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by

Sharon M. Pepper

December 2018

SOCIAL CAPITAL AND VALUE CREATION IN A
COMMUNITY ACTION NETWORK

A Doctoral Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements of the Degree

Doctor of Education

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Acknowledgment

Every journey or achievement in my life has involved the participation and assistance of others and this thesis effort is no different. I would like to acknowledge those who figured prominently in the process and made up my team...a network of members whom I trusted and who worked together with me toward a shared goal.

First, I would like to express heartfelt appreciation to my thesis committee whose members have in their own ways advised, guided, encouraged, challenged and supported me throughout these two years. I would especially like to thank Dr. Robert Hausmann, my thesis advisor, with whom I share common research and business interests. I have appreciated his mentorship as a leader and expert in the field in which I have ventured and for which I have a passion. While he was pushing me to 'kick up the level of abstraction' it was Dr. Sara McNeil who was reminding me to keep it simple, relatable and concrete. Ask yourself, why is this important? Who cares? Always important questions to ask yourself. I have appreciated Dr. Bernard Robin's quiet wisdom and high expectations and have learned more about APA formatting than I ever want to know, just to satisfy him. Dr. Erwin Handoko and Dr. Jorge Herskovic of MD Anderson are those committee members I relied on the most in the last few months as our communications increased to several times a day and we discovered the good, the bad and the interesting about the data. Thanks Jorge for coming through with the cool 'Seussian' visualizations that really rounded out the overall analysis.

I would like to acknowledge Trent Engbers, Ph.D., Assistant Professor, Political Science and Public Administration, University of Southern Indiana who participated as a subject matter expert reviewing my survey instrument and offering important feedback in the development of the measures.

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Thank you, to Barrett Pepper who served thoughtfully and deliberately as a ‘rater’ in the multi-stepped content analysis process. His assistance was invaluable.

Also thanks to the leadership and staff of the Center for Houston’s Future for collaboration on this project: Brett Perlman, Betsy Breier, Russell Richard, Amanda Duda, and Steven Scarborough.

I have enjoyed and appreciated my fellow cohort members (Heather, ~~Greg~~ Jeff, Debbie, Ramon, Cindy, and Kathy) who are an amazing set of colleagues, a great collective therapist and sometimes drinking buddies.

And finally, I would like to acknowledge those closest to me who never knew what would be next for me in this research thing; sometimes it was exciting and rewarding, while other times it was stressful and painful. But no matter what, they were there and if needed, patient and on the spot with encouragement and love. Thank you Bill, Brandon, Barrett, Gina, Ashleigh, Gavin and Radin. And of course Abe...

Thank you all...I couldn’t have done it without you.

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Abstract

Background: One way social change organizations like healthcare and academic institutions pursue opportunities for innovation is by joining or building networks within their local communities. These community networks catalyze groups of professionals toward a shared goal like improving population health. Members of these networks often come from varied professional disciplines, business activities, or civic groups and are motivated by more than a promise of financial gain. Rather, they are interested in collaborating on a shared goal of improving the human condition in some way. The value created by a community network focused on healthcare improvement can be measured in the design of new techniques for disease prevention, health-focused hardware devices, policy changes, and collective strategies that improve health outcomes and ultimately a reduction in human suffering. Though it is not known why, some community action networks are successful in reaching their goals, while other similarly structured networks are not. **Purpose:** The purpose of this study is to examine the structure and mechanisms of these networks through the assessment of a community action network. Furthermore, this study seeks to describe a model for understanding characteristics of the network structure while value is being created. **Methods:** This study used an online survey instrument with questions adapted from similar social capital research. Data were gathered from a network of graduates of a local civic leadership program about their collaborative actions with fellow graduates. Five social capital variables (interaction ties, trust, shared vision, resource exchange, and value creation), theorized to have significant impact on network outcomes, were used to examine the network. These data were analyzed using quantitative analysis, conventional content analysis and social network analysis to assess the characteristics of the community action network. **Results:** Of the

analysis to assess the characteristics of the community action network. **Results:** Of the 794 network members who received the electronic survey, 127 or sixteen percent completed a survey, either fully or partially, and 83 cases were used in the study analysis. A component-based approach to analyzing the reliability of the measures was utilized. Descriptive analyses were used to assess the community action network, both at the network and cohort groupings levels. Differences were observed in perceptions and outcomes of network members dependent on when they joined. Members engaged in the network the longest had larger betweenness scores than those who joined more recently. Overall, the perception of trust and a shared vision were high among all cohorts. Interactions involved in the resource exchange increased over time by cohort grouping. Value creation was defined by the organization and the majority of value that was created was the result of individual as opposed to collaborative action. **Conclusion:** Leaders of community action networks can learn about the structure and characteristics of their network through descriptive assessment and visualizations. This can inform strategic decision-making for catalyzing network members toward collective action. The implications for theory suggest an alternate utility of the Tsai and Ghoshal (1998) model of social capital and value creation in a new context of a network focused on social value creation.

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Chapter I

Introduction

With the advent of the Internet and growth in the numbers of social media platforms that have become ubiquitous in our daily lives, the ability of people and businesses to quickly and organically form social connections and social communities has given rise to the greater utility of and reliance on social networks (Ronfeldt, 2005). In its simplest definition, “A ‘social network’ is “a network of people (such as friends, acquaintances, and coworkers) connected by interpersonal relationships” (Merriam-Webster.com, 2017). A social network is described structurally as a connected grouping of more than two individuals (Obstfeld, 2017).

Social networks are not characterized by formal structures seen in institutionalized business organizations that have established hierarchies, an institutional culture, policies, regulations and other constraints, rather are informally constructed by individuals or groups who self-organize toward a shared goal, whether purely social or to create something new (Goldstein, Hazy, & Silberstang, 2009). The structure of social networks is described from its origins in network science in which individuals are ‘nodes’ or ‘actors,’ and the connections between them are ‘ties’ or ‘relationships’ (National Research Council, 2005.) An important feature of networks is their ability to organically combine additional members and resources toward their goals (Goldstein et al., 2009).

Researchers utilize visualizations called sociograms, depicted in Figure 1, to help describe the dynamic and relational characteristics of social networks. In Figure 1, the circles are the nodes representing individuals and the lines connecting them are the ties representing relationships. The significance of each individual within the network is reflected in the size of the circle. The larger the circle, the more centrally situated an

individual is, meaning the individual has many connections within the network. The strength of the relationships between the members are reflected in the weights or directionality of the lines between them. The darker the line, in the range of weight, and the direction of the line (uni-, bi-directional) indicate the strength of the connection.

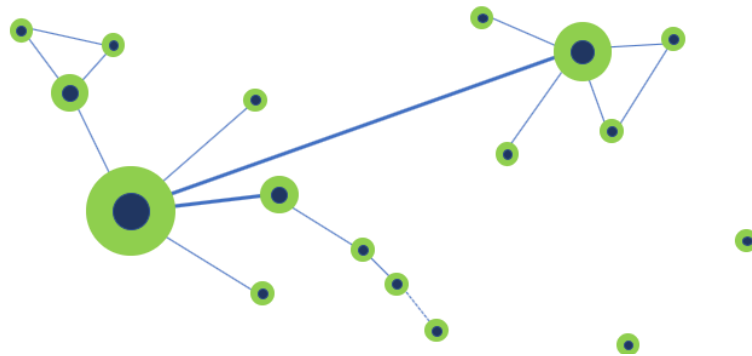


Figure 1. Sample sociogram.

It is the relational aspect of social networks, the presence of human behaviors and actions that makes them different than other types of networks and the feature that presents varied perspectives from which they can be studied.

Social networks are formed everywhere, among co-workers and classmates, in families, with friends and neighbors and even among strangers. Even so, studies on social networks related to formal organizations make up the majority of the research that has been conducted (Goldstein et al., 2009). This means that principles of organizational theory are applied in the current literature to describe attributes and behaviors of social networks. Unfortunately, the results of these studies may not be generalizable to all types of social networks.

The focus of this study involves a specific type of social network and the attributes of its members and their actions. The social networks of this study are not related to formal organizations. Instead, they are community-based and informally

constructed by individuals or groups who self-organize to work toward a shared goal and create value such as working to solve a societal concern or igniting innovation.

Examples of these social networks are *community coalitions* found in the domain of public health or *research collaboratives* found in the domain of academia (DiClemente et al., 2009). Moreover, to broaden the understanding of these types of groupings, it is worth mentioning that even *terrorist organizations* are an example of this type of social network (National Research Council, 2005; Ronfeldt, 2005). In each of the examples, the networks are organized loosely and focused on a shared social goal in which attainment of their stated goal is dependent on factors that have not yet been clearly defined.

As our society becomes more engaged in creating and sustaining these social networks, more must be understood about their innerworkings, their characteristics and behaviors and especially those factors might influence the creation of a valued outcome. For the sake of clarity and consistency in this paper, the specific social networks of the study will be referenced as **community action networks**, a term introduced here.

The study of the structure, function, and behaviors of community action networks requires a general understanding of Network Science and Social Network Theory, studies of social capital, and the principles of value creation. This chapter provides a brief discussion of these topics before introducing the theoretical model of social capital and value creation that is used in this research. The chapter concludes with the presentation of the research problem and its attendant discussion.

Network Science

The study of social networks is founded in Network Science, the origins of which can be found as early as the 1700s (Newman, 2003). Network Science is characterized by the study of the foundational components of networks, i.e., nodes and ties and their

inherent characteristics (Newman, 2003). Networks underlie a wide-ranging set of domains from sociology as studied here; to biology, like in neurological networks or epidemiological disease transmission networks; to engineering or physical systems, such as seen in power grids and transportation infrastructure. Further, networks are complex in that they can overlap or combine. “Social networks, for example, are built on information networks, which in turn are built on communications networks that operate using physical networks for connectivity” (National Research Council, 2005, p. 3).

The scope of the field of network science is vast as it continues to emerge in the current era of advancing technology. The U.S. Armed Services was one of the first major organizations to recognize the possible impact of networked communities on their work. In a 1999 study, they called for a greater understanding of the new phenomenon of organizational networks in order to adapt their leadership strategies, in peacekeeping and war. It was stated,

Although it is unlikely that the army will become the non-hierarchical organization exemplified by a network organization, it is apparent that its mission in the twenty-first century will involve more joint ventures with other branches of the U.S. military, the armed forces of other countries (particularly NATO forces), and civilian populations throughout the United States and the world. (Brass & Krackhardt, 1999, p. 180).

Several years later, they engaged in a broad, cross-domain study through the National Research Council to understand the structure and functions of networks of varied types and from the study concluded, “Despite the tremendous variety of complex networks in the natural, physical and social worlds, little is known scientifically about the

common rules that underlie all networks. This is even truer for interacting networks” (National Research Council, 2005, p. 7).

