programs your organization/program works with and your perceptions opportunities for developing shared solutions to assist the Roanoke community in enhancing its efforts to address family self-sufficiency.

#### **III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

#### **IV. Benefits**

There are no direct monetary benefits or individual recognition resulting from participation in this research. The findings, however, will inform the organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

#### **V. Extent of Anonymity and Confidentiality**

All data collected through surveys and interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone

number, etc.). The research team will have exclusive access to the data during the collection and analysis process, and all stored data will be password protected. The aggregate data (void of identifying information) may be shared with the United Way of the Roanoke Valley.

Visual depictions of network ties will be shared back with all study participants in a way that identify the type, number, intensity and reciprocity of ties. Ties and other data related to relationship quality will not be depicted in ways that identify respondents.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

#### **VII. Subject's Consent**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent (please confirm by clicking "I have read the attached consent form and agree to participate in this research" below).

#### **VIII. Freedom to Withdraw**

You are free to withdraw from this study at any time without penalty. You are free to choose not to answer any questions that you choose, or not respond to what is being asked of you, without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

#### **IX. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at moored@vt.edu or (540) 231-4991.

---

I have read this consent form and agree to participate in this research

#### **Introduction**

The purpose of this research is to document the relationships between and among organizations across the Roanoke Valley that are committed to improving family self-sufficiency and to learning about the shared challenges and the opportunities for developing shared solutions to the problems that exist for families trapped in a cycle of poverty. No effort to produce collaborative, community-supported change will be effective without support from the myriad of players involved, so we greatly appreciate your willingness to share your knowledge, insights, and input. The purpose of this survey is to understand the current capacity of the family self-sufficiency efforts in the Roanoke Valley, as well as the challenges and opportunities for future collaboration. For the purpose of this research, **programs relating to family self-sufficiency include both programs working with parents (adults with children) and those working with children and/or youth. They may be two-generation approaches (involving both children and adult family members) or they may be more targeted programs in areas of education, health, income or basic needs.**

---

Your Name (for tracking responses only)

---

Your email (for follow up purposes only)

Name of your organization

Name of your program (the one for which you are providing responses)

How many years have you worked in the program for which you are responding?

1) How important would you say services or programs that support family self-sufficiency are to the overall mission of your organization? Please use a scale ranging from 1 = very little importance, to 5 = great importance.

- 1                      2                      3                      4                      5
- 

**Links to other core service providers**

**Links to Other Organizations Targeting Family Self-Sufficiency**

2a) Listed below are core organizations/programs targeting family self-sufficiency in the Roanoke Valley. We would like to know which organizations/programs, if any, your organization/program maintains relationships with when engaging in services, programs, or activities supporting family self-sufficiency. Please select all those organizations with whom your organization has an established relationship. If your organization does not maintain a relationship with any of these listed, please leave this question blank and move on to the next. If there are other organizations you feel are missing from the list, you will have the chance to provide the names of those organizations as a response to another question.

**Cross-Cutting Programs**

- CCS - 211
- CCS - Blue Ridge Community Assistance Network
- CCS - Community Housing Resource Center
- Commonwealth Catholic Charities - Refugee Resettlement
- Family Service - Domestic Violence Counseling (for offenders)
- Family Service - Youth Programs (Reinforcing Families Together, Taking ACTION Together, TOP, etc.)
- Feeding America Southwest Virginia - Food Distribution
- Freedom First Credit Union - Responsible Rides
- Prevention Council

- RADAR
- Roanoke Area Youth Substance Abuse Coalition
- Roanoke City Central Intake
- TAP - Domestic Violence Services
- TAP - Housing Counseling
- TAP - Housing Repair (Emergency Home Repair, Indoor Plumbing, Weatherization)
- TAP - Veterans Services (job training and placement, housing)
- TAP - Virginia CARES (ex-offender/returning citizen services)
- The Salvation Army - Red Shield Lodge
- The Salvation Army - Turning Point
- United Methodist Community Outreach Program
- Valley Metro

## **Education**

- Big Brothers Big Sisters
- Blue Ridge Legal
- Blue Ridge Literacy
- Boys & Girls Clubs
- Burton - Center for Arts and Technology
- Carilion - Reach Out and Read
- Craig County Child Care Center
- Family Service - Adult Counseling Programs
- Family Service - Older Adult Counseling Programs
- Greenvale School
- PCC - Pathways for Youth Afterschool Program
- Planned Parenthood Health and Sexuality Education
- TAP - Head Start
- TAP - Youth and Adult Education (Project Discovery, Fathers First, etc.)
- VA Western Community College - Community College Access Program
- VA Western Community College - Workforce Solutions
- VA Western Community College (General)
- West End Center

## **Health**

- Adult Day Care Center
- American Red Cross
- ARCH - Bethany Hall
- ARCH - Trust House
- Blue Ridge Behavioral Healthcare

- Bradley Free Clinic
- Carilion - Care Connection
- Carilion - School Health Clinics
- Children's Trust - Abuse Prevention
- Children's Trust - Children's Advocacy Center
- CHIP
- Happy Healthy Cooks
- LEAP
- LOA Meals on Wheels
- Mental Health America of Roanoke Valley
- New Horizons Dental Care
- New Horizons Primary Care
- Roanoke Commission Garden Association
- TAP - Oral Health Loan Program
- VA Cooperative Extension
- Virginia Tech Carilion Research Institute

### **Income**

- Goodwill Employment Programs
- Goodwill Reality Check
- Roanoke Technical Education Center
- TAP - Employment Training (Youth Build, Certified Nurse Assistant, SwiftStart, etc.)
- TAP - Small business loans and microlending
- TAP - Tax Clinic
- Western Virginia Workforce Development Board

### **United Way Initiatives**

- Bank On Roanoke Valley
- Healthy Roanoke Valley
- Rehousing Youth for Success in Education
- Smart Beginnings Greater Roanoke

**2b)** Below are listed several types of relationships that may describe the type of involvement your organization might have with other organizations. Examples are also listed for each type of relationship.

**Information Sharing** - routine conversations between staff, providing information about other programs with your clients

**Shared Resources** – shared financial resources, purchased services, grant partnerships, contractual obligations

Please go through the list of core organizations you indicated your organization has a relationship with and select the activities that describe the intensity of the relationship your organization has with that other

organization for the provision or support of services, programs, or activities related to family self-sufficiency over the **past 12 months**. Please select any and all activities that describe your relationship, but **please only consider those activities that have value to your organization and are more than incidental.**

For each type of activity, indicate the number 1, 2, or 3, which corresponds to the following scale:

Blank = No relationship of this type (default if left unanswered)

1 = Low intensity involvement (not an especially important or frequent link)

2 = Moderate intensity involvement (a moderately important or moderately frequent link)

3 = High intensity involvement (on-going interactions or a link that is very important to your organization)

	Information Sharing	Shared Resources
» CCS - 211	<input type="text"/>	<input type="text"/>
» CCS - Blue Ridge Community Assistance Network	<input type="text"/>	<input type="text"/>
» CCS - Community Housing Resource Center	<input type="text"/>	<input type="text"/>
» Commonwealth Catholic Charities - Refugee Resettlement	<input type="text"/>	<input type="text"/>
» Family Service - Domestic Violence Counseling (for offenders)	<input type="text"/>	<input type="text"/>
» Family Service - Youth Programs (Reinforcing Families Together, Taking ACTION Together, TOP, etc.)	<input type="text"/>	<input type="text"/>
» Feeding America Southwest Virginia - Food Distribution	<input type="text"/>	<input type="text"/>
» Freedom First Credit Union - Responsible Rides	<input type="text"/>	<input type="text"/>
» Prevention Council	<input type="text"/>	<input type="text"/>
» RADAR	<input type="text"/>	<input type="text"/>
» Roanoke Area Youth Substance Abuse Coalition	<input type="text"/>	<input type="text"/>
» Roanoke City Central Intake	<input type="text"/>	<input type="text"/>
» TAP - Domestic Violence Services	<input type="text"/>	<input type="text"/>
» TAP - Housing Counseling	<input type="text"/>	<input type="text"/>
» TAP - Housing Repair (Emergency Home Repair, Indoor Plumbing, Weatherization)	<input type="text"/>	<input type="text"/>
» TAP - Veterans Services (job training and placement, housing)	<input type="text"/>	<input type="text"/>
» TAP - Virginia CARES (ex-offender/returning citizen services)	<input type="text"/>	<input type="text"/>
» The Salvation Army - Red Shield Lodge	<input type="text"/>	<input type="text"/>
» The Salvation Army - Turning Point	<input type="text"/>	<input type="text"/>

	Information Sharing	Shared Resources
» United Methodist Community Outreach Program	<input type="checkbox"/>	<input type="checkbox"/>
» Valley Metro	<input type="checkbox"/>	<input type="checkbox"/>
» Big Brothers Big Sisters	<input type="checkbox"/>	<input type="checkbox"/>
» Blue Ridge Legal	<input type="checkbox"/>	<input type="checkbox"/>
» Blue Ridge Literacy	<input type="checkbox"/>	<input type="checkbox"/>
» Boys & Girls Clubs	<input type="checkbox"/>	<input type="checkbox"/>
» Burton - Center for Arts and Technology	<input type="checkbox"/>	<input type="checkbox"/>
» Carilion - Reach Out and Read	<input type="checkbox"/>	<input type="checkbox"/>
» Craig County Child Care Center	<input type="checkbox"/>	<input type="checkbox"/>
» Family Service - Adult Counseling Programs	<input type="checkbox"/>	<input type="checkbox"/>
» Family Service - Older Adult Counseling Programs	<input type="checkbox"/>	<input type="checkbox"/>
» Greenvale School	<input type="checkbox"/>	<input type="checkbox"/>
» PCC - Pathways for Youth Afterschool Program	<input type="checkbox"/>	<input type="checkbox"/>
» Planned Parenthood Health and Sexuality Education	<input type="checkbox"/>	<input type="checkbox"/>
» TAP - Head Start	<input type="checkbox"/>	<input type="checkbox"/>
» TAP - Youth and Adult Education (Project Discovery, Fathers First, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
» VA Western Community College - Community College Access Program	<input type="checkbox"/>	<input type="checkbox"/>
» VA Western Community College - Workforce Solutions	<input type="checkbox"/>	<input type="checkbox"/>
» VA Western Community College (General)	<input type="checkbox"/>	<input type="checkbox"/>
» West End Center	<input type="checkbox"/>	<input type="checkbox"/>
» Adult Day Care Center	<input type="checkbox"/>	<input type="checkbox"/>
» American Red Cross	<input type="checkbox"/>	<input type="checkbox"/>
» ARCH - Bethany Hall	<input type="checkbox"/>	<input type="checkbox"/>
» ARCH - Trust House	<input type="checkbox"/>	<input type="checkbox"/>
» Blue Ridge Behavioral Healthcare	<input type="checkbox"/>	<input type="checkbox"/>
» Bradley Free Clinic	<input type="checkbox"/>	<input type="checkbox"/>
» Carilion - Care Connection	<input type="checkbox"/>	<input type="checkbox"/>
» Carilion - School Health Clinics	<input type="checkbox"/>	<input type="checkbox"/>
» Children's Trust - Abuse Prevention	<input type="checkbox"/>	<input type="checkbox"/>

	Information Sharing	Shared Resources
» Children's Trust - Children's Advocacy Center	<input type="button" value="v"/>	<input type="button" value="v"/>
» CHIP	<input type="button" value="v"/>	<input type="button" value="v"/>
» Happy Healthy Cooks	<input type="button" value="v"/>	<input type="button" value="v"/>
» LEAP	<input type="button" value="v"/>	<input type="button" value="v"/>
» LOA Meals on Wheels	<input type="button" value="v"/>	<input type="button" value="v"/>
» Mental Health America of Roanoke Valley	<input type="button" value="v"/>	<input type="button" value="v"/>
» New Horizons Dental Care	<input type="button" value="v"/>	<input type="button" value="v"/>
» New Horizons Primary Care	<input type="button" value="v"/>	<input type="button" value="v"/>
» Roanoke Commission Garden Association	<input type="button" value="v"/>	<input type="button" value="v"/>
» TAP - Oral Health Loan Program	<input type="button" value="v"/>	<input type="button" value="v"/>
» VA Cooperative Extension	<input type="button" value="v"/>	<input type="button" value="v"/>
» Virginia Tech Carilion Research Institute	<input type="button" value="v"/>	<input type="button" value="v"/>
» Goodwill Employment Programs	<input type="button" value="v"/>	<input type="button" value="v"/>
» Goodwill Reality Check	<input type="button" value="v"/>	<input type="button" value="v"/>
» Roanoke Technical Education Center	<input type="button" value="v"/>	<input type="button" value="v"/>
» TAP - Employment Training (Youth Build, Certified Nurse Assistant, SwiftStart, etc.)	<input type="button" value="v"/>	<input type="button" value="v"/>
» TAP - Small business loans and microlending	<input type="button" value="v"/>	<input type="button" value="v"/>
» TAP - Tax Clinic	<input type="button" value="v"/>	<input type="button" value="v"/>
» Western Virginia Workforce Development Board	<input type="button" value="v"/>	<input type="button" value="v"/>
» Bank On Roanoke Valley	<input type="button" value="v"/>	<input type="button" value="v"/>
» Healthy Roanoke Valley	<input type="button" value="v"/>	<input type="button" value="v"/>
» Rehousing Youth for Success in Education	<input type="button" value="v"/>	<input type="button" value="v"/>
» Smart Beginnings Greater Roanoke	<input type="button" value="v"/>	<input type="button" value="v"/>

**2c)** Considering the set of organizations you indicated you have a working relationship above, and the people who work for these organizations, please answer the questions below using the following scale:

	Absolutely None	Hardly Any	Less than half	About Half	More than Half	Almost All	Every Single One
How many organizations do you trust to hold to their commitments?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Absolutely None	Hardly Any	Less than half	About Half	More than Half	Almost All	Every Single One
How many organizations do you feel have similar values to your own?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many of the organizations do you trust to do high quality work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many of the organizations do you feel have your own organization's best interests in mind?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For questions 3-6, feel free to consider any organization, including but not limited to those listed in question 2.

**3) Importance:** Regardless of whether you have an existing relationship, which organizations do you feel are important for your program to have a relationship with for the sake of your family self-sufficiency operations in the Roanoke Valley? Again, please list up to five.