Thus, the field of Network Science continues to grow with studies focused on the basic structure, function, and patterns of networks as applied to various domains. This includes the domain of sociology and the relational aspects of social networks that are of interest to this study, and what is discussed next.

Social Network Theory

Social Network Theory is an extension of Network Science in that it is focused on the interactions between connected nodes, but it also is seated in sociology and through that lens seeks to understand patterns in human connections and actions of the connected systems (Wasserman & Faust, 1994). Social networks are differentiated from other network types because of the dynamic nature of human interactions. They are described as complex systems exhibiting such characteristics of self-organization, emergence, and learning (Baker, Onyx, & Edwards, 2011; Goldstein, Hazy, & Silberstang, 2008; Schwandt, Holliday, & Pandit, 2009).

One well-known study of social networks is the research in 1934 of educator Jacob Moreno who was the creator of the sociogram (Figure 2) and popularized its use in analyzing social networks by mapping the interactions of his students in order to understand social preferences (Moreno & Jennings, 1934). The sociogram is used today in network analysis to visualize networks and measurements of network ties

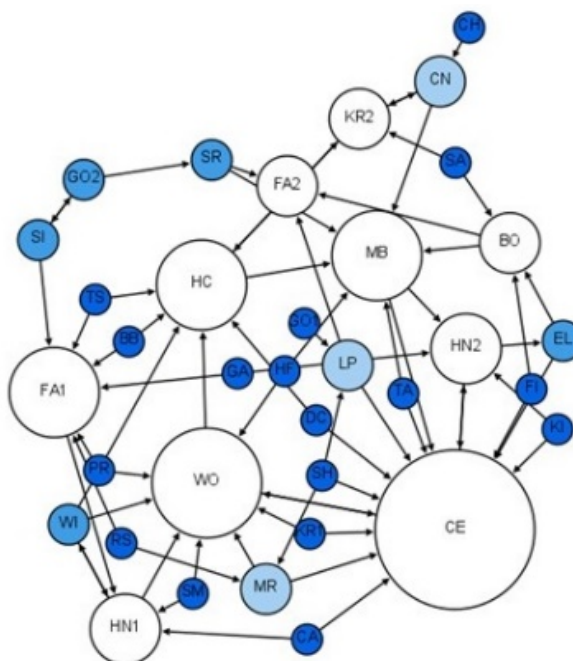


Figure 2. Moreno sociogram 1st grade. Moreno created the sociogram to visualize the relationships between pupils in a classroom. By Martin Grandjean (Own work) [CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0>)], via Wikipedia Commons

Another better-known study is the ‘small world experiment’ of sociologist Stanley Milgram in the 1960s from which the term and concept of ‘six degrees of separation’ was made popular (Easley & Kleinberg, 2010; Morse, 2003). In this study, Milgram used the action of mailing letters to determine the shortest path between two people who do not know each other. In his study, that number was six (Easley & Kleinberg, 2010; Morse, 2003).

Currently, with worldwide engagement in social media platforms, characteristics of social networks are becoming part of our everyday lexicon. Individuals are familiar with the concept of belonging to various networks and social communities. It is predicted that this growing connectivity has implications for our society. “The information revolution favors the rise of network forms of organization, so much so that

coming age of networks will transform how societies are structured and interact”
(Ronfeldt, 2005, p. 89).

Figure 3 shows the rapid growth in the number of monthly active users of the most utilized social media platform, Facebook, from zero in 2004 to two billion in 2017, which points to high saturation in connectivity, worldwide.

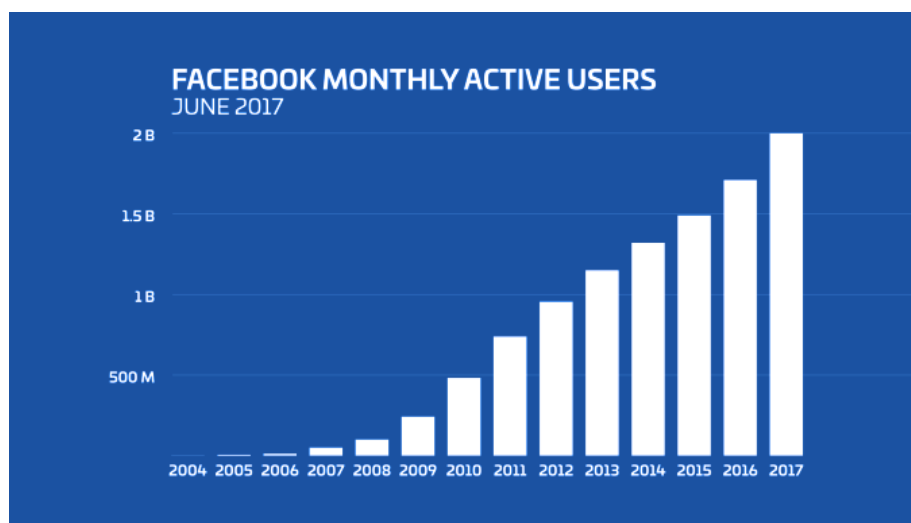


Figure 3. The Number of monthly active users of the most utilized social media platform from 2004 to 2017. Adapted from “Facebook has 2 billion users . . . and responsibility” by J. Constantine (2017).

Consider the power of Facebook in the recent example of strangers becoming connected for a shared social goal. This is the true story of a young man, a 15-year-old from Texas, whose military father died in Iraq in 2003 when he was only nine months old. The son, who had no memories of his father shared a desire to one day have one of the cars that his father had driven as a way to connect with and learn about someone whom he loved but had never known. The young man’s mother went to Facebook and posted a request for help in locating a particular car that the military father had driven, along with the VIN and description of the car...and then she waited, not knowing what would happen. Her request was forwarded from her network of ‘friends’ across the country through numerous sets of networked connections, to individuals that the mother

did not know, and the car was found...in Utah...and in need of serious repair. There in Utah, the owner of an organization called Follow the Flag heard the story and started a GoFundMe account to raise the needed funds to restore and deliver the car to the young man in Texas...to a person he had never met! He was successful in raising funds and then, through personal connections, moved the car through the restoration process utilizing the services of at least five businesses for the necessary bodywork, such as glass replacement, upholstery, and tires. When the restoration was complete, the same individual, motivated only by goodwill, drove the car from Utah to Texas to deliver it to the mother and son on his 15th birthday.

In this story, the social network included friends as well as strangers. When necessary, the network grew organically adding new members who could continue the work toward the shared vision of all of its members. The locus of activity in the network shifted from Texas to Utah as the resources became available, demonstrating the concept of emergence that is a characteristic of networks. The created value from this network was not only the restored car that was delivered to the boy, but also the sense of community and goodwill among all of the network members. Although a simple representation, the details of the story highlight important ways that social networks work.

It is not surprising that groups, communities, and organizations are benefitting from the ease with which connections can be made in forming social networks toward a common goal. The focus of this research is not on the online platforms but on the structure, function, and behaviors of community action networks whose members connect toward a common goal in order to create value for their network or society.

Social Capital

The construct of social capital emerged from sociology and political science decades ago but has seen a resurgence of interest as a result of the current focus on social networks. Its recognized pioneers introduced their theoretical frameworks as recently as 1983 and although progress is being made, “a general social capital theory is still under construction...” (Hauberer, 2011, p. 251). Social capital derives its meaning from the classical definition of ‘capital’ by Karl Marx who in 1867 described capital as an investment in labor-power to create surplus value. Consistent with that, some theorists describe social capital as an “investment in social relations with expected returns” (Lin, 1999, p. 30). Other researchers theorize that social capital is made up of complementary characteristics. They believe that social capital, unlike other forms of capital (physical, human, etc.), “... remains in the relations that are based on mutual trust information potentials and effective norms” (Hauberer, 2011, p. 42).

Moreover, from another definition,

Social capital may be defined as those resources inherent in social relations which facilitate collective action. Social capital resources include trust, norms, and networks of association representing any group which gathers consistently for a common purpose. A norm of a culture high in social capital is reciprocity.

(Garson, 2006, p. 456).

Unlike earlier definitions, these suggest that social capital can be understood as a set of basic components of social networks that must be present for the creation of value. The basic components of social capital and value creation are the foundation on which this study is based.

Value Creation

The study of value creation has its beginnings in strategic business management and its focus on leveraging market systems to produce value (Gedajlovic, Honig, Moore, Payne, & Wright, 2013). The value in a business context may be a new product or process innovation. Porter's value chain framework that is applied at the firm level identifies several activities of an organization that together result in value (1985). The Porter model provides a way to understand the similarly component-based and linear framework of social capital and value creation that is used in this study to assess a community action network.

Problem Statement

Community action networks are formed to create value for social benefit. However, what happens when individuals and groups are connected, a goal is agreed upon, resources are present, and action commences, but there are no generated outcomes, no value being produced? A single recognized model for understanding the component of these types of social networks does not exist. Currently, there is not a way to diagnose a problem in a social network in order that preventive or mitigating measures might be taken. Focused research in this area has implications for those who might invest time and resources into a community action network and its endeavors.

Purpose of Study and Research Questions

In the absence of relevant social network studies, can one learn about social capital and value creation in community action networks from similar studies in business organizations? What are the factors of social capital and value creation in community action networks?

Those questions and the pursuit of their answers are the focus of this research. The *Social Capital and Value Creation* theoretical model of Tsai and Ghoshal (1998) to understand value creation in a network within a business is the theoretical framework selected to study social capital and value creation in community action networks. This model was selected because of its framework that is similar to the value chain framework and also because of the discrete components that can be measured and compared. This study is not a replication of the Tsai and Ghoshal 1998 study, but rather uses the framework as a way to measure and better understand a selected community action network that was identified to be the subject for this study.

In describing the purpose of the research, it is also important to clarify that while this study does involve aspects of collective action, it is not designed to address the construct or the related phenomenon of the ‘collective action problem’ studied in sociology (Marwell, Oliver, & Pahl, 1988) that is focused on the “potential conflict between the common interest and each individual’s interest” (Ostrom & Ahn, 2007, p. 5).

Tsai and Ghoshal’s Social Capital and Value Creation Theoretical Model

The Tsai and Ghoshal’s theoretical model of Social Capital and Value Creation (1988) is the model used in this study because it delineates five constructs or components in their model that lend themselves to measurement and analysis. That is referred to in this research as a ‘component-based approach’ to measuring a social network. The model brings together the work of founding theorists Bourdieu, Coleman, Burt and Lin and conceptualizes social capital in three dimensions, **structural**, **cognitive** and **relational**, that interact with **the exchange of network resources** to create **value** (see Figure 4).