- 1)
- 2)
- 3)
- 4)
- 5)

**4) Influence:** Because most organizations are involved with other organizations in one way or another, they must often consider these other organizations when making decisions. Please list up to five (5) organizations whose needs, goals, decisions, and/or expectations are generally taken into consideration by your organization when major decisions are made. If you feel that your organization's decisions are affected by fewer than five other organizations, list only those.

- 1)
- 2)
- 3)
- 4)
- 5)

**5) Admiration:** Which organizations, other than your own, do you most admire for doing an especially good job of their work in the Roanoke Valley in general? Again, please list up to five.

- 1)
- 2)
- 3)
- 4)
- 5)

6) Indicate any organizations/programs that were not included in the previous questions but which you think would be important to include in this study either because they are directly involved in family self-sufficiency or because of their work in the community in general.

**Other Questions**

7) The UWRV Community Listening Tour identified the following six gaps in the family self-sufficiency system as it exists in the Roanoke Valley. Please drag and drop into the box on the right 1-3 gaps your organization would like to help address to better support families in achieving family self-sufficiency and rising out of poverty. Once you have your 1-3 dragged to the box on the right, please rank your interest in participating in addressing them in order from greatest (1) to least (3).

**Basic Needs** – Connecting families/individuals to holistic set of supports (safe and affordable housing, nutritious food, health and wellness services, etc.) that meet their basic needs in the short-term, and follows up with programming that will put them towards the path toward stability.

**Financial education/coaching** – Ensuring that program participants have access and opportunity to join safe mainstream banking with a checking and/or savings account to protect assets, then based on their self-sufficiency goals provide opportunities to increase financial wellness through financial education workshops, classes, and asset-building supports.

**Transportation** – Ensuring that program participants have access to needed transportation for themselves and their family to attend school, training, and employment opportunities to increase income and economic opportunity.

**Employment** – Providing opportunity for clients to move beyond basic employment to their chosen career path option within their industry, including accessing higher education, career, technical and trade options.

**Early Education** – Ensuring that program participants have access to quality and affordable child care options for children of all age, and that families served in quality childcare options are connected to holistic supports and resources necessary for school readiness and success.

**Youth Academic and Development Supports** – Having a continuum of services and supports as students transition from early grades to adolescence, including affordable, flexible and broader extra-curricular options for youth that prepares them for, and supports them in college and career. Services are provided throughout the community (including Northeast Roanoke City, Roanoke, Botetourt, and Craig Counties.)

Items	Up to three gaps your program would like to help address with the greatest on the top to the least on the bottom
Basic Needs	
Financial Education Coaching	
Transportation	
Employment	
Early Education	
Youth Academic and Development Supports	

8) Please indicate the extent to which you agree with the statements below using the following scale:

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I am generally a trusting person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I feel that there are general procedures and processes in place when collaborating with other organizations to ensure everything is fair.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel it's best to be cautious when dealing with other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trust that when we collaborate with other organizations, everyone's interests are protected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**9) Please use the space below to include any additional thoughts or concerns you may have on family self-sufficiency in the Roanoke Valley.**

## Appendix B

### Institutional Review Board Documents—Interview Phase

#### Recruitment Letter

Dear [Informant]

My name is David Moore and I am a doctoral candidate at the Virginia Tech Center for Public Administration and Policy. I have been working with Dr. Robin Lemaire on the network study of the United Way's Family Self-Sufficiency Network. For my dissertation work, I have proposed to explore how participants and stakeholders in human service networks make sense of the network plots associated with network analyses. I would like to interview you as one of 12-15 key informants to go over the network plots from the study and discuss what you take away from them. The interview can be conducted at a time and place of your convenience and would take 60-90 minutes. I am attaching a copy of the informed consent disclosure which explains more about the study and your potential participation. If you are willing to participate, I will send you a copy of the network plots and we can schedule a time to meet in person for the interview. If you would not like to participate, please let me know and I will find another informant for my study. Thank you for your consideration.

## Consent Form – Individual

### **VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY** **Informed Consent for Participants** **in Research Projects Involving Human Subjects**

**Title of Project:** Making Sense of Networks (David Moore Dissertation)

**Investigator(s):** Robin Lemaire, PhD: [rlemaire@vt.edu](mailto:rlemaire@vt.edu) / 540-231-0664  
David Moore, MPA: [dmoore@vt.edu](mailto:dmoore@vt.edu) / 540-553-1454

#### **I. Purpose of this Research Project**

This research will examine the sense-making of network participants or other stakeholders following introduction of network plots of a goal-directed human service network in which they are engaged. The study will provide an entry point for understanding later collaborative choices by first seeking to understand how users make sense of network plots associated with the social network analysis (SNA) of interorganizational relationships (IORs) in goal-directed networks. The study will focus on the case of the United Way of the Roanoke Valley's family self-sufficiency initiative which is intended to facilitate collaborative action that will lift 10,000 families in the Roanoke Valley out of poverty by 2030. Following development and dissemination of a social network analysis of the interorganizational relationships involved in the initiative, the researcher will collect data from semi-structured interviews of network participants and other initiative stakeholders using Dervin's Sense Making Methodology, specifically her sense-making situated micro-element interview, to learn how participants make sense of the network plots. By examining network plots as a new information resource from the user's perspective (rather than the designer's perspective), the study will provide theoretical propositions and new conceptual frameworks that will serve as a starting point for future studies designed to understand better how the introduction of a novel information source (the network plots) eventually affects changes in network structure and performance. This study will contribute to the emerging literature that uses a practice lens to illuminate collaboration in human service implementation networks.

#### **II. Procedures**

**By signing below, you agree to participate in an interview that should require approximately 60-90 minutes to complete.** The interview consists of open ended questions inquiring as to what you found important from the network plots, what you learned, what that learning meant to you, and how it connects with other issues in your thinking. The interview will be audio recorded and transcribed.

#### **III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

#### **IV. Benefits**

There are no direct benefits for you associated with participation in this research. You are free to decline participation at any time. This process, however, may inform you and the other organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

#### **V. Extent of Anonymity and Confidentiality**

All identifying information collected through interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone number, etc.). The research team will have exclusive access to the identifying information during the collection and analysis process, and all stored data will be password protected.

Quotations from the interview may be used in presenting the analysis and findings, but will not be attributed to individual respondents, nor will the individual respondents or their organizations be identified in ways that connect them with their specific responses.

Any personal information that could identify you will be removed or changed before files are shared with other researchers.

Although the United Way of the Roanoke Valley has been a partner in this research by helping define the boundaries of the network study and encouraging participation, it does not have special access to any of the findings from this research and will not have access to results beyond that shared with all participants or through scholarly publications resulting from the research.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

### **VII. Compensation**

There is no compensation provided for participating in this interview.

### **VIII. Freedom to Withdraw**

You are free to withdraw from this study at any time without penalty. You are free to choose not to answer any questions that you choose, or not respond to what is being asked of you, without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

### **IX. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

### **X. Subject's Consent**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

\_\_\_\_\_ Date \_\_\_\_\_  
Subject signature

\_\_\_\_\_  
Printed Name

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**  
**Informed Consent for Participants**  
**in Research Projects Involving Human Subjects**

**Title of Project:** Making Sense of Networks (David Moore Dissertation)

**Investigator(s):** Robin Lemaire, PhD: [rlemaire@vt.edu](mailto:rlemaire@vt.edu) / 540-231-0664  
David Moore, MPA: [dmoore@vt.edu](mailto:dmoore@vt.edu) / 540-553-1454

**I. Purpose of this Research Project**

This research will examine the sense-making of network participants or other stakeholders following introduction of network plots of a goal-directed human service network in which they are engaged. The study will provide an entry point for understanding later collaborative choices by first seeking to understand how users make sense of network plots associated with the social network analysis (SNA) of interorganizational relationships (IORs) in goal-directed networks. The study will focus on the case of the United Way of the Roanoke Valley's family self-sufficiency initiative which is intended to facilitate collaborative action that will lift 10,000 families in the Roanoke Valley out of poverty by 2030. Following development and dissemination of a social network analysis of the interorganizational relationships involved in the initiative, the researcher will collect data from semi-structured interviews of network participants and other initiative stakeholders using Dervin's Sense Making Methodology, specifically her sense-making situated micro-element interview, to learn how participants make sense of the network plots. By examining network plots as a new information resource from the user's perspective (rather than the designer's perspective), the study will provide theoretical propositions and new conceptual frameworks that will serve as a starting point for future studies designed to understand better how the introduction of a novel information source (the network plots) eventually affects changes in network structure and performance. This study will contribute to the emerging literature that uses a practice lens to illuminate collaboration in human service implementation networks.

**II. Procedures**

**By signing below, you agree to participate in a small group interview with other participants that should require approximately 60-90 minutes to complete.** The small group interview consists of open-ended questions inquiring as to what you found important from the network plots, what you learned, what that learning meant to you, and how it connects with other issues in your thinking. The small group interview will be audio recorded and transcribed.

**III. Risks**

There are no apparent physical, mental, or emotional risks resulting associated with participation in this research.

**IV. Benefits**

There are no direct benefits for you associated with participation in this research. You are free to decline participation at any time. This process, however, may inform you and the other organizations involved in family self-sufficiency issues how to improve the way they work together to advance the goals of family self-sufficiency across the region.

No promise or guarantee of benefits has been made to encourage you to participate.

**V. Extent of Anonymity and Confidentiality**

All identifying information collected through interviews will be kept confidential. Only essential information that identifies individual respondents will be collected (name, physical or mailing addresses, email address, phone number, etc.). The research team will have exclusive access to the identifying information during the analysis process, and all stored data will be password protected.

Researchers will take every precaution to maintain confidentiality of the study data; however, the nature of small-group interviews prevents the researcher from guaranteeing confidentiality. Because the small-group interviews include discussion of personal opinions, extra measures will be taken to protect each participant's privacy. The researcher will begin the small-group interview by asking the participants to agree to the importance of keeping information discussed in the group confidential. The researcher will then ask each participant to verbally agree to keep everything discussed in the room confidential, and will remind them at the end of the research period not to discuss the material outside.

Quotations from the interview may be used in presenting the analysis and findings, but will not be attributed to individual respondents, nor will the individual respondents or their organizations be identified in ways that connect them with their specific responses.

Any personal information that could identify you will be removed or changed before files are shared with other researchers.

Although the United Way of the Roanoke Valley has been a partner in this research by helping define the boundaries of the network study and encouraging participation, it does not have special access to any of the findings from this research and will not have access to results beyond that shared with all participants or through scholarly publications resulting from the research.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

#### **VII. Compensation**

There is no compensation provided for participating in this interview.

#### **VIII. Freedom to Withdraw**

You are free to withdraw from this study at any time without penalty. You are free to choose not to answer any questions that you choose, or not respond to what is being asked of you, without penalty.

Please note that there may be circumstances under which the investigator may determine that a subject should not continue as a subject.

#### **IX. Questions or Concerns**

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

#### **X. Subject's Consent**

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

\_\_\_\_\_ Date \_\_\_\_\_  
Subject signature

\_\_\_\_\_  
Printed Name

## Introduction

---

- Thank you for agreeing to speak with me. Did you read the recruitment letter and informed consent document and do you have any questions about the purpose of the study or what is being asked of you? I have copies here for your review.
- Alright, then let's have you sign two copies of the consent document, once for my records and one for yours.
- The interviewing methodology that I am using in my research is intentionally very open ended and can seem somewhat repetitive as we dig down into your responses. It is designed specifically to help me as the researcher get past my own assumptions and biases about your experiences and thinking and allow you to express your ideas in your own words. So we may end up circling around issues very indirectly, but that is by design. It is also designed to illicit deep thinking and reflection on the objects and elements we will be discussing. Many participants in this type of interview find that they come away with new and interesting insights into their own experiences. I hope you find it valuable in that way too. Other than a prompt at the beginning of each section to identify the object or element of interest, I will be reading exclusively from a roster of established questions and trying to select the most pertinent questions to help illuminate your experience. I won't ask all of them, but many of them are similar and may feel redundant. I will take notes of your initial responses in order to identify elements for a deeper level of exploration, using the same list of questions. This is the part that can begin to feel repetitive, but I hope we will share an understanding of the nuance that I am attempting to explore. If you feel like you have already addressed a question that I am asking, please feel free to simply respond that you have already addressed that. If, after repeated questions on a topic, you feel you have shared all that you can, please just indicate so and I will proceed to the next object or element of interest. If you become fatigued, please feel free to ask for a break or indicate how much longer you are willing to participate and I will try to wrap up.
- Are you ready to begin?
- For your reference, I am providing a copy of some of the network plots produced from the study. You may take a few minutes to look over them and familiarize yourself with them if you like.
- As indicated in the informed consent and recruitment letter, I will be recording our discussion. I will be using two devices in case one ends up having a problem. I will start them both now if that is alright.
- *Please think back to the presentation of the data from the network study and your subsequent review and study of the network plots and report. Are there two or three of the network plots which you found most interesting and informative? Which? Any others? Which three were most important?*

## Interview Question Guide

Informant code: \_\_\_\_\_

Date: \_\_\_\_\_

### **Interview Critical Entry:**

Please take a look through the network plots to refresh your memory. Please think back to the presentation of the data from the network study and your subsequent review and study of the network plots. Are there two or three of the network plots which you found most interesting and informative? Which? Any others? Which three were most important?

Any others? [write down each one] Which were the most important?[For the most important two or three, depending on time, use the following questions as prompts.]

What are your program's or organization's roles in all this?

What are your individual/personal roles here?