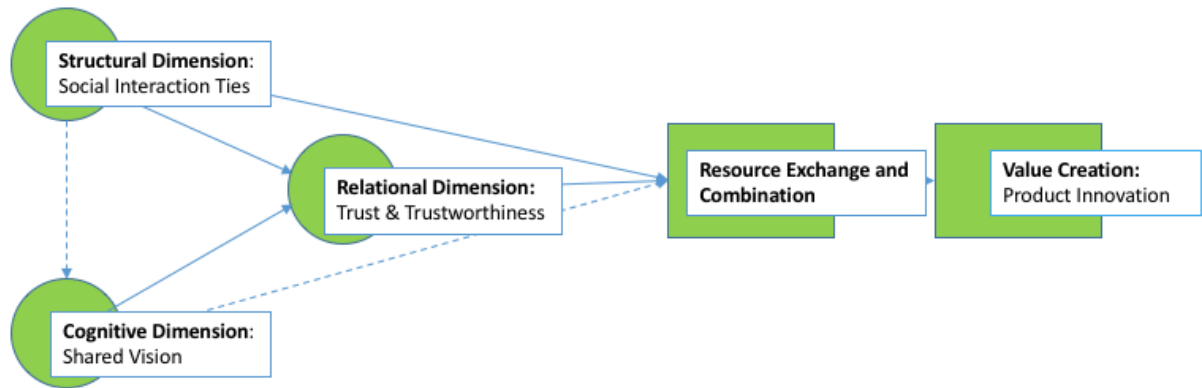


Figure 4. A model of social capital and value creation (Tsai & Ghoshal, 1998). The model demonstrates value creation of social networks within a firm. Solid lines indicate significant paths. Dashed lines indicate insignificant paths.

In their study of a network within a firm, they measured the five constructs illustrated in the figure and analyzed the correlations among them for possible predictive value. Those five constructs are described here.

The structural dimension.

The structural dimension of the model (Figure 4) represents the network members and their relationships, the nodes and ties, and considers the location or centrality of a particular node to the entire network (Nahapiet & Ghoshal, 1998). You might recall from Figure 1, nodes are the individuals or groups in the network that are represented visually as dots or circles. The ties are the ways in which these individuals know each other, their relationship, and are visualized as the lines between the dots on the sociogram. Centrality is a term in social network analysis that refers to the individual's level of influence within the network (Ibarra, 1993).

The relational dimension.

The relational dimension of the model (Figure 4) is focused on the strength of the ties between the nodes. In this model, it is the presence of 'trust' and 'trustworthiness' between network members that predicts the likelihood of action (Uzzi, 1996). The

strength of the relationships or trust between the individuals and groups are variable and determines their role in the action. Trust has been identified as essential in “exchanges between durable and useful relations,” (Hauberer, 2011, p. 38).

The cognitive dimension. The cognitive dimension of the model (Figure 4) is “embodied in attributes like a shared code or a shared paradigm that facilitates a common understanding of collective goals and proper ways of acting in a social system” (Tsai & Ghoshal, 1998, p. 465). Coleman (1988) posited that because network members belong to a social construct, social norms serve as governing structures in the actions of members.

These three dimensions – structural, correlational, and cognitive – combined make up what Nahapiet and Ghoshal (1998) refer to as Social Capital and is consistent with the previously stated definitions of social capital.

The resource exchange/recombination. The resource exchange/recombination component is the engine of creative action that results from the interactions of the three dimensions of social capital. When combined, resources that each actor brings with him or that exists within the environment in which the network resides creates value (Marwell, Oliver, & Pahl, 1988; Nahapiet & Ghoshal, 1998; Siegel, 2009).

Resources can include skills and knowledge, as well as tangible assets. The resource exchange and recombination results in exponential action as opposed to additive action (Coleman, 1988).

Created value. The outcome of the work of the community action network is the value that is created. Value in this sense is the meaning that is created as an output of action and interpreted by an actor. Typically, value is not defined in this way. Rather it is defined from its origins in strategic management where “value emerges from the interaction of supply and demand, and ultimately reflects what people or organizations are willing to pay” (Mulgan, 2010, p. 2). In the model shown in Figure 4, Tsai and Ghoshal (1998) espouse the Schumpeterian view that “new sources of value are generated through novel deployments of resources, especially through new ways of exchanging and combining resources” (p. 468). This definition still applies in business operations, but its focus is on the new ways of combining resources to create innovation, which is characteristic of social networks.

A number of studies have been conducted on the complex and the emergent nature of social networks and their implications in sustaining a networked system. Within the study of complexity science as applied to social networks are topics on ‘learning’ (Borgatti & Cross, 2003; Easterby-Smith, Snell, & Gherardi, 1998), including ‘amplification and dampening effects’ (Schwandt, 1994); as well as themes related to ‘exploration vs. exploitation’ (Andriopoulos & Lewis, 2009; Beckman, Haunschild, & Phillips, 2004; Gupta, Smith, & Shalley, 2006; He & Wong, 2004) and the concept of ‘structural holes’ as postulated by Ronald Burt that includes Granovetter’s theory of ‘strong and weak’ ties (Burt, 2000; Granovetter, 1985). These important theoretical frameworks and constructs highlight significant work conducted in this space and reveal the dynamic nature of the networked system. The characteristics of social networks studied in complexity science are significant and related and thus mentioned here, but

since they are not directly relevant to this specific study, will be only briefly discussed in the review of literature in Chapter Two.

Identifying a Test Network/ Methodology

A community action network was identified in order to measure its social capital and value creation to better understand the innerworkings of the network. The parent organization of the study network was interested in understanding more about the characteristics of their network in order to influence the instance of value creation. The Tsai and Ghoshal model is the framework that is used to analyze the network, albeit in a different context. A qualitative study was conducted utilizing an original survey instrument. The survey questions used in the Tsai and Ghoshal 1998 study were adapted for the community action network. The survey sought to determine perceptions of the network members about the five components in the model: Structural (Interaction Ties), Cognitive (Shared Vision), Relational (Trust/Trustworthiness), Resource Exchange, and Value Creation. The data were analyzed to inform the descriptive assessment of the structural, cognitive, relational or resource exchange components of social capital and the value created.

Significance of Problem

The significance of this problem is that it illuminates a gap in knowledge regarding community action networks and their component parts of social capital and value creation. This gap poses a problem to those who are involved in guiding the actions and resources of a social network. There are no predictive models that can be used to ensure action will occur and that any action in a community action network will produce value. This has implications for those who might invest time and money into a community action network and its endeavors. Additional research is needed in the area

of community action networks and value creation to aid those interested in knowing what elements contribute to the success or failure of the networks in which they are involved.

It will benefit those who might analyze an identified ‘failing’ network to determine in which component they should implement an intervention.

Educational Value

The value to education is that it:

1. Provides a way for those involved in community action networks and concerned about their success to be able to analyze the components of their own community action network and through network analysis be able to diagnose problem areas to develop interventions for failing networks;
2. Serves to validate theories in the research area supporting the framework used in this study;
3. Adds to new knowledge in the field; and
4. Identifies additional questions to be answered that point to additional research topics.

Definitions

1. **Action.** The definition comes from the theoretical work of sociologists Max Weber and Talcott Parsons but in its distilled form means an act that takes into account the actions and reactions of others and that it is voluntary and requires a stated end. In the case of a community action network, the action is more closely related, contextually, to ‘collective action’ that “occurs when a number of people work together to achieve some common objective,” (Dowding, n.d.; Ostrom & Ahn, 2007).

2. **Community Coalition** is made up of diverse organizations at a local level who combine resources to address community issues (Butterfoss, Goodman, & Wandersman, 1993, p. 316).
3. **Complexity** is a collection of theories concerned with complex systems and problems that are dynamic, unpredictable and multi-dimensional, consisting of interconnected relationships and parts. It provides an approach to modeling and measurement “that connects the physical sciences with the social sciences and our understanding of the human experience.” (Hazy, Moskalev, & Torras, 2009, p. 258).
4. **Network Theory** (see Social Network Theory)
5. **Nodes and Ties** in network theory are the structural units of a network that are represented visually as points between which connections are made and information flows. A network is made up of two or more nodes. In social science, nodes can represent individuals or groups, and are referred to as ‘actors’ and ties represent relationships and are referred to as ‘edges’ (Burt, 2000; Wasserman & Faust, 1994).
6. **Research Collaborative** or participatory research can be defined as researchers working together to achieve the common goal of producing new scientific knowledge (U.S. Department of HHS, n.d.).
7. **Resources** as defined in the context of the model study are assets inherent in social relations when combined or recombined facilitate collective action (Tsai & Ghoshal, 1998).

8. **Social Capital** is a resource that is produced through the existence of interactions of at least two nodes in a network. In sociology it is a form of capital that exists for producing value for the common good (Coleman, 1988, S118).
9. **Social Network Theory** comes from network science and is the study of how people, organizations or groups interact with others inside their network and suggests an approach to measurement that is distinct from the usual behavioral science approaches (Wasserman & Faust, 1994, p. 21).
10. **Social Network Analysis** is the process of investigating social structures through the use of networks and graph theory. It characterizes networked structures in terms of nodes, actors (individuals) and the ties, edges or links (relationships or interactions) that connect them (Wasserman & Faust, 1994, p.4).
11. **Social Value** is the meaning that is created as an output of action and interpreted by an actor. See also Value Creation.
12. **Value Creation** in the Tsai & Ghoshal theoretical framework is the output associated with the interaction of actors of a social network and their combined resources toward a shared goal (1998).

Limitations of the study

There are a few limitations to this study of different levels of significance that should be considered. This study involves only a single case and compares it against only one model of social capital. This approach might not reflect all of the possible actions and behaviors of a community action network and therefore not be generalizable in all situations. More significantly, the difficulty studying particular phenomenon and behaviors in community action networks is in the relative infancy of this emerging area of study and lack of a solid theoretical foundation. Related to that is the non-standard

terminology, phraseology and definitions of constructs and conditions that are used by those in this field of inquiry. This points to the need for additional research in this area.

Summary

Community action networks are formed for the purpose of addressing societal concerns by combining the resources of its members toward a shared goal for value creation. With today's connected society, more networks of this type are being formed. Community action networks may succeed or fail in attempting to create value, and it is not clear what factors are most influential in determining success or failure. Further, existing research is focused on networks within organizations and does not offer sufficient methods or mechanisms for analyzing community action networks that exist outside of organizations. Using the 1998 theoretical model of Tsai and Ghoshal that was created for the analysis of social capital and value creation in a network within a business, this study seeks to analyze a community action network. Chapter Two delves in more detail into the various constructs that were introduced here.

Chapter II

Review of Literature

This study is focused on social networks that are formed by individuals or organizations for the purpose of working toward a shared social goal, to create value benefitting the community. With today's connected society, these community action networks are becoming more common, however, not all of them are successful in reaching their goals or desired outcomes.