<b>Questions</b> (in response to question 1 note gaps, bridges and outcomes for level 2 triangulation)			
<p>1. <u>What do you see in this that makes it important? What did you learn from it? What does it mean? What do you take away?</u></p> <p>a. What has been happening that makes it important?            b. What have you been trying to deal with?            c. What led up to this? What brought you to this point?            d. How does that connect with past events?            e. Have you experienced this before? Explain?            f. What in the current situation empowers or constrains?            g. And how has this affected how you see yourself?</p>	<u>Object 1?</u>	<u>Object 2?</u>	<u>Object 3?</u>
<p>2. <u>To tap gaps</u></p> <p>a. What have been your big questions?            b. What has been confusing? What have you been trying to unconfuse, figure out, learn about?            c. What have you struggled with?            d. What has been missing?            e. What has had you stuck?            f. How has that stood in the way?            g. How has this prevented you from getting help?</p>	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>
<p>3. <u>To tap bridges</u></p> <p>a. What conclusions/ideas have you come to?            b. What emotions/feelings have you come to?            c. What leads you to that conclusion/idea/emotion/feeling?            d. How would that evaluation connect with your situation?            e. What has been limited or incomplete about that?</p>	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>
<p>4. <u>To tap outcomes sought or obtained</u></p> <p>a. Where is this all going?            b. How might that help? And how might that help?            c. How might that hinder? And how might that hinder?            d. How might that harm you? And how might that harm you?            e. How might that constrain you?            f. How might that empower you?            g. If you had a magic wand, where would you take this?            h. What would that allow you to do/achieve/think?</p>	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>

Other Notes:

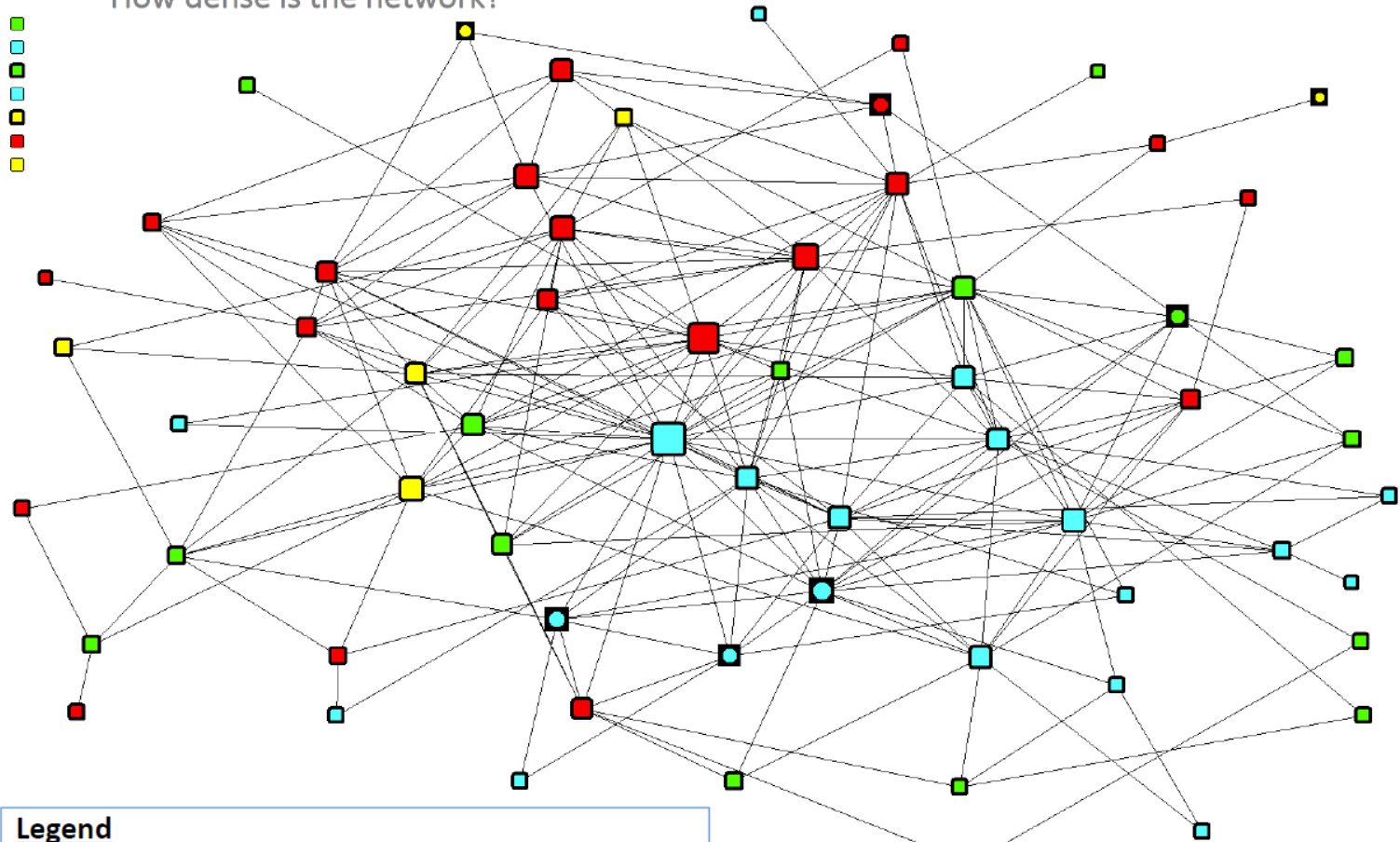
Plots Used for Interviews

# Family Self-Sufficiency Network Analysis

Preliminary slides and images from the forthcoming report

# Introducing a Network Plot

How dense is the network?



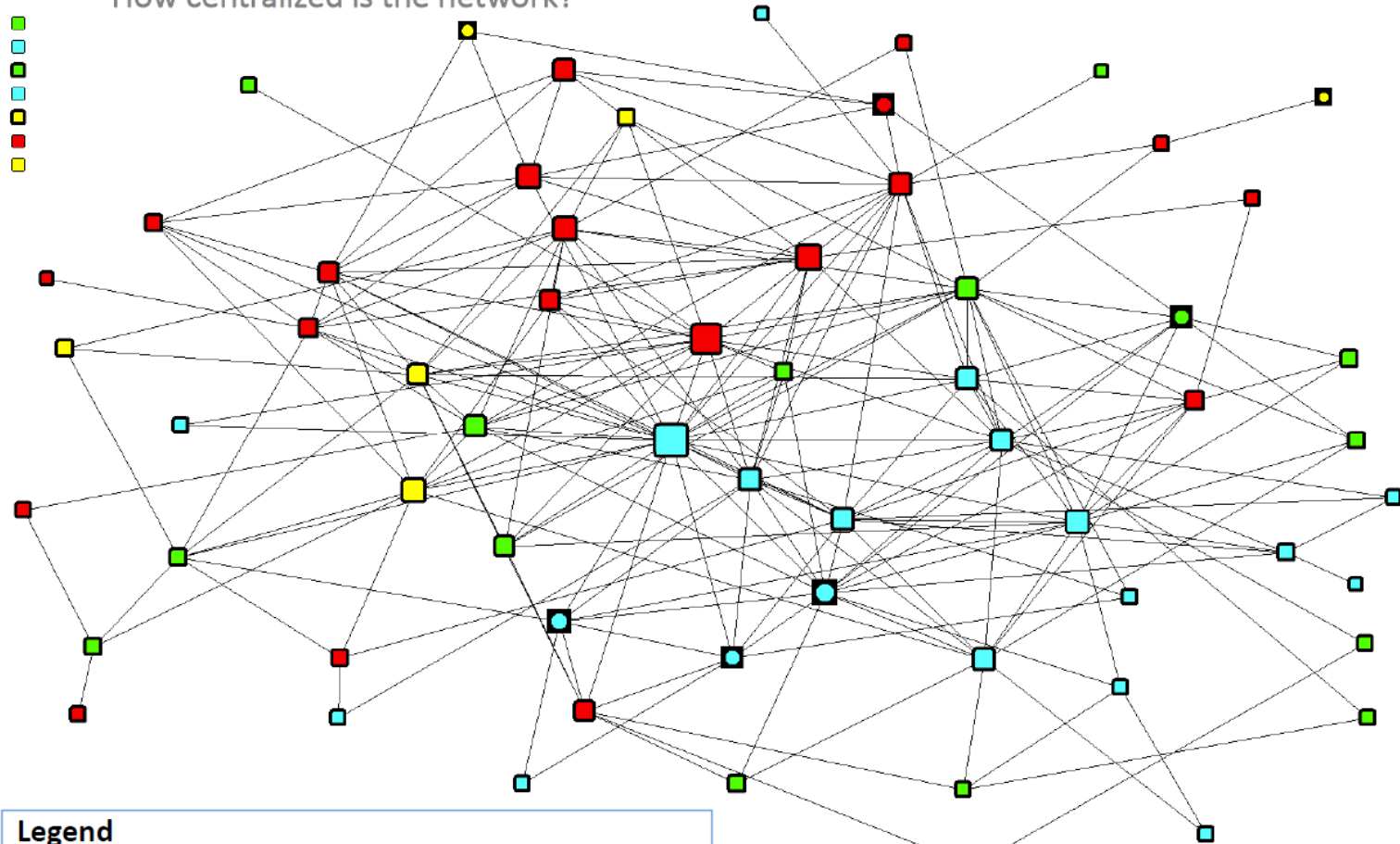
**Legend**

Cross-Cutting	Education	Coalitions
Income/Emp	Health	Full Response
Size=# of Connections	Partial or no response	

Density = 9%

# Introducing a Network Plot

How centralized is the network?



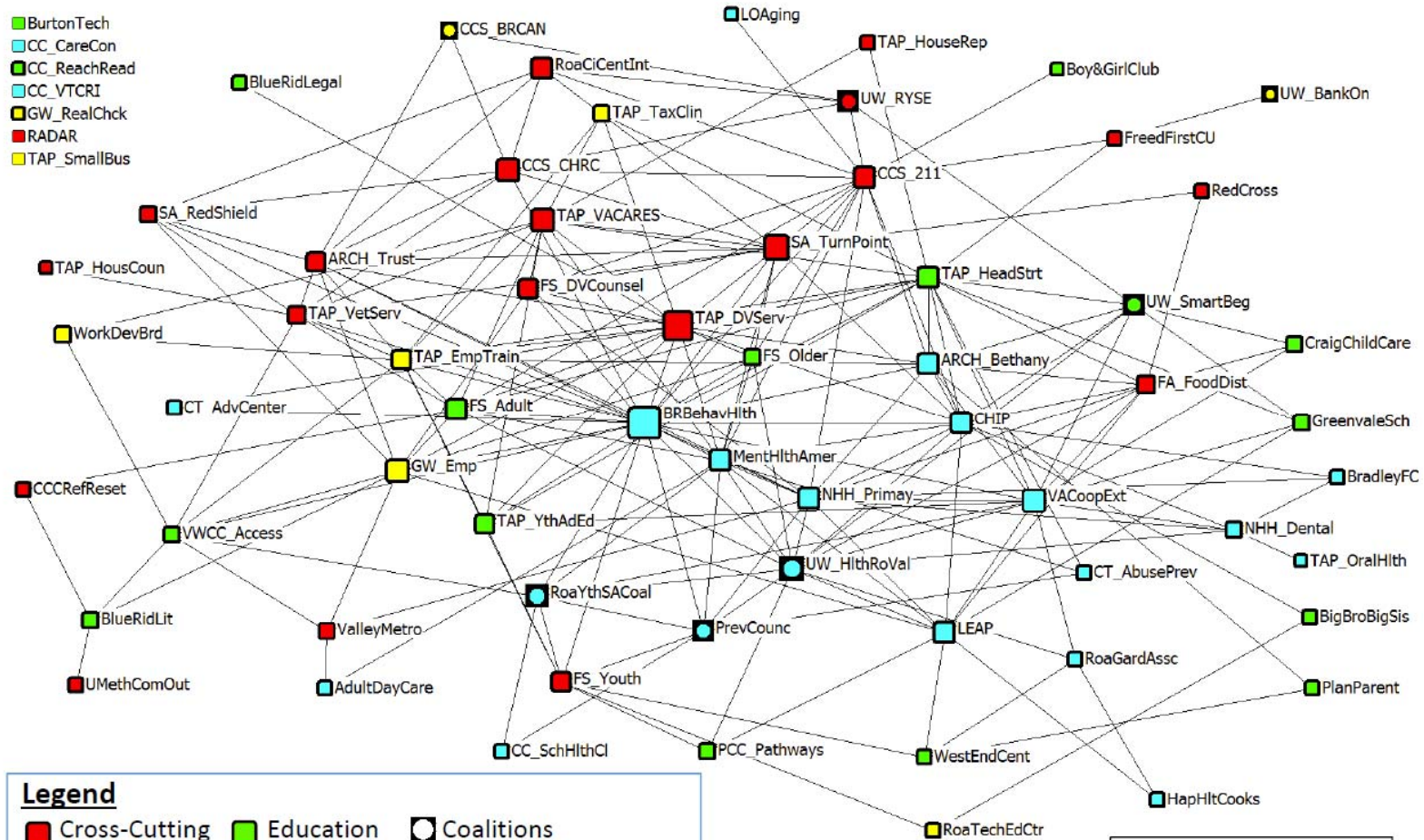
264

**Legend**

Cross-Cutting	Education	Coalitions
Income/Emp	Health	Full Response
Size=# of Connections	Partial or no response	

Density = 9%  
Centralization = 29%

# Any Confirmed Tie at the Program Level

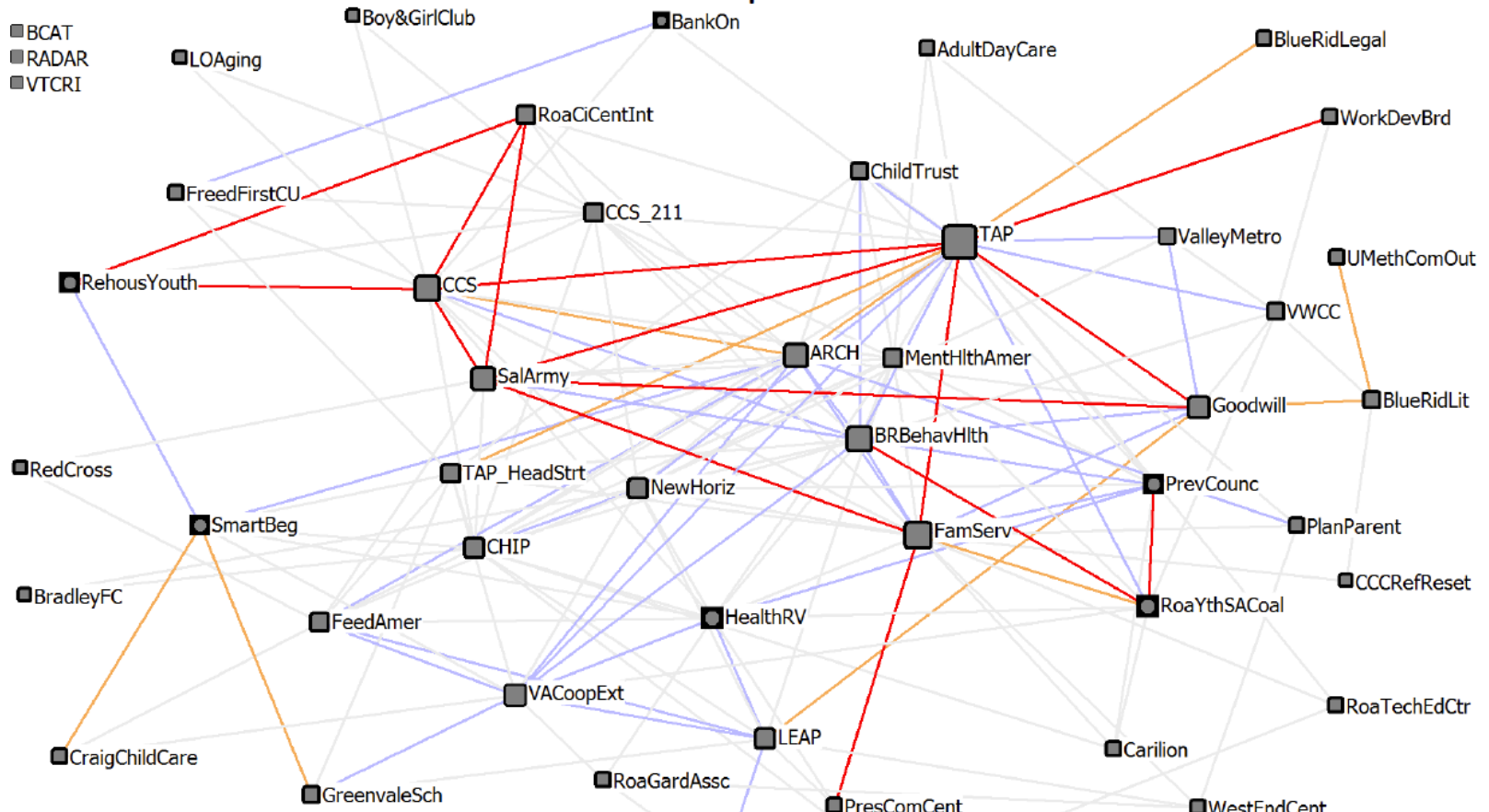


265

Density = 9%  
Centralization = 29%

# All Confirmed Relationships

- BCAT
- RADAR
- VTCRI



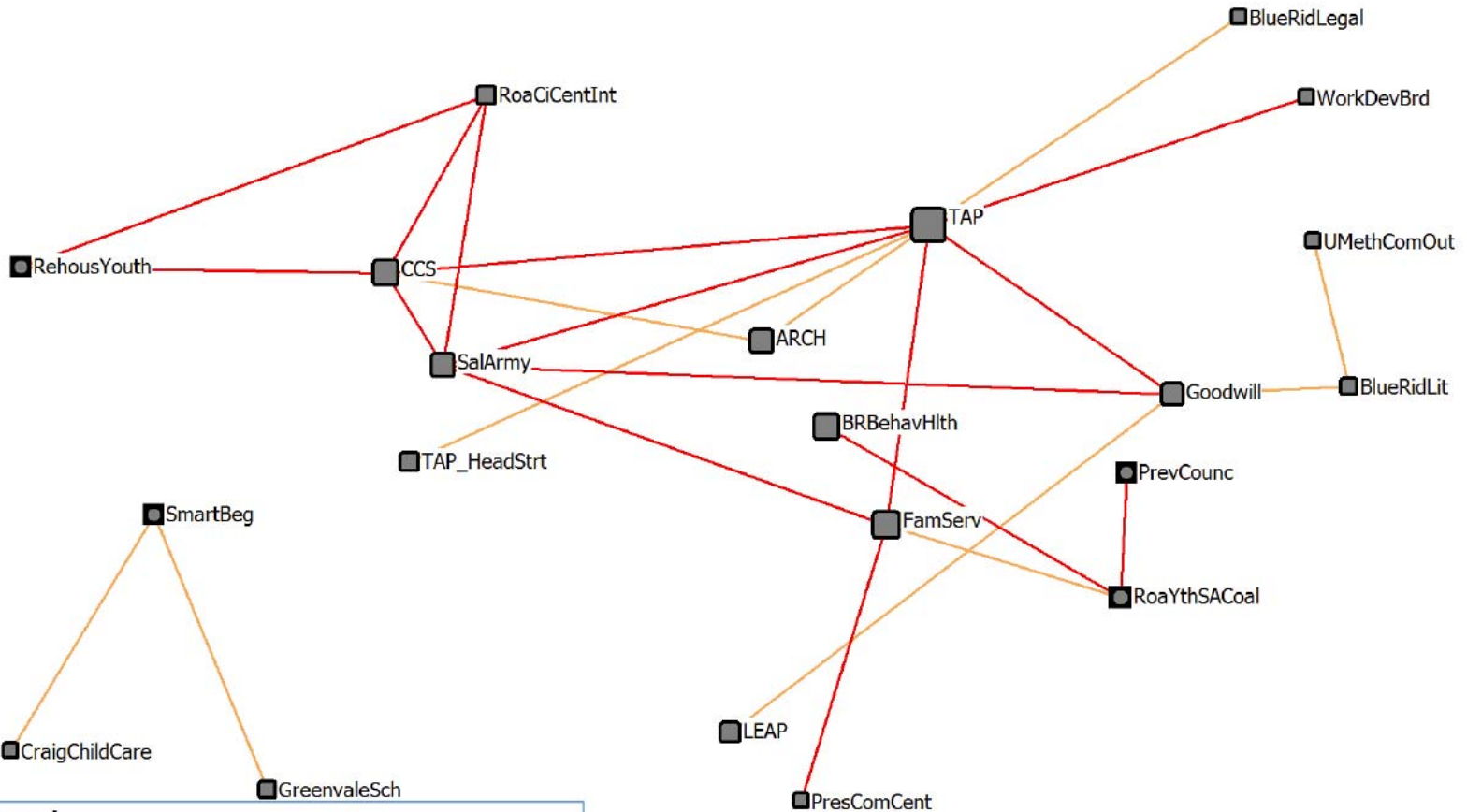
266

**Legend**

— 1 Rel	— 2 Rel	◻ Coalitions
— 3 Rel	— 4 Rel	■ Full Resp
◻ Size=# of Connections	■ Part/no Resp	

Density = 15%  
Centralization = 37%

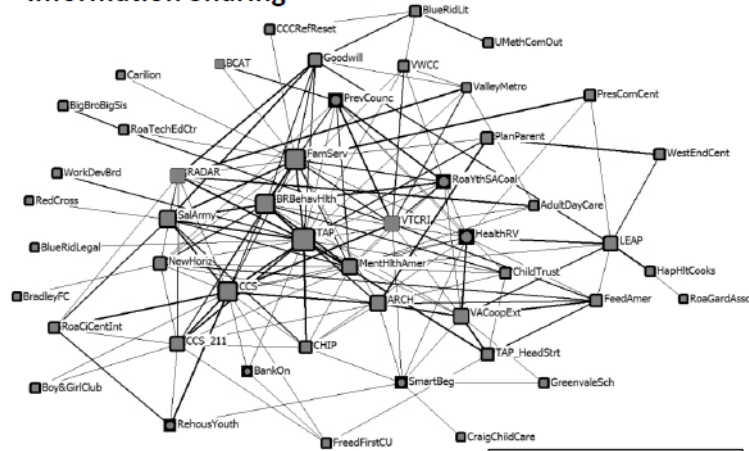
# Most Robust Confirmed Relationships



**Legend**

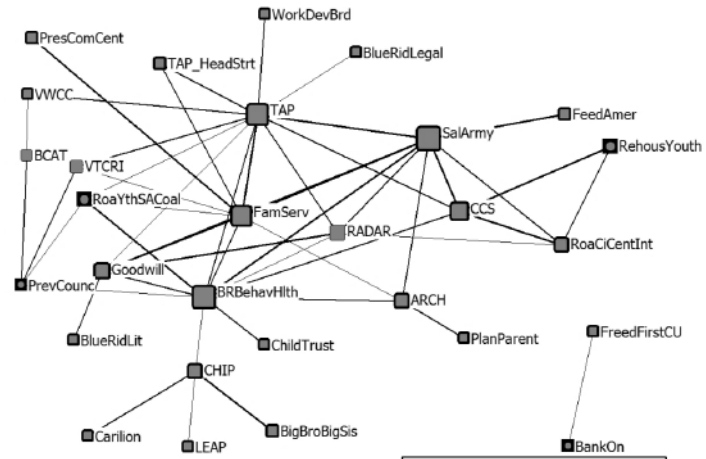
— 1 Rel	— 2 Rel	○ Coalitions
— 3 Rel	— 4 Rel	■ Full Resp
■ Size=# of Connections	■ Part/no Resp	

### Information Sharing



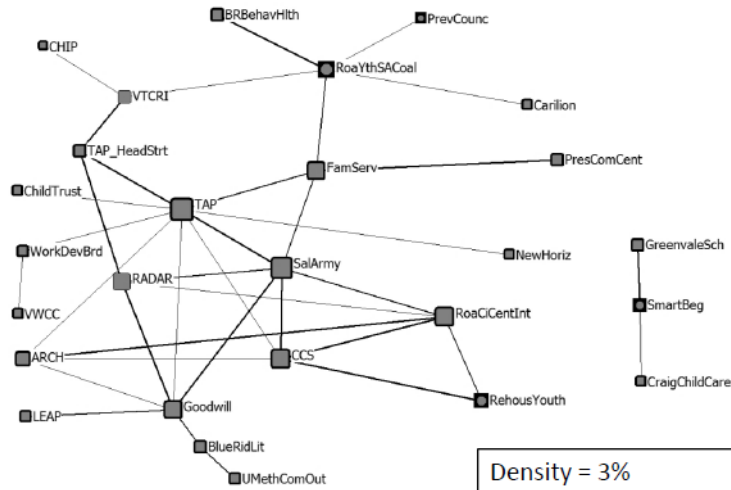
Density = 12%  
Centralization = 37%

### Coordinated Referrals



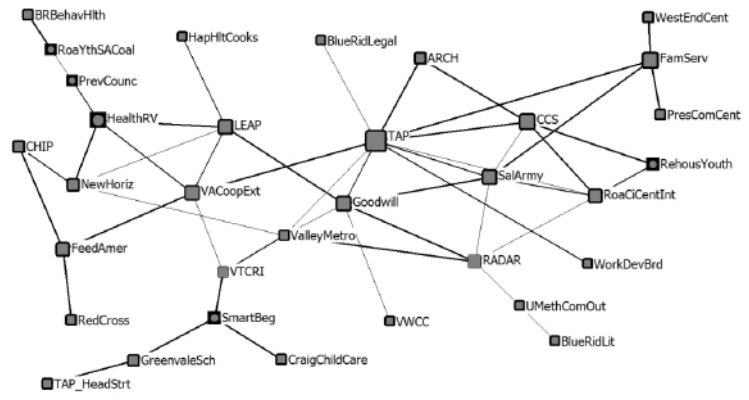
Density = 4%  
Centralization = 22%

### Integrated Services



Density = 3%  
Centralization = 17%

### Shared Resources

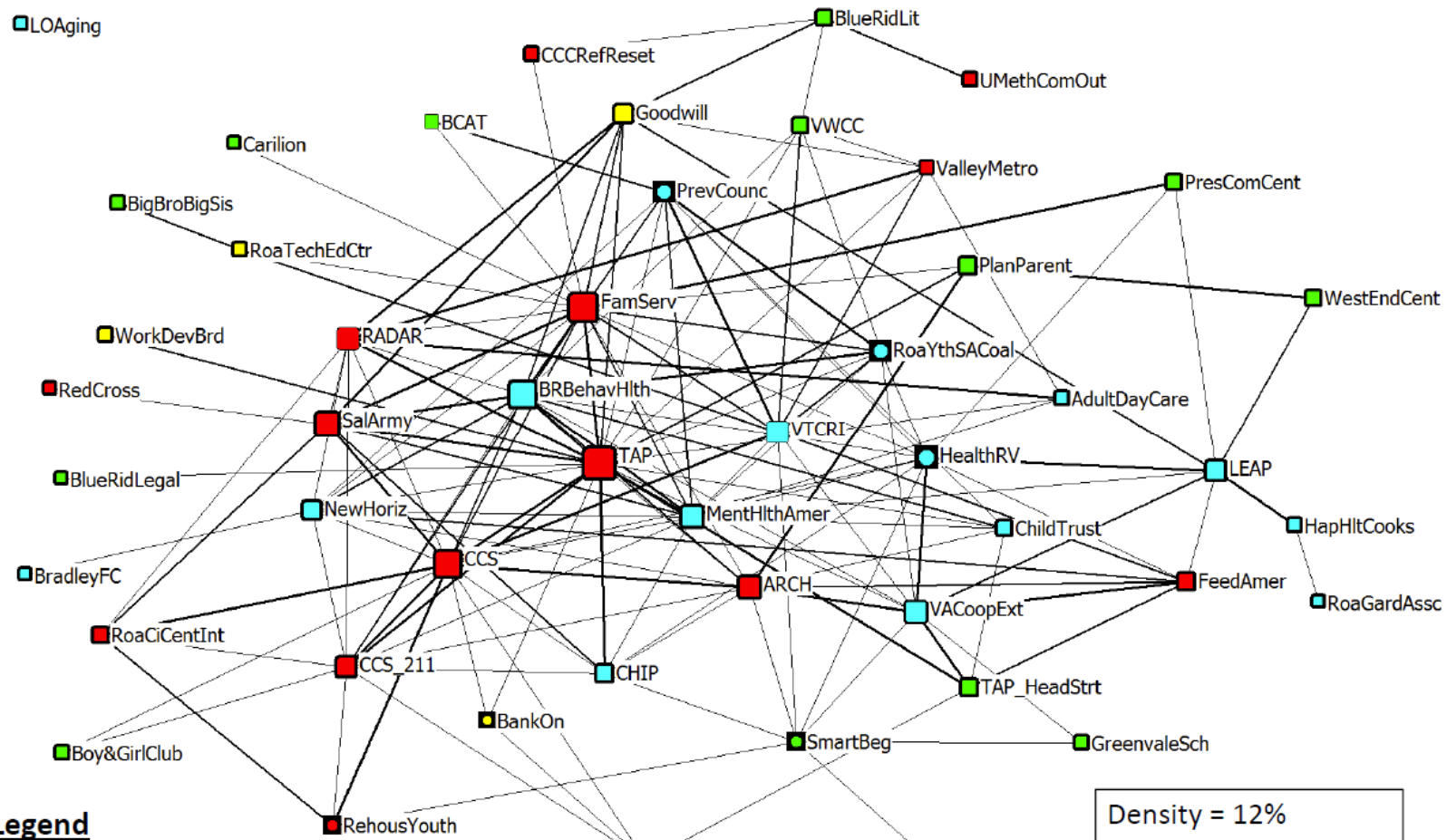


Density = 4%  
Centralization = 18%

Information Sharing	
Relationships that involve routine conversations between program staff, sharing information about the other program with your clients, making referrals to that program (but not actively connecting clients to the other program)	Example: A client is enrolled in your employment program and your staff provides information about a counseling program. Your staff does not follow through to see if the client is eligible, if he seeks the service, or what the outcome is.