Take as an example, a network that was formed through a Memorandum of Understanding between three organizations in Houston, one hospital and two academic institutions of higher education. The five volunteers from the three organizations who served as the working committee of the network hosted workshops, seminars, and meetings and recruited nearly 150 members into the network. The network members came from professional areas that ranged from medicine, research, aerospace, engineering, law and finance to communications, and all members shared the desire of becoming paired or grouped into teams for the purpose of developing new innovative ideas and technologies in biomedicine. On paper, the business model and the network that was made up of doctors, researchers, astronauts, engineers, and business professionals should have been successful. After three years, the working committee disbanded because the network, although busy attending seminars and meetings over strategy, never realized its goal.

What factors are most influential in determining success or failure of a loosely organized community action network? Existing research is focused on networks within organizations or networks formed for profit and does not offer sufficient methods or mechanisms for analyzing community action networks in order to answer that question.

In the absence of relevant social network studies, can one learn about social capital and value creation in community action networks by studying a similar framework in business organizations. What are the factors of social capital and value creation in community action networks?

For this study, the 1998 theoretical model of Tsai and Ghoshal that was created to analyze social capital and value creation in a network within a business was used to analyze a community action network. The components of social capital and created value in the network were measured to better understand characteristics of the network and the value it creates.

The review of literature begins with a discussion of the linear development of community action networks from its beginnings in network science through social network theory. Then the research topics of social capital and value creation are discussed with the review of the theoretical model that is used in the study.

Network Science

In order to study social value networks, it is important to first understand its roots. Network science is a field that crosses a number of domains, including biology, engineering, the physical sciences and sociology and has been well-researched since the early 1900s (Newman, Barabasi, & Watts, 2006). Given its breadth and depth, there will not be an attempt to discuss the full range of the field. Distilled to its simplest parts, networks are made up of nodes or discrete entities that are connected through ties or the relationship between them and the action between them that is uni- or bi-directional (Newman et al., 2006). Understanding the component parts of networks and how they interact is a specific focus of scientists, engineers, and even military personnel who have

organized military operations into Network-Centric Operations (NCO) to engage in Network-Centric Warfare (NCF) (National Research Council, 2005).

Application across domains. The U.S. military is currently engaged in research through the National Research Council to understand the similarities of networks that are found across domains in order to develop predictive models of network behavior to benefit their operations and strategies (see Table 1). As an additional goal, they hope current and future research will lead to standard concepts in the field with the adoption of a common language among behaviorists, engineers, and other practitioners (National Research Council, 2005). It is not immediately obvious how physical networks share attributes with social networks, for example, but the results of their work are anticipated at least by this researcher to understand ways in which they are similar. Table 1 is the list of fields with professionals participating in their research.

Table 1

Fields Engaged in Network Science Research with the U.S. Military

Field	Field	Field
Biochemistry	Information technology	Political science
Biology	Management	Psychology
Chemistry	Mathematics	Public health
Computer Science	Medicine	Public policy
Ecology	Operations research	Sociology
Economics	Organization theory	Telecommunications
Internet	Physics	Transportation
		Utilities

Over the last fifty years, from the study of network theory comes graph theory, as well as measurement systems and analytical models developed in mathematics and physics (Newman et al., 2006; Wasserman & Faust, 1994). Although relevant for networks in the domains of physics, biology or engineering, those theories, systems, and models do not address the emergent or dynamic aspects of networks made up of people whose behaviors may not be predicted. Thus, dynamical systems theory is sometimes used to measure specific aspects of social networks (Hazy et al., 2009). That theory is not discussed here, but it is relevant in pointing out the differences between physical systems networks and social networks.

Social Networks

Social Network Theory is from the domain of sociology in network science, and it is focused in networks of people and their interactions. With developments in technology and social media platforms that have advanced social connectedness, the scope of what is included in social network theory has expanded in recent decades, opening new areas of study within the overlapping theoretical domains of complexity science and organizational research.

A variety of types of social networks exist. Online social platforms have given rise to social networks created for purely social purposes that can connect people worldwide and instantaneously. This ease in connectivity has sparked the proliferation of e-business networks by companies who are taking advantage of the easy access to individuals through their social accounts in order to increase sales and profits (Amit & Zott, 2001). Social networks are seen as systems and can be open (individuals are free to join) or closed (individuals are invited to join) and are characterized by patterns of the nodes as in hub networks (all nodes are connected to a single node), random networks

(any node can be connected to any other), and small-world networks (a cluster in which any node can reach another in a few steps) (Goldstein et al., 2009). Social networks can also be created by businesses or organizations as functional units focused on community-facing activities, for profit and for the common good. For example, Hausmann (2015) examined the “emergence of a new organizing approach for enacting social innovation” (pg. 189). These networks are called social entrepreneurship networks. Social networks can be established by individuals and groups that are not governed by a formal organization but rather are formed organically for the purpose of attaining a shared goal, such as addressing a societal concern or for the process of innovation and not for profit (Butterfoss et al., 1993; U.S. Department of HHS, n.d.). For example, these are found in community coalitions or research collaboratives and are the focus of this study.

Stakeholders involved in the formation, work and outcomes of social networks are interested in understanding how social networks ‘behave.’ Social network analysis or network analysis uses data points of network relationships and algorithms to create graphical visualizations of networks in order to study their behavior and make predictions about them. However, additional methodologies, tools and models are needed to study phenomena in social networks related to human behavior (Gedajlovic et al., 2013).

Studies on Structure and Function

An area of growing interest in social networks is at the confluence of organizational theory and complexity science where more recent studies of social networks and social capital can be found (Anderson, 1999; Goldstein et al., 2008). The dynamic nature of human interactions and the informal nature of social networks creates a ‘living’ system that learns, adapts and organically creates new structures (Buckley, 2008). Researchers who use complexity science to study social networks seek to

understand three elements: 1) the interactions of individuals (micro-level) and groups (macro-level), 2) the conditions that are created through their interactions, and 3) the environment in which they interact in order to be successful in delivering a collective output (Buckley, 2008; Dooley, 1997; Morgeson & Hofmann, 1999).

As an example of relevant studies on the emergent and adaptive nature of social networks, three constructs are introduced here.

Exploitation vs. Exploration. An area of organizational theory and complexity science that is related to the creation of value through network expansion is the construct of Exploration vs. Exploitation. Businesses develop strategies and strategic decision making for creating value, either by ‘exploring’ new external partnerships and engaging new networks or by ‘exploiting’ existing internal networks and resources (Gibson & Birkinshaw, 2004; Gupta et al., 2006; He & Wong, 2004). Theorists describe the distinctions between the two approaches and their impact on innovation and identify tensions between the two, its implication in competition, and how the two approaches might be balanced in the goal for creating value (Andriopoulos & Lewis, 2009; Beckman et al., 2004; Gupta et al., 2006; He & Wong, 2004). This decision-making framework can also be applied to community action networks in that they provide a way to consider the possible benefits and cautionary aspects of closed vs. open social networks. One characteristic of closed networks is the homogeneity of knowledge and expertise of members who have joined based on a particular criteria or interest they have in common. Value can be created in this group through the exploitation of existing social capital of members. To increase opportunities for collaboration and therefore innovation, a social network that is open encourages members to draw in others who have complementary or

missing expertise or ideas. Individuals will connect previously unconnected networks together to explore possible new connections, collaborations and innovation.

Learning in social networks. Organizational learning is described as a state of change and adaptation and is another emergent characteristic of social networks. If situated in the Tsai and Ghoshal model, it would be propagated to all components of the model through the action component called Resource Exchange/ Recombination where social capital resources are combined and recombined to create value. Dooley (1997) and Dooley and Van de Ven (1999) describe organizational learning and postulate that organizations as complex adaptive systems continue to evolve from the creation of new knowledge and new social structures that emerge and regenerate from interactions. The ‘learning’ construct is related to organizational change in a dynamic system and this concept of learning can also be found in social networks.

Easterby-Smith et al. (1998) also hypothesize how learning is related to change, but they are interested in how adopting changes in organizational power structure may make room for greater learning. They state, “. . .as the organization removes hierarchical and structural boundaries, there will be more channels for action and influence. Relationships of influence will therefore shift from the vertical (command) to the horizontal (peer networks) . . .” (p. 269). They are describing the characteristics of social networks that are naturally structured for learning. Social networks do not have hierarchical and structural boundaries that are seen in siloed functions in an organization. Those boundaries limit individuals’ ability to collaborate, innovate, and change...to learn. The removal of boundaries allow for shifts in influence or leadership as projects are undertaken.

Structural holes. The last of the examples is the construct of structural holes developed by Ronald Burt that expands the work of both Coleman (1988) who described the structure of networks and the origins of social capital and Granovetter (1985) who defined strong and weak ties. When visualizing the structure of a network with its nodes and ties, Burt explored the gap that exists between nodes (individuals) who have never exchanged information and who belong to separate networks. For the purpose of this explanation we will call them A and B. Each of them is a member of communities or networks to which the other does not belong but who could potentially benefit the other. In this state, the gap between A and B is a ‘structural hole’ (Burt, 2000). Member A has strong ties with members within the networks he belongs, and B has strong ties with members within the networks she belongs. But since the ‘strong tie’ is associated with homogeneity that is characteristic of a closed network, it is not correlated with innovation (Granovetter, 1985). If A and B share information, their tie is considered weak, but the possibility for innovation is high since each brings complementary information and not duplicated information. Burt’s theory of structural holes follows that of Granovetter that innovation occurs at the ‘weak tie’ (Burt, 2000; Lin, 1999). This is instructive for understanding how social capital is leveraged for creating value through network expansion.

Social Capital and Value Creation

Social capital. A review of the literature on social capital research is interesting in that it reveals two things: one that currently there is no agreed upon overarching framework (Engbers, Thompson, & Slaper, 2017; Hauberer, 2011) and two, despite that there is striking agreement among researchers on who are considered the founding researchers in the field. Bourdieu and Coleman are recognized as developing the

founding concepts of social capital (Hauberer, 2011). Their contributions were distinct from each other but very similar and published concurrently and so they are often grouped together when discussed (Hauberer, 2011).

Bourdieu (1986) described social capital from the classical economic definition of the word ‘capital’ from Karl Marx. Coleman (1988) extended the definition of social capital to include the dynamic nature of social networks and actions in which the networks engage. Lin (1999) expanded on that to include the bidirectional nature of interactions stating that it is an “investment in social relations with expected returns” p. 30). Putnam’s (2018) definition that he first presented in 2000 is more specific and builds on Lin’s theory. He stated that social capital is the value from all networks in which one belongs and the propensity of individuals to engage in reciprocal behavior. This value from engagement occurs through the flow of trust, information, reciprocity and cooperation in social networks (Putnam, 2018). Finally, Garson (2006, p. 456) described social capital in similarly comprehensive terms when he stated, “Social capital may be defined as those resources inherent in social relations which facilitates collective action. Social capital resources include trust, norms, and networks of association representing any group which gathers consistently for a common purpose.” This definition neatly introduces the Tsai and Ghoshal 1998 model of social capital and value creation used in this study.

Since the time of Bourdieu, research on social capital has grown dramatically.