# Confirmed Information Sharing

270



## Legend

- Cross-Cutting
- Education
- Coalitions
- Income/Emp
- Health
- Full Response
- Size=# of Connections
- Partial or no response

Density = 12%  
Centralization = 37%

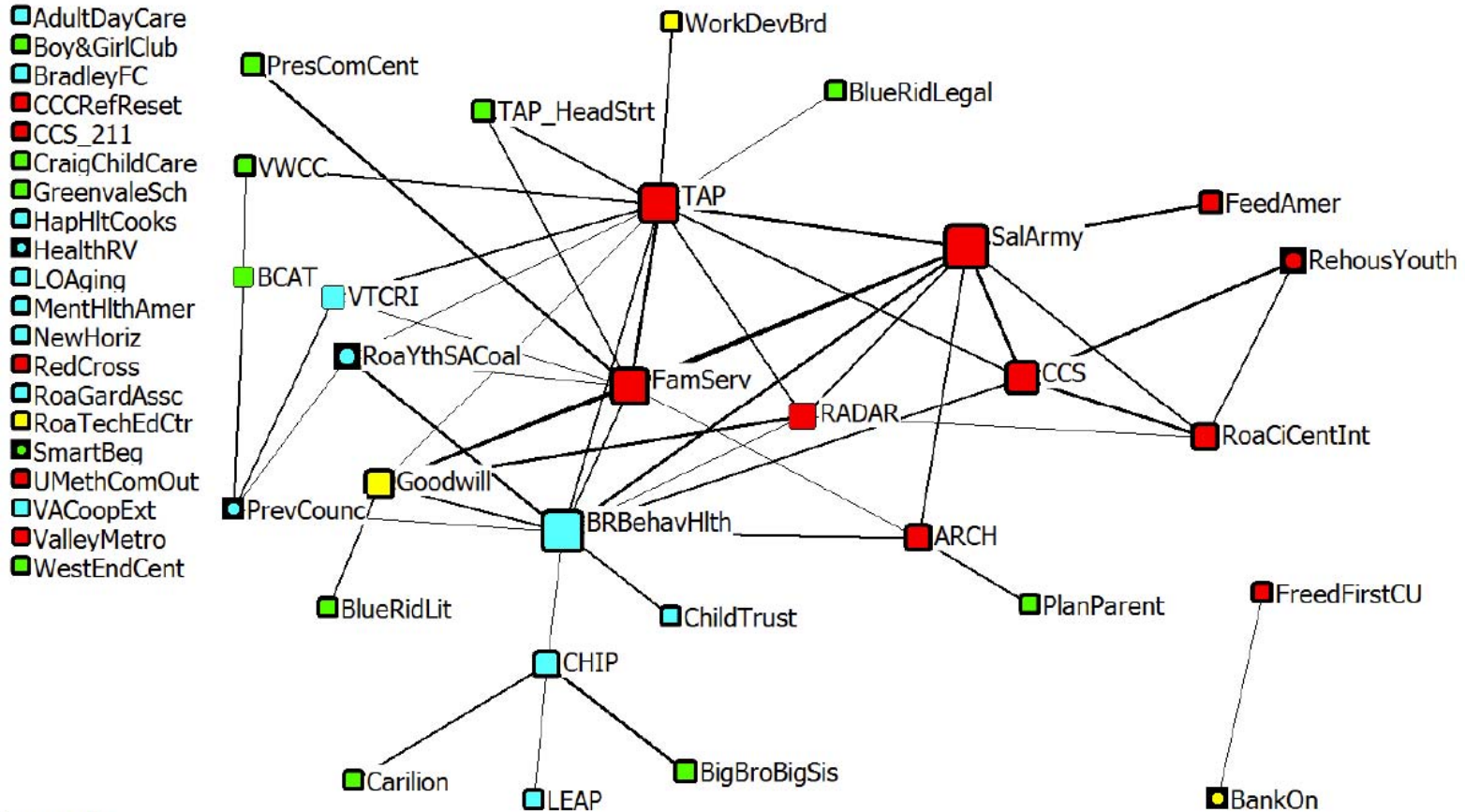
Note: Line Thickness indicates relationship intensity

## Coordinated Referrals

Formal relationships for channeling and managing referrals that ensure follow up, prescreening referrals for eligibility for the other program, joint client applications/intake, referral confirmation, and consent to share client information across agencies programs

Example: A client is enrolled in your substance abuse recovery program and your staff assists the client in getting connected with a job training program. Your staff follows up on the referral and ensures the client is enrolled and participating. Your staff and the job training staff jointly support the client until a job is secured.

# Confirmed Coordinated Referrals



## Legend

- Cross-Cutting
- Income/Emp
- Education
- Health
- Coalitions
- Full Response
- Partial or no response
- ■ ■ Size=# of Connections

Density = 4%  
Centralization = 22%

Note: Line Thickness indicates relationship intensity

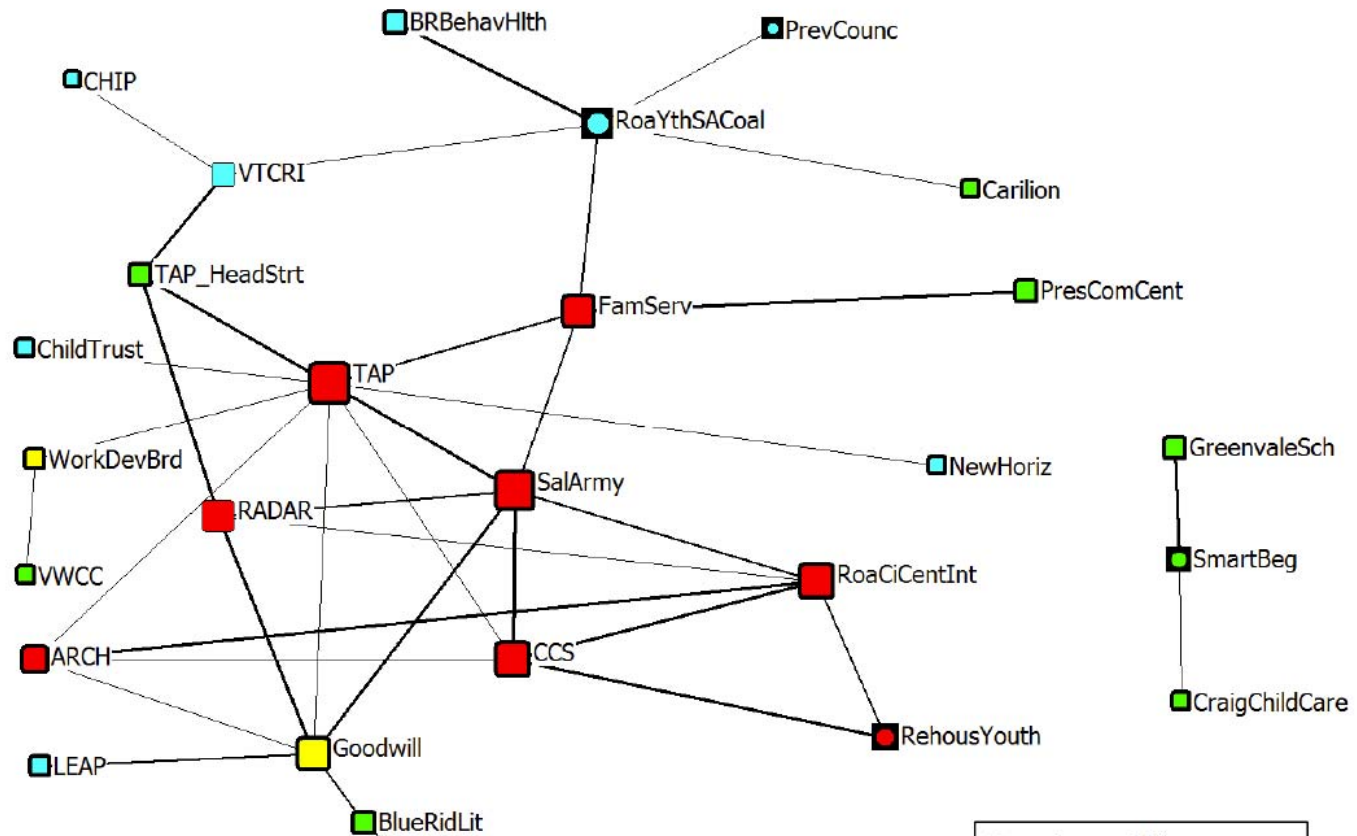
## Integrated Services

Planned service coordination, collaborative case management, cross-agency staffing, shared personnel, co-location, or shared data tracking

Example: Clients in your early childhood program needs access to healthy foods. The food distribution program sets up on-site, your two programs track improvement in healthy food consumption for clients and share responsibility for educating clients on nutrition.

# Confirmed Integrated Services

- AdultDayCare
- BankOn
- BCAT
- BigBroBigSis
- BlueRidLegal
- Boy&GirlClub
- BradleyFC
- CCCRefReset
- CCS\_211
- FeedAmer
- FreedFirstCU
- HapHitCooks
- HealthRV
- LOAging
- MentHlthAmer
- PlanParent
- RedCross
- RoaGardAssc
- RoaTechEdCtr
- VACoopExt
- ValleyMetro
- WestEndCent



## Legend

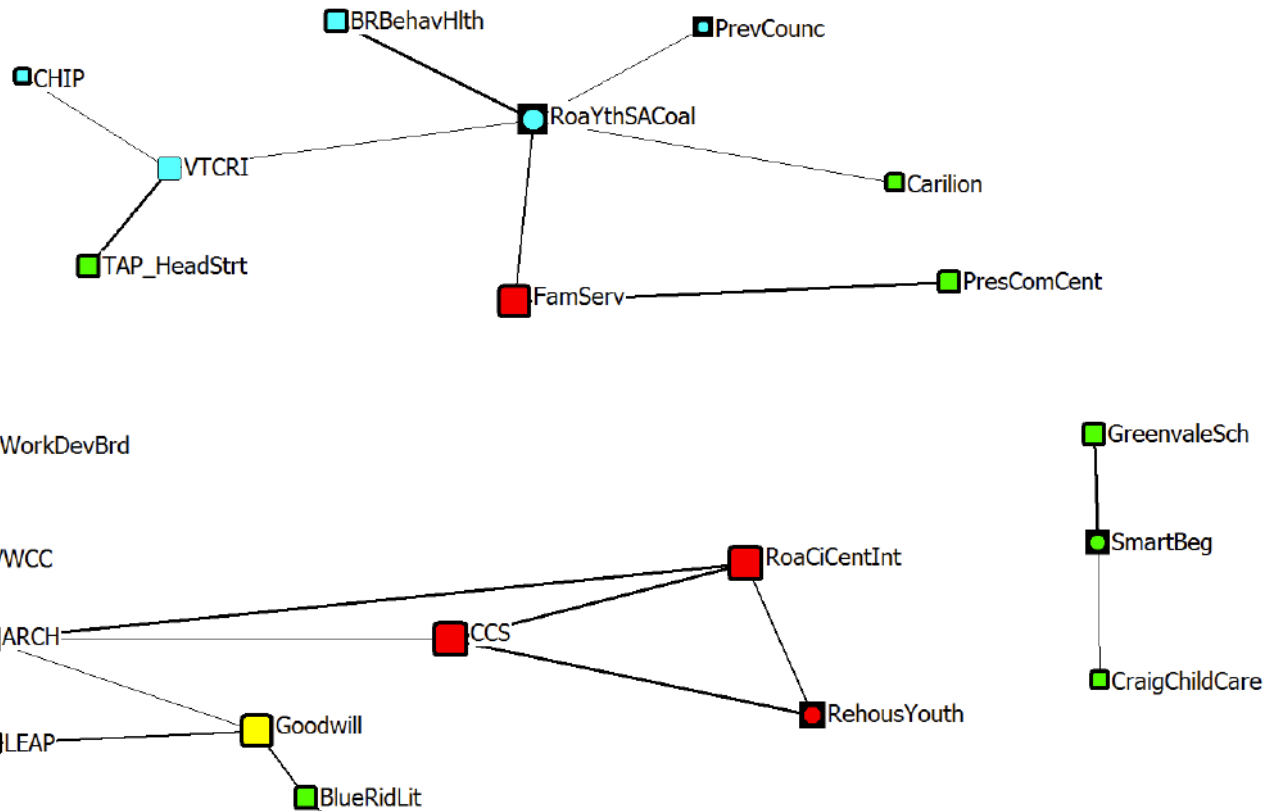
- |                         |                          |                 |               |
|-------------------------|--------------------------|-----------------|---------------|
| ■ Cross-Cutting         | ■ Education              | ○ Coalitions    | ■ UMethComOut |
| ■ Income/Emp            | ■ Health                 | ■ Full Response |               |
| ■ Size=# of Connections | ■ Partial or no response |                 |               |

Density = 3%  
Centralization = 17%

Note: Line Thickness indicates relationship intensity

# Services Fragmentation with Removal of TAP & Salvation Army (and RADAR a Non-respondent)

- AdultDayCare
- BankOn
- BCAT
- BigBroBigSis
- BlueRidLegal
- Boy&GirlClub
- BradleyFC
- CCCRefReset
- CCS\_211
- FeedAmer
- FreedFirstCU
- HapHltCooks
- HealthRV
- LOAging
- MentHlthAmer
- PlanParent
- RedCross
- RoaGardAssc
- RoaTechEdCtr
- VACoopExt
- ValleyMetro
- WestEndCent



## Legend

- |                         |                          |                 |               |
|-------------------------|--------------------------|-----------------|---------------|
| ■ Cross-Cutting         | ■ Education              | ● Coalitions    | ■ UMichComOut |
| ■ Income/Emp            | ■ Health                 | ■ Full Response |               |
| ■ Size=# of Connections | ■ Partial or no response |                 |               |

Note: Line Thickness indicates relationship intensity

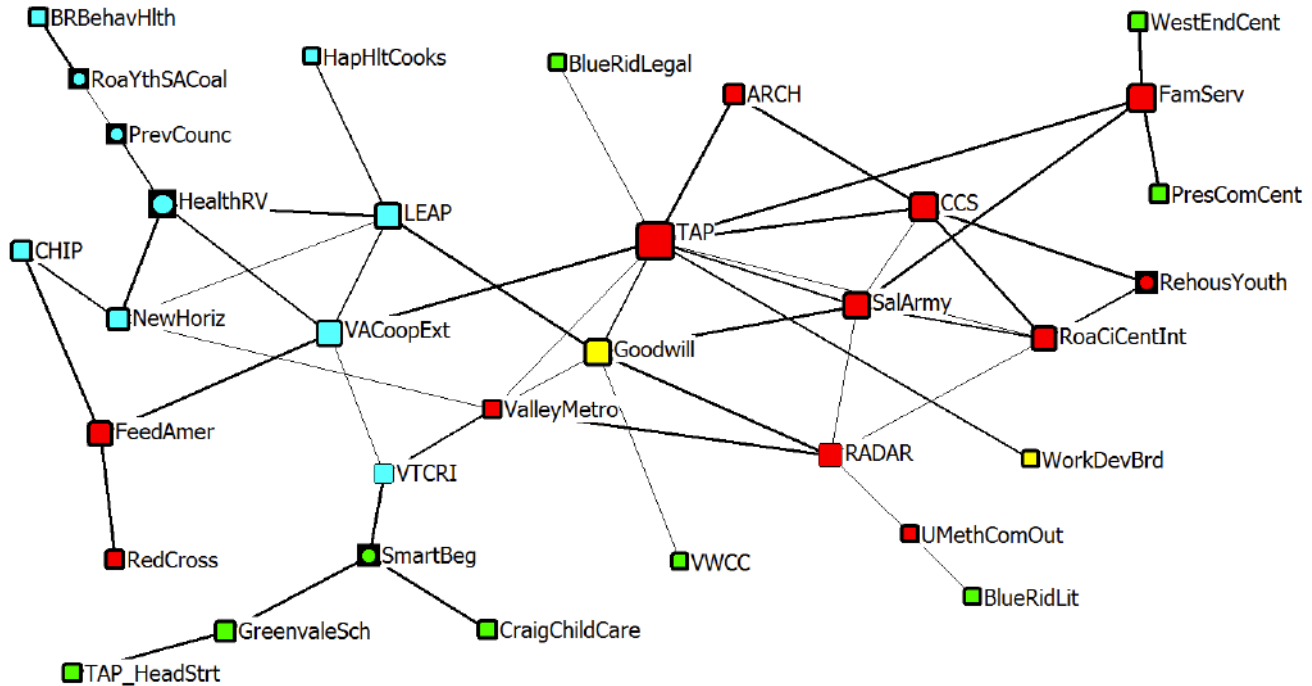
## Shared Resources

Shared financial resources, purchased services, grant partnerships, or contractual obligations

Example: Your shelter program works alongside 4 other programs to apply for a collaborative grant and share the resources to serve the same target population. Clients are collaboratively case managed.

# Confirmed Shared Resources

- AdultDayCare
- BankOn
- BCAT
- BigBroBigSis
- Boy&GirlClub
- BradleyFC
- Carilion
- CCCRefReset
- CCS\_211
- ChildTrust
- FreedFirstCU
- LOAging
- MentHlthAmer
- PlanParent
- RoaGardAssc
- RoaTechEdCtr



277

## Legend

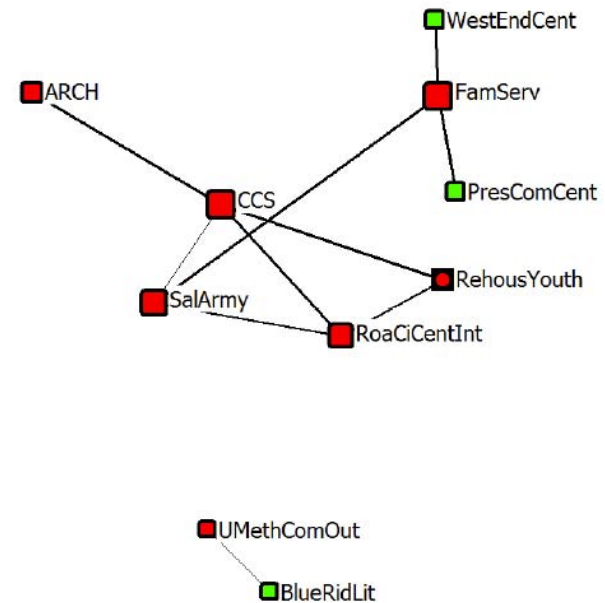
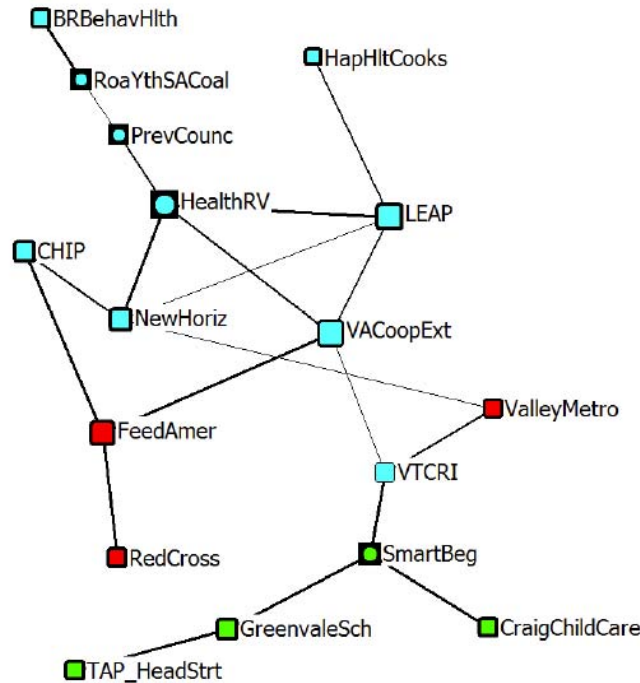
- |                         |                          |                 |
|-------------------------|--------------------------|-----------------|
| ■ Cross-Cutting         | ■ Education              | ○ Coalitions    |
| ■ Income/Emp            | ■ Health                 | ■ Full Response |
| ■ Size=# of Connections | ■ Partial or no response |                 |

Density = 4%  
Centralization = 18%

Note: Line Thickness indicates relationship intensity

# Resource Fragmentation with Removal of TAP & Goodwill (and RADAR – a Non-respondent)

- AdultDayCare
- BankOn
- BCAT
- BigBroBigSis
- Boy&GirlClub
- BradleyFC
- Carilion
- CCCRefReset
- CCS\_211
- ChildTrust
- FreedFirstCU
- LOAging
- MentHlthAmer
- PlanParent
- RoaGardAssc
- RoaTechEdCtr
  
- BlueRidLegal
- VWCC
- WorkDevBrd



## Legend

- |                         |                          |                 |
|-------------------------|--------------------------|-----------------|
| ■ Cross-Cutting         | ■ Education              | □ Coalitions    |
| ■ Income/Emp            | ■ Health                 | ■ Full Response |
| ■ Size=# of Connections | ■ Partial or no response |                 |

Note: Line Thickness indicates relationship intensity

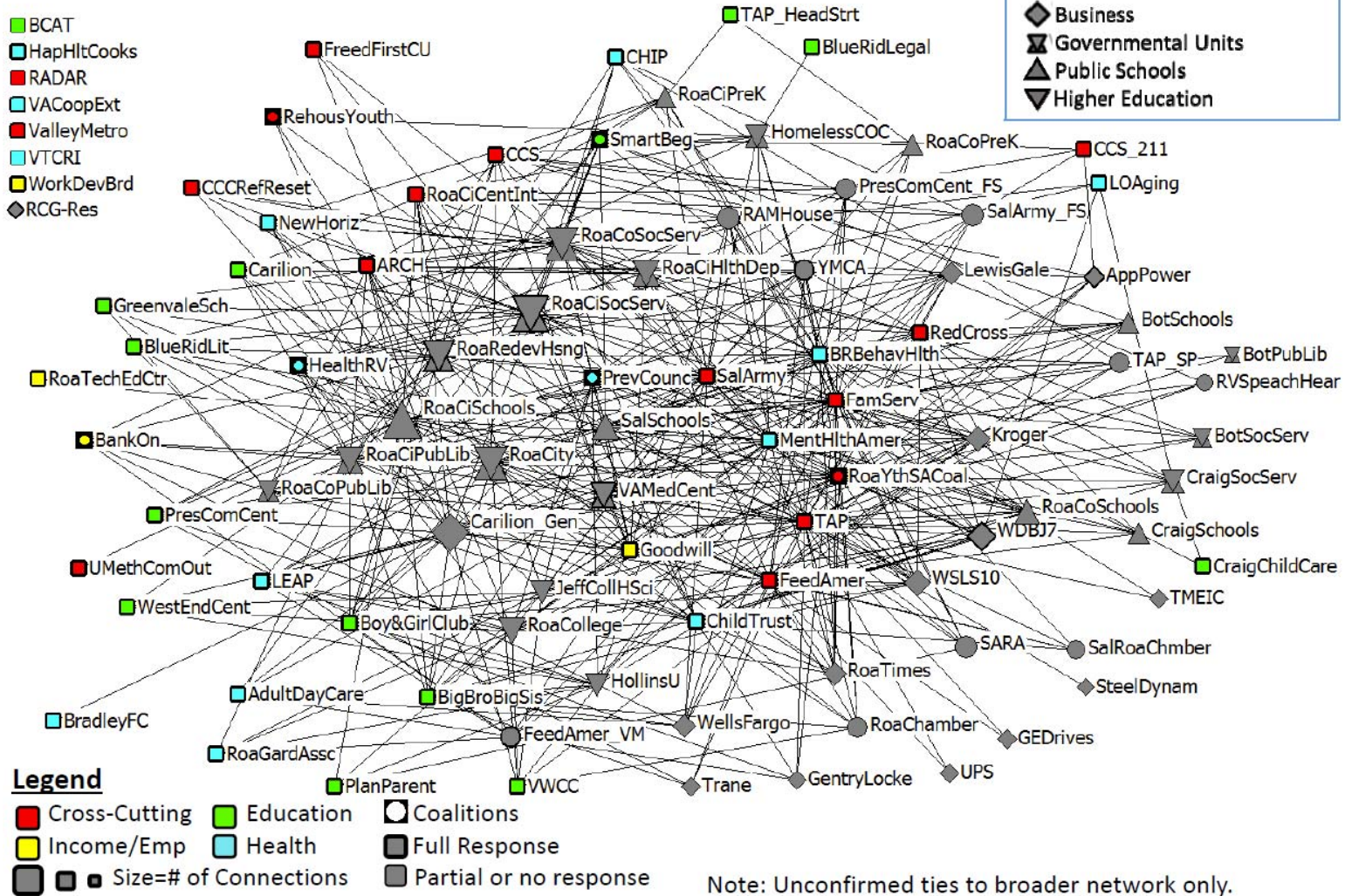
Most Central in Network		Most Important for family self-sufficiency		Most Admired for especially good job in general		Most Influential for decision-making	
TAP	24	TAP	22	TAP	35	TAP	26
FamServ	19	RoaCiSchools	20	United Way of the RV	17	United Way of the RV	23
BRBehavHlth	17	Goodwill	20	Goodwill	16	RoaCity	19
CCS	16	RoaCity	15	CHIP	15	RoaCiSchools	13
CHIP	16	Carilion	15	Roanoke Rescue Mission	14	Carilion	12
ARCH	16	FeedAmer	13	MentHlthAmer	13	BRBehavHlth	11
NewHoriz	15	General - Departments of Social Services	13	New Horizons (general)	13	Goodwill	11
HealthRV	14	BRBehavHlth	13	FamServ	13	HealthRV	8
MentHlth America	14	RoaCiSocServ	12	Freedom First Credit Union	12	Fam Serv	7
CCS_211	13	United Way of the RV	12	Feeding America	10	VAMedCent	7
VACoopExt	13			BRBehavHlth	10		
				Carilion	10		

# Broader Information Sharing Network

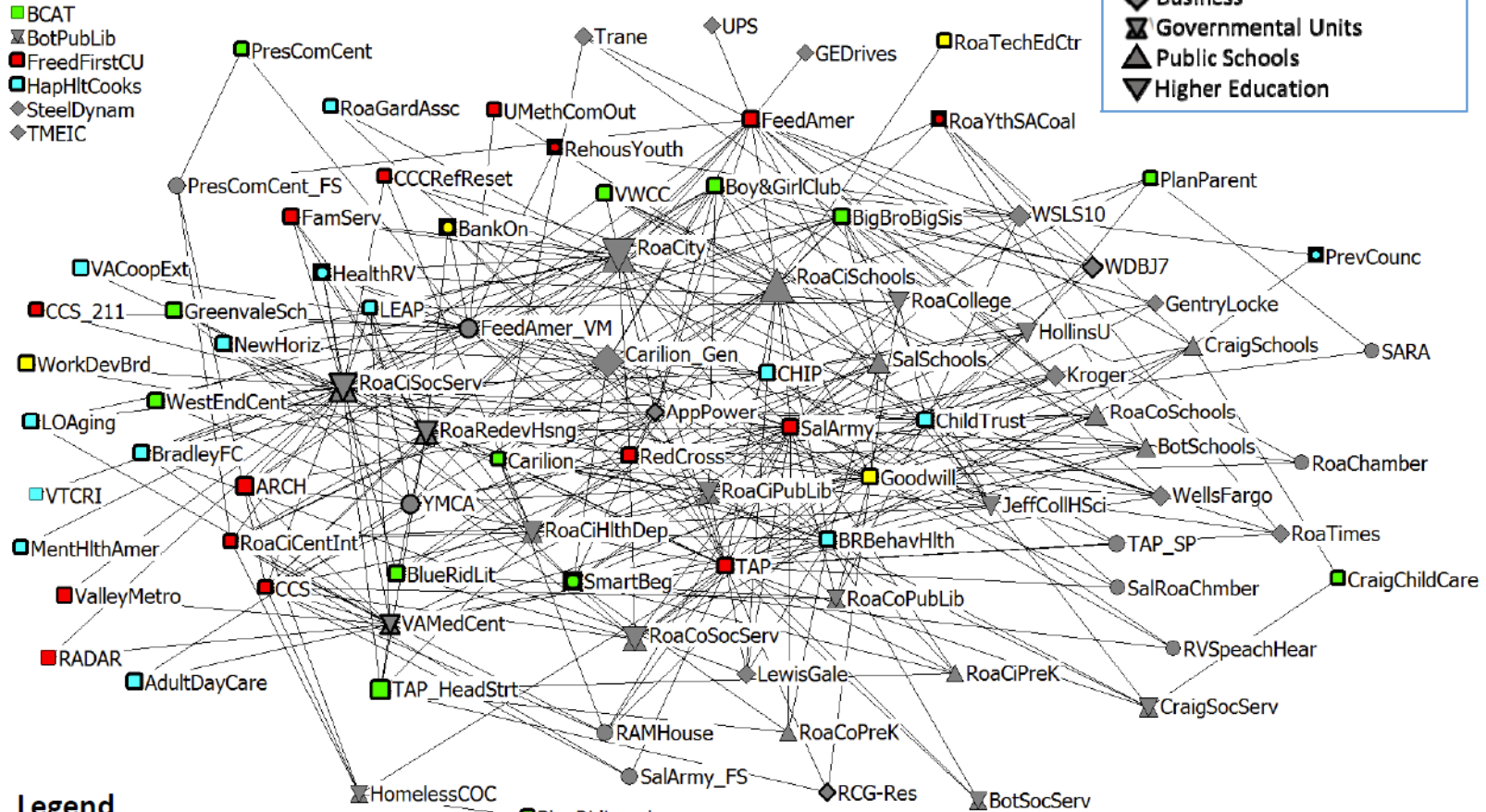
- BCAT
- HapHltCooks
- RADAR
- VACoopExt
- ValleyMetro
- VTCRI
- WorkDevBrd
- ◆ RCG-Res