Consider the graph in Figure 5 that shows the number of papers on the subject of social capital in the U.S. from mid-1980 to 2014. For the first 20 years, there was little research but since 2000 there has been an exponential increase in numbers of papers from various views and levels of analysis (Engbers et al., 2017). One of the biggest challenges noted in

the diversity of approaches is in measuring and analyzing social capital.

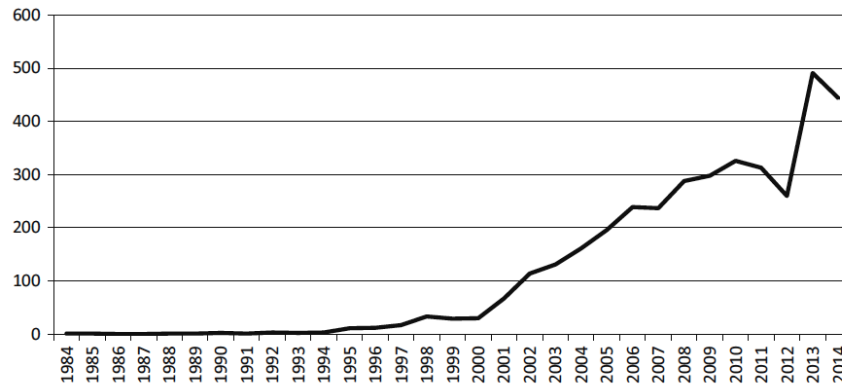


Figure 5. Social capital articles in U.S. by year. Source: Engbers, Thompson, & Slaper (2017) from Library of Congress abstracts.

Value creation. The study of value creation has its beginnings in business strategic management and its focus on leveraging market systems to produce value (Gedajlovic et al., 2013). As we have moved from the post-industrial age to the knowledge or information age, the theoretical views have been adapted. Schumpeter (1934) introduced a new view of value creation as the process of combining resources in novel ways for innovating. Porter's (1985) value chain framework as applied to the firm identified several activities of an organization that together result in value. The benefit of breaking down the process into component parts allows for the measurement and manipulation of said parts. Another theory, the resource-based view of firms, appears to be a twist on the Schumpeter theorem and stated that "services rendered by the firm's unique (and valuable) bundle of resources and capabilities may lead to value creation" (Amit & Zott, 2001, p. 497). The resources and capabilities are considered valuable in this case if they reduce costs or increase revenue (Amit & Zott, 2001). Finally, a theory of value creation exists for social networks inside organizations or of entrepreneurs (social entrepreneurship networks) that are engaged in creating social value that also

make a profit (Hausmann, 2015; Schwandt et al., 2009). This theory, while adhering to strategic management principles guiding its actions, also recognizes the social capital or relational aspect of the network. In all of these frameworks for value creation, the context is a business or firm, as opposed to value creation in social networks like that of this study. Of these frameworks, it is the Porter model that provides a way to understand the similarly structured framework of component parts and linear process of social capital and value creation in community action networks that is studied here.

Tsai and Ghoshal's 1998 model of social capital and value creation.

Many researchers studying social capital include in their theoretical frameworks consideration of the collective action and social value that is created from the members of the social network. If social capital is defined as the network members and the strength of their relationships seen in trust, their assets and the shared goal and shared norms in the maintenance of the network, then the rest of the equation looks like this:

$$\text{Social capital} + \text{Collective action} = \text{Value created.}$$

This 'equation' showing the influence of social capital on value creation is what is proposed in the theoretical model of Social Capital and Value Creation by Tsai and Ghoshal (1998) as a continuation of the work of Nahapiet and Ghoshal (1998). This model also incorporates the work of founding theorists and conceptualizes social capital in a new way. They propose three dimensions of social capital, structural, relational and cognitive, that interact with network resources to create value.

Nahapiet and Ghoshal (1998) define social value as "the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by individuals or social units" p. 243). Tsai and Ghoshal (1998) expand that definition when they state that "new sources of value are generated through

novel deployments of resources, especially through new ways of exchanging and combining resources” p. 468). This view of social capital as a sum of component parts and the related action that results in created value is the framework used in this study to understand a community action network. Table 2 shows the variables of this study and the related studies that informed the development of their measurement.

Table 2

Measurement of Variables

Variable	Survey questions and measurement based on studies
Interaction Ties	Levin & Cross, 2004 Marsden & Campbell, 2012 Perry-Smith, 2014 Tsai & Ghoshal, 1998
Trust/ Trustworthiness	Blau, 1964 Levin & Cross, 2004 Smith, 1996 Tsai & Ghoshal, 1998
Shared Vision	Preskill, Parkhurst, & Splansky-Juster, 2014 Tsai & Ghoshal, 1998
Resource Exchange	Levin & Cross, 2004 Reagans & McEvily, 2003 Tsai & Ghoshal, 1998
Value Creation	Amit & Zott, 2001 Grundinschi, Hallikas, Kalunen, Puustinen, & Sintonen, 2015 Tsai & Ghoshal, 1998

Summary

Community action networks are formed for the purpose of addressing societal concerns by combining the resources of its members toward a shared goal for value creation. With today’s connected society, more networks are being formed outside of the walls of structured business organizations. Community action networks will succeed or

fail in creating value for the community and for the network, thus a way to understand or analyze the factors of social capital and value creation in these networks is needed.

In this chapter, a review of the literature related to social networks, social capital and created value was discussed to lay the foundation for this study on community action networks. Although a relatively new field of study, it is firmly seated at the confluence of organizational theory, sociology, and complexity science and through those lenses with divergent themes will continue to grow in response to the need to better understand the structure and function of social networks. Existing research does not offer sufficient methods or mechanisms for analyzing community action networks or for measuring the value they create. This study provides an additional perspective to these issues. In Chapter Three, a description of the research study and methodology is detailed.

Chapter III

Methodology

This chapter introduces and discusses the details of the study methodology, beginning with the problem statement that provides the context for the study and the research question with the related hypotheses. Next is a description of the research variables of the study and how they are defined in the literature. The study utilizes an original survey instrument along with its relevant scales and examples of survey questions. Comments about the reliability and validity of the instrument are included. The research design is then presented with a description of the participants, why they are part of the study and including recruitment strategies to increase participation and the likelihood of drawing a response from a representative body of the study population. The methodology process and steps for data collection are detailed followed by a proposed data analysis approach. The chapter concludes with a discussion of its contextual significance.

Statement of the Problem

Within communities, leaders are increasingly considering new ways of bringing organizations together for a common purpose. Creating community action networks is becoming more common as organizations wish to take a collaborative approach to work and to potentially take advantage of leveraging resources with their neighbors. For example, a number of health care institutions in the city of Houston recently formed a collaborative group to create a shared training opportunity for clinical trainees.

How do organizations come together to develop a network that will create the value they desire? And how do they measure components of their network to know they are performing? Currently, an academic perspective is lacking in depth on the factors that

influence the outcomes or created value of informal social networks that operate outside of formal organizations and how to measure them. In the absence of relevant social network studies, can one learn about social capital and value creation in community action networks by studying them in businesses?

A natural place to begin is consideration of existing research on social capital related to value creation in business organizations. Tsai and Ghoshal (1998) theorized a model of social capital and value creation and using a case study of a firm, demonstrated how various aspects of social capital impact value creation and that these constructs can be measured and analyzed. Their study was replicated by Lester (2013) who suggested the constructs involved in their model are correct, but with modification. This study utilizes the model of Tsai and Ghoshal (1998) adapted for a community action network as opposed to a formal organization. This study will not attempt to replicate that of the original researchers but will instead use the model as a framework for measurement and analysis. The remainder of this chapter will discuss the research methodology of the study.

Research Question

The research question, ‘What are the factors of social capital and value creation in community action networks?’ directs the study and serves to provide a better understanding of community action networks in order to answer the problem.

Research Variables

The five variables measured in this study are the three components of social capital (Interaction Ties, Trustworthiness, and Shared Vision); the action component, Resource exchange/Recombination; and the outcome component called Value Creation. Bourdieu first described social capital from the classical economic definition of the word

‘capital’ from Karl Marx (1986). Coleman extended the definition of social capital to include the dynamic nature of social networks and actions in which the networks engage (1988). Nahapiet and Ghoshal, however, offer a definition more relevant to social networks when they state that social capital is “the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by individuals or social units” (1998, p. 243). According to Tsai and Ghoshal (1998), continuing the work of Nahapiet and Ghoshal, social capital is made up of three components; (a) a structural component called Interaction Ties, (b) a relational component called Trustworthiness, and (c) a cognitive component called Shared Vision. The Resource exchange/ Recombination variable represents the interactions or actions of the members of a network, which presumably results in created value. In the context of social capital and value creation, it is the opportunity and instance in which resources of network members are shared and recombined (Nahapiet & Ghoshal, 1998).

The definition of value creation has its roots in strategic management of firms and typically represents product development or innovation that results from new ways of utilizing resources (Porter, 1985; Schumpeter, 1934). Those studies are focused on value that is created in business organizations as opposed to value created from the interactions of network members. The definition of value creation as described by Amit and Zott who studied e-businesses states that value creation is “the sum of the values appropriated by any party involved in a transaction” (2001, p. 503). This definition represents an evolution in the creation of value and is more similar to that of Tsai and Ghoshal (1998).

The five research variables were measured through a series of questions making up an original survey instrument called the *Graduate Network Survey*. Details of the *Graduate Network Survey* can be found in Appendix A.

Instrumentation and Measures

A number of steps were taken in order to develop the survey questions for the new study context. Once the subject organization was identified, several meetings were held at which the purpose of the study was discussed, and the social capital and value creation constructs were described to the leadership of the organization. Information about the organization, the leadership forum program and its graduate network was shared by them. They also described what they wished to know about their network and defined ‘created value’ from the perspective of their program. This researcher attended two, day-long leadership forum events alongside the program cohort members in order to better understand the forum experience and expectations from the perspectives of both the parent organization as well as the participants. A greater understanding of the forum structure and group dynamics was gained from the in-person observations. Using information from the initial meetings as well as the forum sessions along with the questions used in previous social capital studies, 20 questions for this study were drafted. Since recruitment was dependent on the parent organization, a detailed communications strategy (Appendix B Communications Strategy) was drafted, including agreed-upon verbiage for the parent organization to use for announcements, for the survey launch, and for reminders. A letter of cooperation between the parent organization and the researcher was drafted that outlined the scope of each parties’ responsibility for the project. The parent organization further committed to providing incentives to aid in recruitment, as well as identifying individuals to pilot test the survey questions. Through review and discussion, the final questions were agreed upon. For construct validity, the questions were also reviewed by two experts in the field of social capital who raised important questions regarding the constructs.

Development of the measure. The study is designed to measure the participants' perceptions of their engagement with network members and network groups within the graduate network. The *Graduate Network Survey* was developed using questions from similar studies of components of social capital and value creation in networks. The questions from those instruments were modified for the new context of the civic leadership program and its graduate network. See Tables 3 – 7 (listed below) and related discussion for details of the original survey questions as well as the questions that were adapted to the new context.

- Table 3 Survey Question Development: Social Capital Interaction Ties
- Table 4 Survey Question Development: Social Capital Trust/ Trustworthiness
- Table 5 Survey Question Development: Social Capital Shared Vision
- Table 6 Survey Question Development: Resource exchange/ Recombination
- Table 7 Survey Question Development: Value Creation

Each of the tables is focused on one of the five variables and named as such. The tables include details of previous studies and questions that have been used to inform development of the survey questions for that variable. And finally, the tables detail the plans for analyzing the new data in order to inform the assessment of the network.

Beginning with Table 3, in the left column are a list of previous studies and the specific questions related to the variable Interaction Ties. A few of the studies used social network analysis measures of interaction closeness, duration and frequency as indicators of strong or weak ties, while others used centrality measures from relationships. In the center column are the questions developed for this study in the new context asking for both number of interactions and also names of individuals reflecting relationships. In the column on the right are comments on the data analysis or other

relevant notes. For Interaction Ties, you may see noted that data from the graduate network member database is also utilized in addition to the survey data. For the community action network, or graduate network, the data from this measure will also be analyzed using visualization software so that the parent organization may gain a greater understanding of the nature of the interactions of their graduate network members.

Table 3

Survey Question Development: Social Capital Interaction Ties

Survey questions from previous studies	Graduate network survey questions in study context	Analysis
<p>-The people with whom I consulted were my close friend, etc. I did not know the people with whom I consulted. (Perry-Smith, 2014)</p> <p>Tie strength measured by closeness, duration, and frequency. (Marsden & Campbell, 1984, 2012)</p> <p>-How close was your working relationship? -How often did you communicate? -To what extent did you typically interact? -I would have felt awkward talking about a non-work related problem. -I feel I know them well outside of work-related areas. (Levin & Cross, 2004)</p> <p>-With people of which units do you spend the most time together in social occasions? -Please indicate the units which maintain close social relationships with your unit. (Tsai & Ghoshal, 1998)</p>	<p>Q1. Scroll and select the YEAR you attended the Center's Leadership Forum. If you attended more than one session, select year of your most recent Leadership Forum.</p> <p>Q2. Of the year you selected, please indicate which SESSION you attended.</p> <p>Q11. Answer the following questions based on experience with members of YOUR CLASS</p> <p>Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP</p> <p>Q13. Answer the following questions based on experience with members of OTHER CHF GRADS</p> <p>--Indicate the number of individuals in this group with whom you have interacted within the last 12 months</p> <p>Q16. Of the individuals whom you named in the previous question, which have participated in the CHF Business/Civic Leadership Forum?</p> <p>Q17. Name three (3) members of the Graduate Network whom you believe have contributed most to the value you have received from the Leadership Forum program.</p>	<p>For measuring 'social interaction' Tsai and Ghoshal (1998) based their originally drafted survey questions on studies from Marsden and Campbell, 1984, that was confirmed by Freeman 1977 as most suitable, and Wasserman and Faust, 1994 who defined and standardized a 'betweenness index.'</p> <p>In this survey instrument:</p> <p>Q1 and Q2 will determine the names of individuals with whom the respondent has engaged from participation in the program.</p> <p>Q11, Q12, Q13 will indicate the number of individuals with whom the respondent has interacted within last year.</p> <p>Q16 and Q17 will show the names individuals with whom the member has a relatively strong tie.</p> <p>In addition, data from the graduate network database regarding member place of business is utilized.</p> <p>From this, a betweenness centrality index will be created and related visualizations of the relationships will be developed.</p>

Table 4 follows the same format and details existing and developed questions related to the variable Trust or Trustworthiness. Originally, this was to be a direct question about trusting others within the network, but the parent organization opposed the

direct approach, believing the question might actually introduce suspicion in their network. Instead a proxy question was used but was introduced in the survey as a question about trust. In the various studies on the measurement of trust, in the cases where a direct question was not feasible, researchers utilized proxies for trust, including ‘being careful,’ ‘taking advantage,’ or ‘helpful,’ etc. For the new context, the proxy of reciprocity as related to trust is used (Blau, 1964).

Table 4

Survey Question Development: Social Capital Trust/ Trustworthiness

Survey questions from previous studies	Graduate network survey questions in study context	Analysis
<p>-As Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? (TRUST)- Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair? (FAIR)-Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?(HELPFUL)” (Smith, 1997).</p> <p>Trustor willing to be vulnerable. Benevolence and competence are two key trust dimensions. “-I assumed they would always look out for my interest. -I assumed they would go out of their way to make sure I was not damaged or harmed. -I felt like they cared what happened to me. -I believe they approach their job with professionalism and dedication. -Given their track record, I saw no reason to doubt their competence and preparation (Levin & Cross, 2004).</p> <p>“-Please indicate the units which you believe you can rely on without any fear that they will take advantage of you or your unit even if the opportunity arises. -In general, people from which of the following units will always keep the promises they make to you?” (Tsai & Ghoshal, 1998)</p> <p>“Like perceived organizational support, trust develops through a social exchange process in which one party interprets the actions of another party and reciprocate in kind. . . The gradual expansion of the exchange permits the partners to prove their trustworthiness to each other. Processes of social exchange, consequently, generate trust” (Blau, 1964, p. 315 in Lester, 2013).</p>	<p>Q9. Indicate your agreement with the following statement: "I believe if I give value to the Center, value is given back to me."</p> <p>Q10. Indicate your agreement with the following statement: "I believe if I give value to members of the Graduate Network, value is given back to me."</p>	<p>For measurement of ‘trust and trustworthiness’ Tsai and Ghoshal (1998) asked about ‘taking advantage’ and ‘keeping promises’ and used in-degree measurements of centrality of the units.</p> <p>In this survey instrument:</p> <p>Q9 and Q10 measure trust as a function of reciprocity. Agreement is measured on a Likert Scale.</p>

Table 5 continues with the same format and contains details of previous and developed questions for the variable Shared Vision. Two questions related to demonstrated and perceived shared vision were created for the new context and utilize a five-point Likert Scale to measure agreement. For the community action network, or graduate network, this asked two different types of questions so that the parent organization could understand the perception of shared vision from two points of reference.

Table 5

Survey Question Development: Social Capital Shared Vision

Survey questions from previous studies	Graduate network survey questions in study context	Analysis
<p>“-Partners have come to consensus on the initiative’s ultimate goal and committed to a shared vision for change” (Preskill, Parkhurst, & Splansky-Juster, 2014).</p> <p>“-Our unit shares the same ambitions and vision with the other units at work. -People in our unit are enthusiastic about pursuing the collective goals and missions of the whole organization” (Tsai & Ghoshal, 1998).</p>	<p>Q7. Indicate your agreement with the following statement for each group: "I believe I share similar civic goals with overall members of this group."</p> <p>The Center My Class Other Forum Cohort Group</p> <p>Q8. Indicate your agreement with the following statement, "The Business/Civic Leadership Forum inspired me to action."</p>	<p>For measurement of ‘shared vision,’ Tsai and Ghoshal (1998) asked two questions (Likert Scale) and averaged the answers.</p> <p>In this survey instrument:</p> <p>Q7 (Likert Scale) will measure the perception of shared vision and Q8 (Likert Scale) will show evidence of shared vision.</p>

Table 6, following the same format, describes the questions and analysis for the variable Resource exchange/Recombination. This variable is interested in the numbers and types of interactions between graduate network members within the last 12 months. The Analysis column includes a note that since the responses to the question asking for the description of the interactions are direct text entry, then a qualitative content analysis would be conducted on those responses. The qualitative content analysis was designed and conducted following the recommendations of Ely and Kyngas (2008) and Hsieh and Shannon (2005).

Table 6

Survey Question Development: Resource exchange/ Recombination

Survey questions from previous studies	Graduate network survey questions in study context	Analysis
<p>"I learned from the people with whom I consulted" (Levin & Cross, 2004).</p> <p>"Informal networks affect knowledge transfer through the association between network structure and organizational performance" (Reagans & McEvily, 2003).</p> <p>"-With which of the following units does your unit frequently exchange important information? -Does your unit offer any product or service to other units? -Have members of your unit been sent to other units to work for them for a joint project? -Which units does your unit feel a special duty to stand behind in time of trouble. To whom do you give support?" (Tsai & Ghoshal, 1998).</p>	<p>Q11. Answer the following questions based on experience with members of YOUR CLASS</p> <p>Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP</p> <p>Q13. Answer the following questions based on experience with members of OTHER FORUM COHORT GROUPS</p> <p>--Indicate the number of individuals in this group with whom you have interacted within the last 12 months</p> <p>--Describe the interactions with these individuals.</p>	<p>For 'resource exchange,' Tsai and Ghoshal (1998) patterned their four questions on Galaskiewicz and Marsden's 1978 question on interorganizational support and measured in-degree centrality. They used Cronbach's alpha to test the level of correlation between the four areas (questions) measured in the Resource Exchange.</p> <p>In this survey instrument:</p> <p>Q11, Q12, and Q13 will determine the resource exchange action of the participant from the number of individuals and the types of interactions described.</p> <p>Since the responses involve direct text entry, then content analysis will be conducted on the responses.</p>

And finally, Table 7 describes the previous and newly developed questions for the variable Value Creation. Q18 asks directly about created value and provides a dropdown menu of items from which to choose. For this construct, the parent organization identified the value items based on their definition of created value and the post-forum actions in which they believed their graduates had engaged. They wished to receive confirmation of the created value and also additional details to inform their understanding of activities in which their graduates were engaged. To do this, they included an 'Other' response and also asked respondents to write in additional details about the value items they selected from the drop-down list.

Table 7

Survey Question Development: Value Creation

Survey questions from previous studies	Graduate network survey questions in study context	Analysis
<p>Perceptions of value; Perceptions of possibility of value (Grundinschi, Hallikas, Kalunen, Puustinen, & Sintonen, 2015)</p> <p>“Total value created is the sum of the values appropriated by any party involved in a transaction” (Amit & Zott, 2001)</p> <p>“-On average, how many product innovations per year were produced in your unit during the recent past?” (Tsai & Ghoshal, 1998)</p>	<p>Q18. When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.</p> <p>Q11. Answer the following questions based on experience with members of YOUR CLASS</p> <p>Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP</p> <p>Q13. Answer the following questions based on experience with members of OTHER FORUM COHORT GROUPS-- Describe the interactions with these individuals.</p>	<p>For the ‘value creation’ Tsai and Ghoshal (1998) counted major product innovations using a single item measurement. The data were validated by the company’s headquarters management. They controlled for business unit size in their analysis.</p> <p>In this survey instrument:</p> <p>Q18 will show evidence of created value through a selection of value items in a dropdown list.</p> <p>Q11, Q12, and Q13 may show evidence of created value as revealed/interpreted from their descriptions.</p>

Scales. The survey instrument was designed to present questions that measure five constructs or variables as described earlier; network ties, trustworthiness, shared vision, resource exchange and created value. As can be seen in Tables 3 – 7, most questions involve a scale of nominal responses through drop down lists and text entry, while others produce ordinal data using a five-point Likert Scale. For example, a question measuring the ‘resource exchange’ asked about numbers of interactions between the participant and graduate network members, while a question measuring ‘shared vision’ asked about the participant’s agreement with a statement with answers ranging from strongly agree, somewhat agree, neither agree nor disagree, to somewhat disagree and strongly disagree.

Validity. A questionnaire survey is a valid method of measuring components of social capital and value creation in social networks as evidenced by previous studies utilizing surveys for this purpose (Engbers et al., 2017; Tsai & Ghoshal, 1998). Construct validity is ensured through a review of the survey questions by two subject matter experts and a pilot test of the survey questions.

Reliability. Because the survey instrument for this study was adapted to a new context and modified from the original set of questions, the Cronbach's alpha for the scales of the instrument was calculated to assess the reliability of the newly constructed scales and the underlying structure of the instrument. Four of the variables were assessed using this analysis, however the value creation variable was not as its measure included only a single item.

Research Design

In this study the researcher was attempting to measure the components of social capital and value creation in a community action network using the Tsai and Ghoshal (1998) study as a framework or lens for assessment. The goal was to learn about the various aspects of the network that impact the value it creates. Since the study was not attempting to prove causation, the selected research design is the most appropriate approach. Similar studies have used this same approach (Lester, 2013; Tsai & Ghoshal, 1998).

Participants

Individuals recruited to the study were the network of 1071 adults who participated in and completed the leadership program of a local non-profit civic-focused organization between the years 2000 and 2018. The leadership program is conducted twice a year, in the Spring and Fall and is offered in a cohort-based format.

Approximately 30 community leaders representing a variety of industries are invited to attend each cohort and complete (graduate from) the several months leadership program. Recruitment to the program is made through formal recommendations of current members and also formal recommendations from local businesses. The organization's 'graduate network' is the focus of the study and so participants may also be referred to as 'graduates.' The organization was chosen as the focus for this study as the structure of the leadership program and the engagement of its graduates characterize it as a community action network external to an organization or firm that potentially creates value. Further, they are also a closed network and so their full membership is known and they have contact information for their members. The organization that hosts the leadership program is referred to as the 'parent organization' or 'The Center'. They outlined their interest in better understanding various characteristics of their network using the study framework and agreed to be an active partner in the project.

All graduate members in the network were informed of the upcoming survey in an email announcement and also at a live hosted event. See Appendix B Communications Strategy for more details on recruitment materials. All graduate members were then invited via email from the CEO of the parent organization to complete the survey. Consenting participants were administered a Qualtrics survey electronically that asked questions regarding their perceptions and specific data related to their participation in the leadership program and possible value that was created as a result.

The parent organization of the leadership program provided incentives that were announced during recruitment. The incentives were an iPad given away in a drawing, as well as branding resources that were distributed to every participant who completed the survey. The incentives were provided in an attempt to increase participation.

Data Collection Procedures

Steps a) through h) were taken as first steps in preparation for collecting research data:

- a) Received study approval from the parent organization for conducting a study on their members;
- b) Created the survey using Qualtrics;
- c) Reviewed questions with the parent organization of the graduate leadership program;
- d) Reviewed survey questions with two experts in the field.
- e) Finalized communications strategy for implementation by parent organization of the leadership program to introduce the survey and encourage participation in its various engagement opportunities;
- f) Secured IRB approval (see Appendix C IRB Document);
- g) Pilot tested the Qualtrics instrument on individuals identified by parent organization;
- h) Finalized survey instrument
- i) Invited research subjects to participate in the survey; CEO sent email to participants with link to survey instrument that contained electronic consent;
- j) Sent reminders to research subjects; CEO sent email to participants reminding them to complete survey;
- k) Response data aggregation and analysis.

Data Analyzed Using Variety of Approaches

The data from this study were analyzed using social network analysis, qualitative content analysis, and quantitative analysis. For the social network analysis, a copy of the

graduate network database was obtained for its demographic data, that was combined with responses to four survey questions (Q1, 2, 16, and 17) that are listed below. These were designed to provide the input for the network visualizations as well as betweenness centrality measurement for the independent variable Interaction Ties.

Q1. Scroll and select the YEAR you attended the Center's Leadership Forum.

Q2. Of the year you selected, please indicate which SESSION you attended.

Q16. Of the individuals whom you named in the previous question (recommended formally), which have participated or will participate in the [Organization's] Business/Civic Leadership Forum?

Q17. Name three (3) members of the Graduate Network whom you believe have contributed most to the value you have received from the Leadership Forum program.

For the quantitative analysis, responses to 11 survey questions (Q1, 2, Q7 – Q13, 18, and 19) were used as measurements for the variables Trust, Shared Vision, and Value Creation. Those questions are listed below:

Q1. Scroll and select the YEAR you attended the Center's Leadership Forum.

Q2. Of the year you selected, please indicate which SESSION you attended.

Q7. Indicate your agreement with the following statement for each group:

"I believe I share similar civic goals with overall members of this group."

- The Center
- My Class
- Other [Organization] Grads

Q8. Indicate your agreement with the following statement: "The Business/Civic Leadership Forum inspired me to action."

Q9. Indicate your agreement with the following statement: "I believe if I give value to The Center, value is given back to me."

Q10. Indicate your agreement with the following statement: "I believe if I give value to members of the Graduate Network, value is given back to me."

Q11. Answer the following questions based on experience with members of YOUR CLASS

- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months

Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP

- Indicate the approximate number of individuals in this group.
- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months.

Q13. Answer the following questions based on experience with OTHER [Organization] GRADS

- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months

Q18. When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.

Q19. Provide additional details about your selection(s) in the previous question.

Data from open-ended, free-text questions (Q11 – Q13) were analyzed using a conventional content analysis process in which keywords (phrases) from the content were identified, categorized and coded following an inductive approach (Elo & Kyngas, 2008; Hsieh & Shannon, 2005). Those questions are listed below. Three raters were utilized to analyze the content, assign the codes and were provided a template and training. This data provided the measurement for the variable, Resource Exchange.

Q11. Answer the following questions based on experience with members of YOUR CLASS

- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months

Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP

- Indicate the approximate number of individuals in this group.
- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months.

Q13. Answer the following questions based on experience with OTHER [Organization] GRADS

- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals in the last 12 months

All data were then analyzed using descriptive statistics of SPSS for the reliability of scales.

Limitations

This study uses the model of social capital and value creation by Tsai and Ghoshal (1998) as the basis of the research measurements. The model was originally used by them to study a network of business units within a firm or organization. This study, however, seeks to understand social capital and value creation in a community action network; a social network of individuals that exists externally to an organization. It is not clear how significantly the contextual differences impact the measurements adapted for this study.

Further the qualitative content analysis that is used introduces limitations. It is possible to misinterpret or miss nuances in the content when developing categories and conducting the analysis (Elo & Kyngas, 2008; Hsieh & Shannon, 2005).

Significance of Study

This study provides a way for those involved in social networks and concerned about their success to be able to analyze the components of their own networks to be able to diagnose problem areas or to develop interventions for failing networks. Further, it serves to validate theories in the research area supporting the framework used in this study and adds new knowledge to the field. Finally, this study identifies additional questions to be answered that point to additional research topics.

Summary

This chapter described the methodology used to answer the research question and help identify the factors of social capital and value creation in community action networks using the graduate network of a local civic organization. An original survey instrument was created following the Tsai and Ghoshal 1998 model that was adapted for the new context. Participants were invited via email to participate in the electronic

survey made up of 20 questions. Data were collected and aggregated using the Qualtrics survey functionality. Chapter Four describes how the data were analyzed using a combination of social network analysis, quantitative analysis, and qualitative content analysis. That is followed by a discussion of the interpretation of results in Chapter Five.

Chapter IV

Results

This study seeks to understand the factors of social capital and value creation in order to assess and evaluate a community action network. Using the Tsai and Ghoshal (1998) framework of social capital and value creation, a local community action network was analyzed. A 20-question survey was administered to the members of the community action network to measure elements of five social network constructs (interaction ties, trust, shared vision, resource exchange, and value creation). The results of the survey plus demographic data from the network database were the basis for the analysis that is described in this chapter. The methodological approach and results of the study are detailed here; their interpretation and discussion follow in Chapter Five.

A Graduate Network as a Source of Data

The community action network in this study is made up of graduates of a cohort-based civic leadership program. The graduate network's parent organization provided their full database of graduates in an Excel spreadsheet. In order to be able to reference individual graduates anonymously, post-data collection, key-IDs were assigned to each of the 1071 members in the database.

Characteristics of the Graduate Network

Of the 1071 graduate network members in the database, representing 35 cohorts over the span of years from 2000 to 2018, 794 members received the graduate network survey link via email from the CEO of the parent organization. This number is considered the survey population for the study. The other graduate network members who did not receive the link either did not have a good email address on file, were designated as 'do not contact' or were identified as deceased. Of those who received the

email and link to the survey, 155 members or 19 percent opened or started the survey with 127 members or 16 percent of the population completing it either fully or partially. Of the 127 records, 83 respondents provided their name and 44 respondents wished to remain anonymous. When asked about their cohort identification, 111 identified their cohort and 16 responded, 'I don't recall' and could not be confirmed. Nearly all cohorts (31 of 35) were represented in the 111 responses with the vast majority of responses (80 percent) from network members who graduated in the last 10 years. The full 127 records are used in the descriptive analysis, while the 83 records of named respondents are used for the social network analysis and statistical analysis of the scales.

Survey Responses

A Qualtrics survey instrument was created for this study and responses from graduate members who piloted the survey were collected. At the survey's end, those records that represented duplications were removed, keeping the most recent record. It was observed that a number of surveys were begun but no answers were provided and so those records were also removed. Partially completed records were kept. For those responses (83) in which the respondent provided a name, the corresponding key-ID from the graduate network database was applied to all records. For those responses (44) in which the respondent wished not to provide a name, an anonymous ID in the format of AXXX was applied as the key-ID. For all responses in which names were provided, either respondent names, referral names or influencer names, a check against the graduate network database was made to confirm that the name provided was in fact in the database and that the name was spelled correctly for the benefit of the Social Network Analysis. It was noted that a number of names were provided but were not in the database. Also, a number of names were not spelled correctly and had to be corrected. In the survey,

respondents were asked to report their year and session of attendance in the Business/Civic Leadership Forum. Their responses were checked against the database for accuracy and correction, if needed. After the data cleaning, files were created for the post-collection analysis (social network analysis, quantitative analysis and qualitative content analysis).

Graduate Network Cohort Groupings

The members of the study network are graduates of a local civic leadership program that is offered in a cohort format, therefore each respondent is associated with a cohort. Although 31 of 35 cohorts are represented in the responses, the n for each are too small to credibly analyze the responses by each cohort and so cohort groupings have been created for analysis. The groupings were made using the logic of equal numbers of cohorts in each group and are designated as follows: Cohort group A are network members who attended the leadership forum in its formative years 2000-2003, inclusive, and have been part of the network for the longest span of time. They are considered the ‘founders’ of the network. Cohort group B attended in 2004-2007. This grouping includes the same number of cohorts as A but has an unusually small n and so it is sometimes left out of the cohort comparisons. Cohort group C attended in 2008-2011; cohort group D attended in 2012-2014; cohort group E attended in 2015-2017. Group F is a single cohort represented by itself and not combined with other groups. Since members of this cohort graduated months before the survey was launched, it is an outlier in its responses (have had little time to interact, make connections and create value, while perception of trust and shared vision might be exaggerated) and so this group is sometimes not included in cohort comparisons. Group F attended the leadership program in 2018 and the shortest period of time, so they are considered the ‘newbies’ of the

network. Cohort group G represents those anonymous respondents who did not identify a cohort but provided responses. Since the measures for the variable Interaction Ties required names for the calculation, then group G is not part of that analysis. Table 9 shows the number and percent of respondents per cohort grouping. In the discussion of each variable that follows are the combined answers of all respondents as well as comparisons of responses by these cohort groupings.

Table 8

Cohort Grouping Details

Cohort Group	Number Cohorts	Grouping Total	Grouping Responses	Percent of Group
2000-2003 A	7	202	18	9%
2004-2007 B	7	201	6	3%
2008-2011 C	8	255	25	10%
2012-2014 D	6	201	28	14%
2015-2017 E	6	178	29	16%
2018 F	1	34	12	35%
No ID G			9	

The number of cohorts per grouping is about 7. Grouping C is made up of 8 cohorts and it was decided not to move one cohort to Grouping D to make both of them equal 7 as that would split up the year 2011.

Reliability of Social Capital Scales

Reliability analysis.

The questions and responses related to each of the five research variables (interaction ties, trust, shared vision, resource exchange, value creation) are detailed along with the reliability statistics for each variable (see Table 8). Analysis was conducted on the individual variables to confirm they are reliable measures for the construct. In Table 8, the Chronbach's alpha are indicated for each of the scales. A score closer to 1.0 indicates reliability with .7 or higher representing high reliability. The measure of Value Creation was made up of a single item and so it could not be measured for reliability.

Table 9

Reliability Statistics for Variables

Variable	Cronbach's alpha
Interaction Ties (5 items)	.397
Trust (2 items)	.763
Shared Vision (4 items)	.749
Resource Exchange (3 items)	.698
Value Creation (1 item)	No scale analysis

In this table, the scale Interaction Ties has a low Chronbach's alpha indicating low reliability meaning that results seen based on these measures could not be reliably replicated. The scales for the variables Trust, Shared Vision and Resource Exchange have high reliability and the measure for Value Creation included only a single item and was not analyzed using this approach.

Analysis and Findings by Social Capital Variable

In this section, the results of the survey responses are presented for each variable, first in total and then by cohort grouping. Findings that have been discovered are included at the end of each of the variable analyses.

Social network analysis for interaction ties.

In social network analysis, interaction ties are measured by various methods including calculating the centrality (betweenness, degree) of network members (Wasserman & Faust, 1994). In simple language, betweenness centrality is the measurement of the instances in which an individual in a network connects previously unconnected parts of the network, and degree centrality is a count of ties or connections of an individual. For this study, the measure of the variable, Interaction Ties, was a combination of the betweenness centrality and degree centrality of members. The betweenness centrality of members was calculated from ties of their cohort (Q1, Q2), the named recommended members (Q16); the named influencers (Q17); and business name (from database). A betweenness score of range 0 to one was calculated for each member using the *Gephi* social network analysis software (Bastian, Heymann, & Jacomy, 2009). Those values ranged from 0 to .046. For the degree centrality measure, several questions (Q11, Q12, Q13, Q16, Q17) asked for counts or numbers of ties that were then added together.

Betweenness centrality for interaction ties.

To aid in understanding relationships between network members that are used in the betweenness centrality, visualizations are utilized in this analysis and were created with the *Gephi* social network tool (Bastian et al., 2009). They can be seen in Figures 6 – 10. To begin, Figure 6 is a visualization of each of the 35 cohorts that make up the

graduate network. It does not represent the respondents, but rather the members that make up the entire network. Members are represented by black dots and their relationships with each of their cohort members are represented with purple lines. Since they each have a relationship with the other in their cohort and that is shown with multiple overlapping lines, the effect is a ‘blob’ of color for each cohort. Cohort sizes range from 15 to 40, but most have about 30 members.



Figure 6. Visualization of 35 cohorts. This figure illustrates all of the 35 cohorts of the graduate network represented by purple subgroupings of individuals. In this figure, purple lines are inter-cohort relationships.

Figures 7, 8 and 9 are similar in that they show visual representations of other particular types of relationships; ‘those recommended for participation’ in blue ties, ‘those who influenced members to action’ in red ties, and ‘those who work together’ in green ties, respectively. In these figures, the cohort remains grouped in clusters of black dots, the purple lines of the cohort relationship have been removed, and each of the other relationships is overlaid the cohort grouping members. The relationships were pre-determined and the survey questions asked for the respondent to identify relevant

members by name. Therefore, the colored ties in these figures represent survey responses. The visualizations provide information from two views. First, is the overall impression from the patterns that are seen and the second, is the information gleaned when looking very closely at individual interactions.

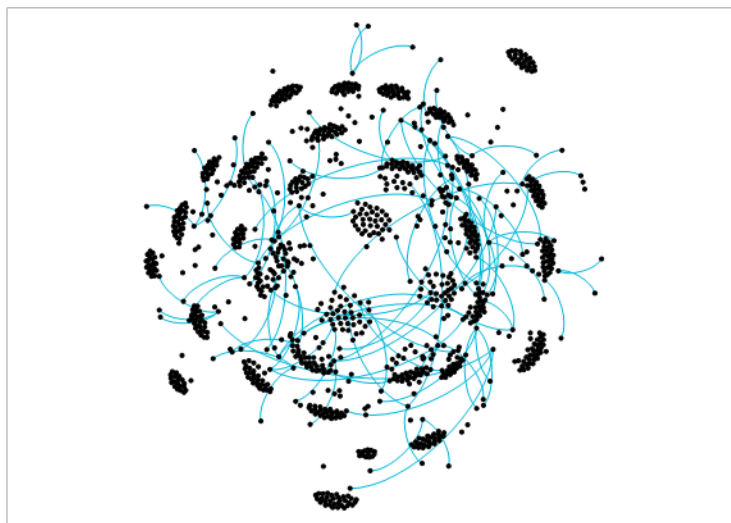


Figure 7. Network members who recommended other network members whom they identified by name. The dots are the members and the blue lines are the recommendations.

In Figure 7, the blue lines show the network members who have been recommended by other network members and in contrast to the cohort relationships that look like a blob of color, the lines in this visualization are easy to see and follow. That is because only about 26% of the respondents (22), identified individuals whom they had recommended. Many of them named individuals who are not associated with a cohort (floating black dot) and could be potential recruits for a future cohort. Since formal recommendations of members is part of the recruitment process, this information is useful to the parent

organization who may wish to find additional ways to solicit and utilize formal recommendations from its members.

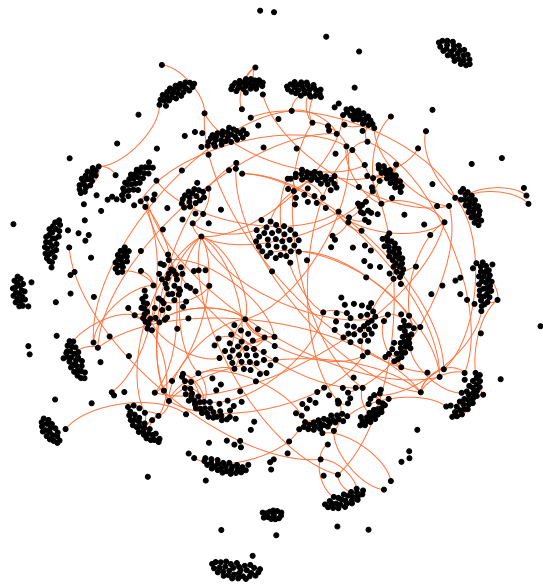


Figure 8. Network members influenced to civic action by other network members whom they identified by name. The dots are the members and the red lines represent the influenced by relationship.

This figure depicts the individuals who were influenced to civic action by network members. About 73% of respondents (61) indicated they had been influenced to action by someone within the network and identified by name those who influenced them most. This indicates that the actions of some members are impacting actions of others, supporting the idea that more network engagement is better. It is interesting to see that although individuals were asked about influence within the network, many were likely to be influenced to civic action by individuals outside of the graduate network (floating black dots with lines). It is possible to identify the individuals in the figure with the greatest influence as shown by a black dot having many lines connected to it. These individuals and cohorts can be revealed using the visualization tool and this information

can be useful to the parent organization who may wish to leverage influencing power of these individuals.

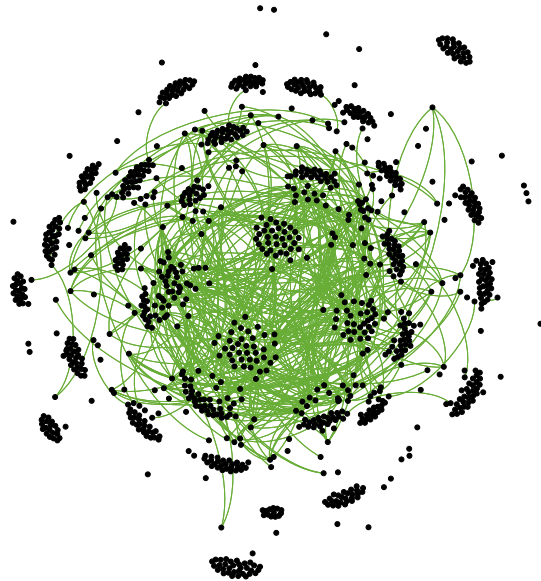


Figure 9. Network members who work at the same employer. The dots are the individuals and the green lines represent the working together relationship.

This figure is a visual representation of those network members who work at the same employer as other network members. This information was taken from the parent organization's database and although the data were already available, when placing it into an image like this, it becomes immediately apparent that employer recommendations are having a big impact on the makeup of the network membership. This information is useful to the parent organization as they plan for future recruitment. Additional relevant information that might be paired with this is the professional domains that these employers represent to determine if one or some are possibly over-represented in the network.