**Legend**

- Ancillary, Community and Faith-based
- ◆ Business
- ⌘ Governmental Units
- ▲ Public Schools
- ▼ Higher Education



# Broader Resource Sharing Network



- Legend**
- Ancillary, Community and Faith-based
  - ◆ Business
  - ⊠ Governmental Units
  - ▲ Public Schools
  - ▼ Higher Education

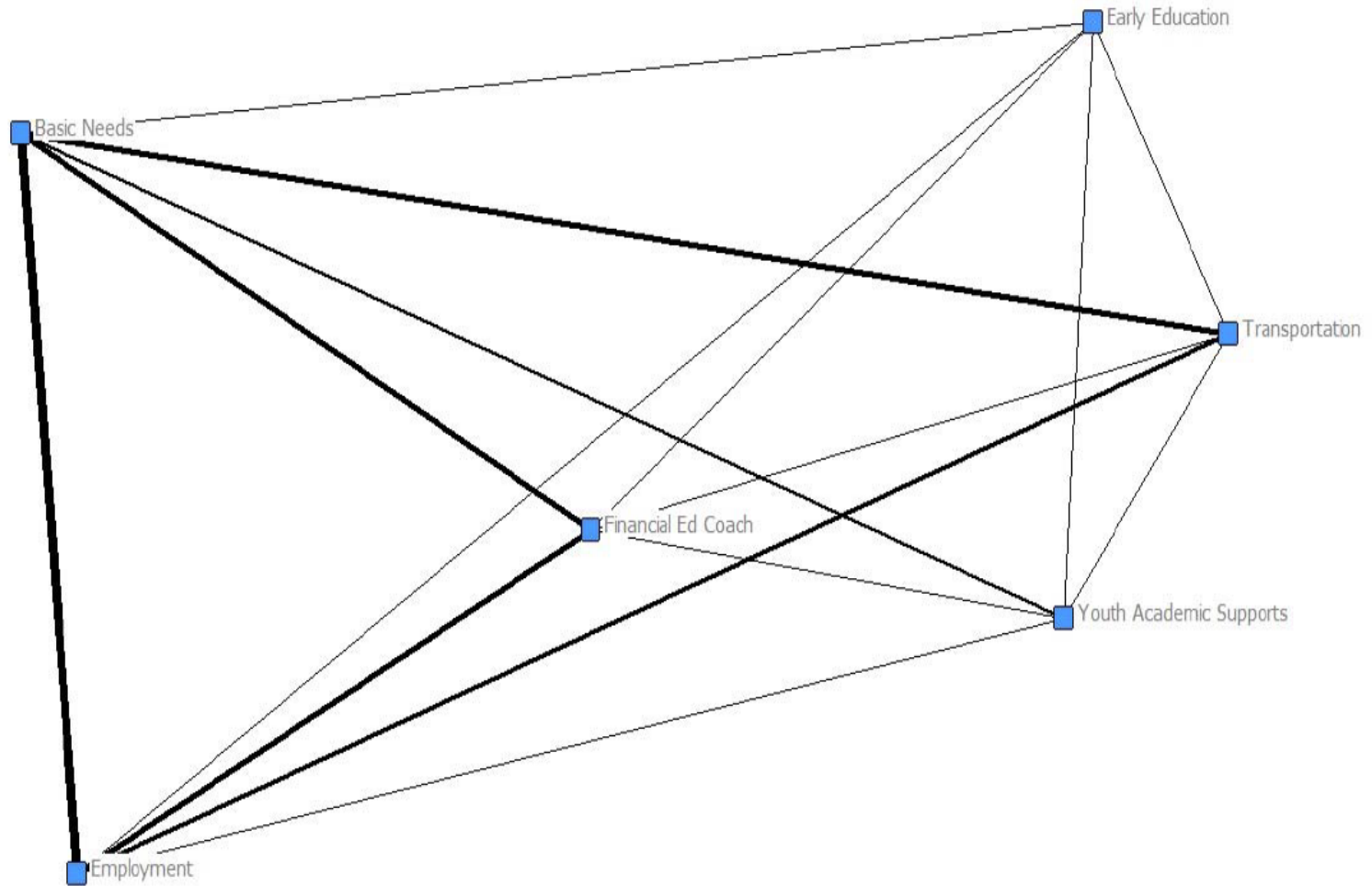
- Legend**
- Cross-Cutting
  - Education
  - Coalitions
  - Income/Emp
  - Health
  - Full Response
  - Size=# of Connections
  - Partial or no response

Note: Unconfirmed ties to broader network only.

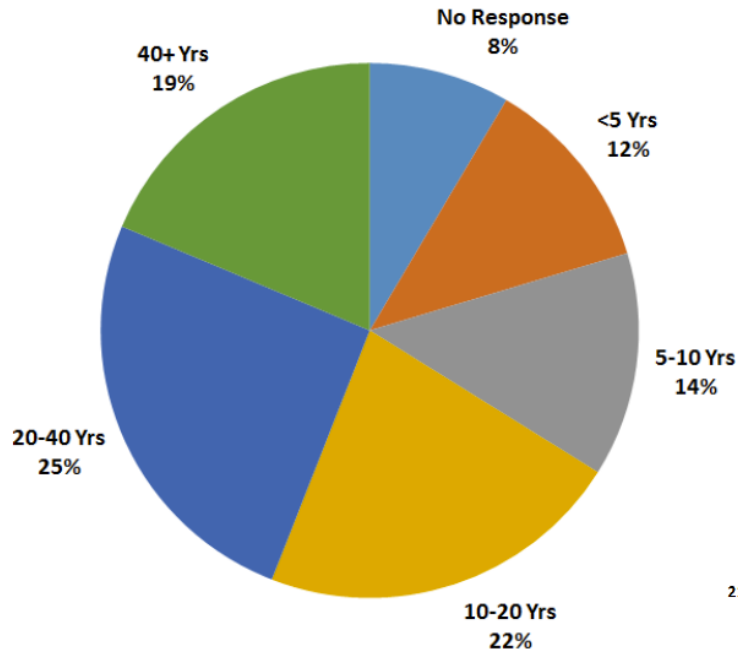


# Linked Gaps

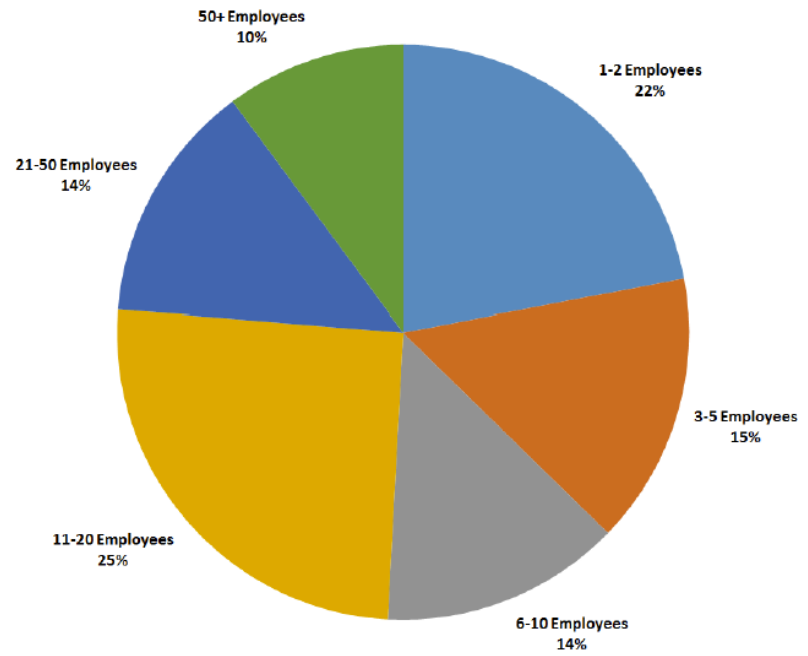
283



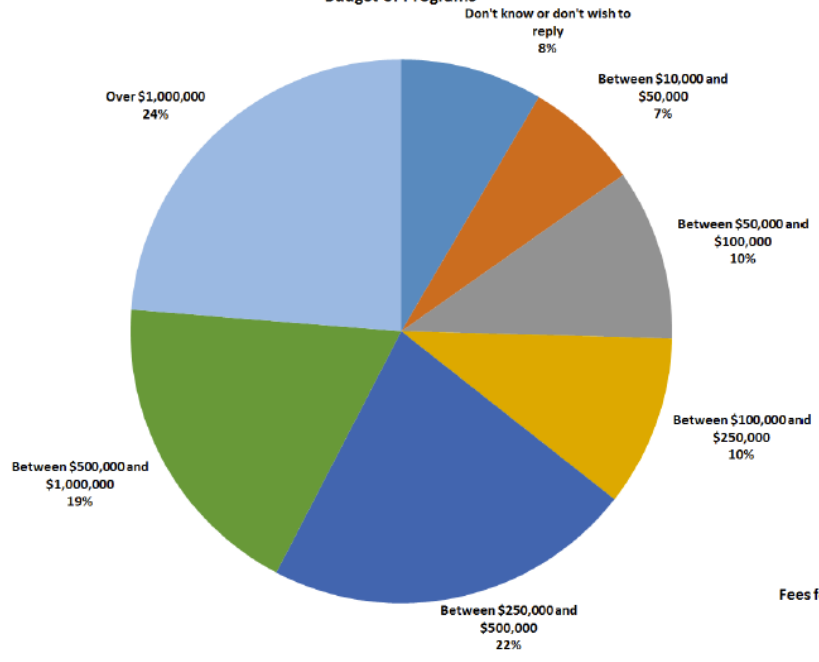
**Age of Program**



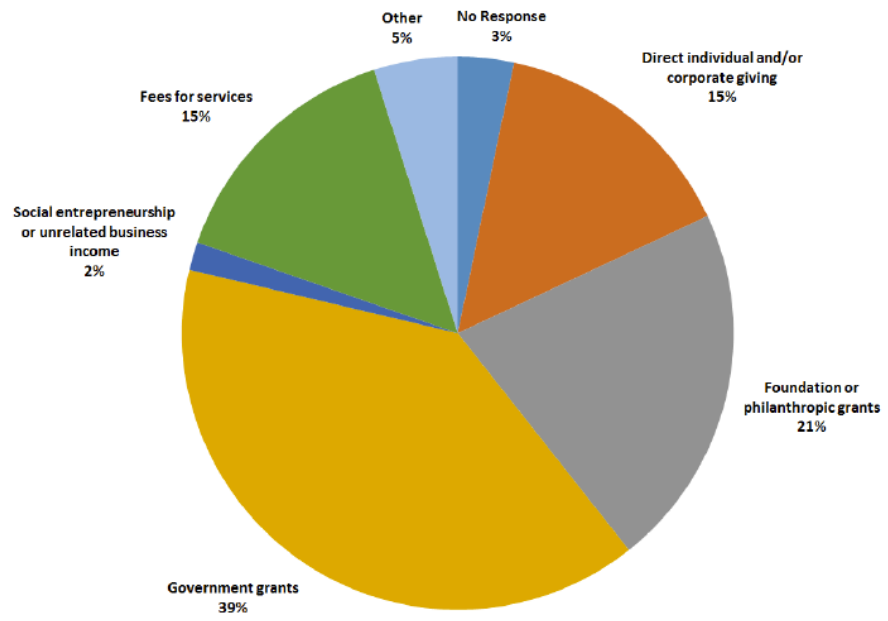
**Number of Employees in Program**



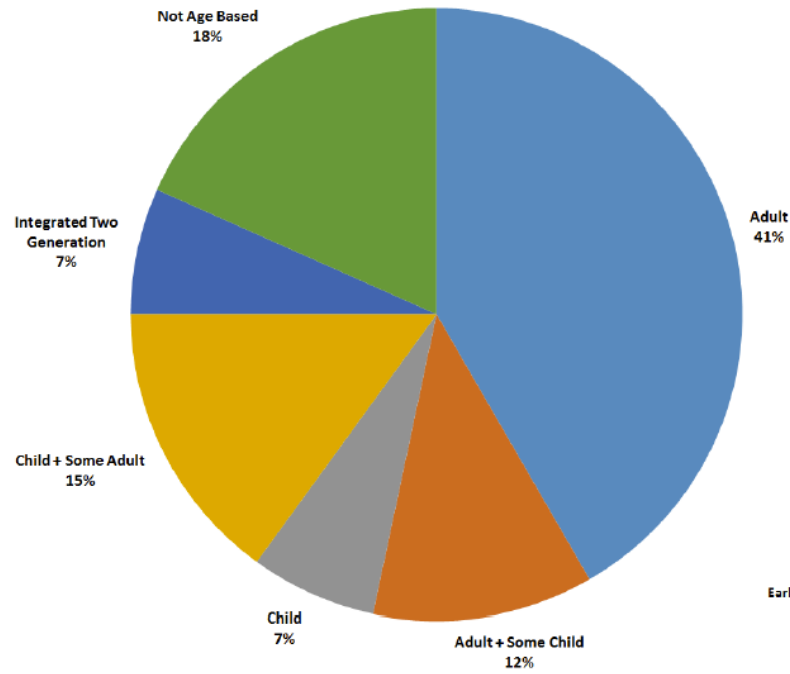
**Budget of Programs**



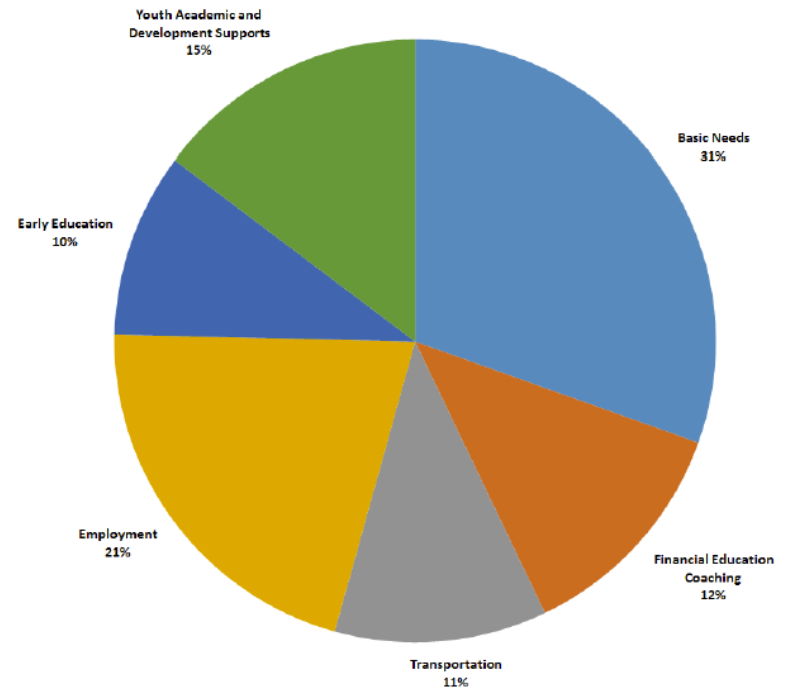
**Top Funding Source of Programs**



Program Age Focus



Gap Workgroup Preferences



Appendix C

Summary of Field Notes Concerning Sense Making Methodology Objects and Elements

<b>Objects and elements explored through SMM Interviews</b>			
<b>Interview Objects</b>	<b>Object 1 Elements</b>	<b>Object 2 Elements</b>	<b>Object 3 Elements</b>
<p><b><u>001 – Individual</u></b></p> <p>Any Confirmed Tie</p> <p>Information Sharing</p> <p>Integrated Services</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Education and income missing</li> <li>• Gaps in services</li> </ul>	<p><u>Information Sharing</u></p> <ul style="list-style-type: none"> <li>• Confidentiality Breach</li> <li>• HAT/BRICH/ COC</li> </ul>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• So Many</li> <li>• TAP Gov fund/SA Not</li> <li>• UW Plan</li> <li>• Silos</li> </ul>
<p><b><u>002 – Individual</u></b></p> <p>Any Confirmed Tie</p> <p>Integrated Services</p> <p>Gap Priorities</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Centrality</li> <li>• Stigma</li> <li>• Homelessness</li> <li>• LOA Edge</li> <li>• VA Hospital</li> </ul>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• Housing</li> <li>• Eligibility Criteria</li> <li>• Steals precious resources</li> </ul>	<p><u>Gap Priorities</u></p> <ul style="list-style-type: none"> <li>• Transportation</li> <li>• Sustainable Resources</li> <li>• Capitalism</li> <li>• So many meetings and projects</li> <li>• 5 jurisdictions</li> </ul>
<p><b><u>003 – Individual</u></b></p> <p>Integrated Services</p> <p>Broader Network</p> <p>Resource Sharing</p>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• Silos</li> <li>• City Deficits</li> <li>• Budget Today</li> <li>• Overwhelms family</li> <li>• Overlap/Redundancy</li> </ul>	<p><u>Broader Network Resource Sharing</u></p> <ul style="list-style-type: none"> <li>• None</li> </ul>	<p><u>NA</u></p>
<p><b><u>004-007 – Group</u></b></p> <p>Information Sharing</p> <p>Shared Resources</p> <p>Linked Gaps</p>	<p><u>Information Sharing</u></p> <ul style="list-style-type: none"> <li>• Outliers</li> <li>• Number of questions</li> </ul>	<p><u>Shared Resources</u></p> <ul style="list-style-type: none"> <li>• Fragmentation by sector</li> <li>• WDB</li> <li>• Funding Sources</li> </ul>	<p><u>Linked Gaps</u></p> <ul style="list-style-type: none"> <li>• Prevention</li> <li>• Early Education</li> <li>• TAP Central</li> </ul>

Objects and elements explored through SMM Interviews			
Interview Objects	Object 1 Elements	Object 2 Elements	Object 3 Elements
	<ul style="list-style-type: none"> <li>• 2 agencies holding web together</li> <li>• Missing links</li> </ul>		
<p><b><u>008 – Individual</u></b></p> <p>Any Confirmed Tie</p> <p>Broader Network</p> <p>Resource Sharing</p> <p>Integrated Services</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Understand You</li> <li>• UW View</li> <li>• Incompleteness</li> <li>• Collaborative Skills</li> </ul>	<p><u>Broader Network Resource Sharing</u></p> <ul style="list-style-type: none"> <li>• Partial View</li> <li>• So many</li> <li>• Collaboration</li> <li>• School</li> <li>• Logistics</li> <li>• Mind Blown</li> </ul>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• Survival</li> <li>• Data</li> <li>• Leadership</li> <li>• New vs Strengthening</li> </ul>
<p><b><u>009 – Individual</u></b></p> <p>Coordinated Referrals</p> <p>Shared Resources</p> <p>Gap Priorities</p>	<p><u>Coordinated Referrals</u></p> <ul style="list-style-type: none"> <li>• Schools Missing</li> <li>• Repay??</li> <li>• Begging</li> <li>• Branches</li> <li>• Missing out</li> <li>• Facility</li> <li>• Housing</li> <li>• Healthcare</li> <li>• Chose to Leave</li> </ul>	<p><u>Shared Resources</u></p> <ul style="list-style-type: none"> <li>• \$\$</li> <li>• SE Quadrant</li> </ul>	<p><u>Gap Priorities</u></p> <ul style="list-style-type: none"> <li>• Early Education</li> </ul>
<p><b><u>010 – Individual</u></b></p> <p>Any Confirmed Tie</p> <p>Gap Priorities</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Missing Relationships</li> <li>• Information Community Wide Resources</li> <li>• Don't know what they do</li> <li>• Central Intake</li> </ul>	<p><u>Gap Priorities</u></p> <ul style="list-style-type: none"> <li>• Eye problem disability (respondent has)</li> </ul>	<p><u>NA</u></p>

Objects and elements explored through SMM Interviews			
Interview Objects	Object 1 Elements	Object 2 Elements	Object 3 Elements
	<ul style="list-style-type: none"> <li>• Sophisticated at Navigation</li> </ul>		
<p><b><u>011 – Individual</u></b></p> <p>Any Confirmed Tie</p> <p>Gap Priorities</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Missing Existing</li> <li>• Missing Ops</li> <li>• Redundant</li> <li>• Frustrated</li> </ul>	<p><u>Gap Priorities</u></p> <ul style="list-style-type: none"> <li>• Divided and segregated</li> <li>• Invisible poverty</li> <li>• Wide Service Area</li> </ul>	<p><u>NA</u></p>
<p><b><u>012-013 – Group</u></b></p> <p>Integrated Services</p> <p>Shared Resources</p> <p>Gap Priorities</p>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• Top Down Push</li> <li>• More Isolates</li> <li>• Goodwill Under represented</li> </ul>	<p><u>Shared Resources</u></p> <ul style="list-style-type: none"> <li>• Coalitions</li> <li>• Fewer Isolates</li> <li>• Goodwill</li> </ul>	<p><u>Gap Priorities</u></p> <ul style="list-style-type: none"> <li>• Zeroed in</li> <li>• Printed way</li> <li>• Lists</li> </ul>
<p><b><u>014-018 – Group</u></b></p> <p>Integrated Services</p> <p>Linked Gaps</p> <p>Any Confirmed Tie</p>	<p><u>Integrated Services</u></p> <ul style="list-style-type: none"> <li>• Things missing</li> <li>• Key players</li> <li>• Hubs</li> <li>• TAP Internal</li> <li>• Accenting as Correct</li> </ul>	<p><u>Linked Gaps</u></p> <ul style="list-style-type: none"> <li>• None</li> </ul>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Not a lot of employment</li> <li>• Colors/ Boundaries</li> <li>• Age type</li> <li>• Emotions</li> <li>• Out</li> </ul>
<p><b><u>019 – Individual</u></b></p> <p>Any Confirmed Tie</p>	<p><u>Any Confirmed Tie Program Level</u></p> <ul style="list-style-type: none"> <li>• Missing Links</li> <li>• Areas that are not...</li> <li>• Other communities</li> <li>• Powerful organizations</li> <li>• Health</li> <li>• Other agencies</li> </ul>	<p><u>NA</u></p>	<p><u>NA</u></p>

## Appendix D

### Hypothetical Example of Sense Making Methodology Interview

**Example of SMM Interview Approach:** The following fictitious and simplified example illustrate this interview method. In response to the critical entry question, this hypothetical informant indicated three network plots most interesting to them, one showing relationships based on information sharing, one indicating multiplex relationships and one manifesting an affiliation network based on shared interests. Beginning with the first *object* (the plot of information sharing relationships), the researcher would ask the first situation/learning question followed by many of SMM questions designed to tap the situation. The researcher takes notes relating to their responses to see whether any of the responses should become a Level 2 SMM *element* that could warrant additional exploration. For example, the informant might indicate that they learned that their organization was not sharing information with as many partners as other similar entities and that as a result they may not be getting as many referrals as they need. Subsequent questions in the situation battery of questions might uncover that they recently lost a grant funded home visiting project due to not having enough participants. “Loss of home visiting project” might become a SMM *element* for potential Level 2 triangulation and the researcher would note it in the grid for potential follow up. The researcher would continue through the questions on gaps, bridges and outcomes/help, keeping notes and identifying responses within each battery of questions that might serve as *elements* for Level 2 triangulation. For example, through the questions tapping the gaps, the interviewee might share that they were confused that newer initiatives had more information sharing relationships than their program, even though they have been around

much longer and should be better known within the network—leaving them feeling old and forgotten. “Old and forgotten” might become a SMM *element* for Level 2 triangulation and the researcher would write it in the grid for potential follow up. In the battery of questions about bridges, the informant might indicate that they came to the conclusion that staff turnover might be a factor in having fewer relationships. “Staff turnover” might become a SMM *element* for Level 2 triangulation and the interviewer would note it in the grid for potential follow up.

After completing the entire battery of questions for the first object, the researcher would select one or two Level 2 *elements* (responses to Level 1 questioning) to explore through the same questions. For example, given how much time had elapsed exploring the first Level 1 *object*, the researcher might decide to explore only one Level 2 *element*—“Old and forgotten.” The researcher would then ask something like “Thinking about feeling old and forgotten, what else happened or was happening?” Then the researcher would proceed through the rest of the questions inserting language about being old and forgotten such as “How did feeling old and forgotten connect with past events?” Once the researcher has completed sufficient questions from the battery to extract the informant’s insights, they would turn to the second Level 1 SMM *object*, the network plot of multiplexity, and repeat the process. Perhaps two Level 2 *elements* would emerge from those questions that seemed significant enough for Level 2 triangulation given the time remaining—“Lost grant writer” and “Bigwigs on board.” The researcher would then ask the select questions from the battery for each of those *elements* before turning attention to the third SMM *object*, the plot of affiliations based on shared interests.

In addition to Level 2 triangulation questioning, the researcher may also ask probing questions. Probing questions seek more detail from interviewees concerning previous responses. They often take the form of, “Tell me more about \_\_\_\_.” Probing questions may also be integrated with questions from the SMM question list such as, “You mentioned \_\_\_\_\_, what led up to that?” Although the researcher may probe issues brought up by informants in response to Level 1 or 2 questioning, SMM guidelines suggest they refrain from injecting their own framing and nomenclature and should attempt instead to employ the wording used by interviewees.

## Appendix E

### Sense Making Methodology Interview Questionnaire

Informant code: \_\_\_\_\_

Date: \_\_\_\_\_

**Interview Critical Entry:**

Please take a look through the network plots to refresh your memory. Please think back to the presentation of the data from the network study and your subsequent review and study of the network plots. Are there two or three of the network plots which you found most interesting and informative? Which? Any others? Which three were most important?

Any others? [write down each one] Which were the most important?[For the most important two or three, depending on time, use the following questions as prompts.]

What are your program's or organization's roles in all this?

What are your individual/personal roles here?

<u>Questions</u> (in response to question 1 note gaps, bridges and outcomes for level 2 triangulation)			
1. <u>What do you see in this that makes it important? What did you learn from it? What does it mean? What do you take away?</u> a. What has been happening that makes it important? b. What have you been trying to deal with? c. What led up to this? What brought you to this point? d. How does that connect with past events? e. Have you experienced this before? Explain? f. What in the current situation empowers or constrains? g. And how has this affected how you see yourself?	<u>Object 1?</u>	<u>Object 2?</u>	<u>Object 3?</u>
2. <u>To tap gaps: What situations could this help you address?</u> a. What have been your big questions? b. What has been confusing? What have you been trying to unconfuse, figure out, learn about? c. What have you struggled with? d. What has been missing? e. What has had you stuck? f. How has that stood in the way? g. How has this prevented you from getting help?	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>
3. <u>To tap bridges: How would you use it?</u> a. What conclusions/ideas have you come to? b. What emotions/feelings have you come to? c. What leads you to that conclusion/idea/emotion/feeling? d. How would that evaluation connect with your situation? e. What has been limited or incomplete about that?	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>
4. <u>To tap outcomes sought or obtained: What would happen from using it?</u> a. Where is this all going? b. How might that help? And how might that help? c. How might that hinder? And how might that hinder? d. How might that harm you? And how might that harm you? e. How might that constrain you? f. How might that empower you? g. If you had a magic wand, where would you take this? h. What would that allow you to do/achieve/think?	<u>Elements?</u>	<u>Elements?</u>	<u>Elements?</u>

Other Notes: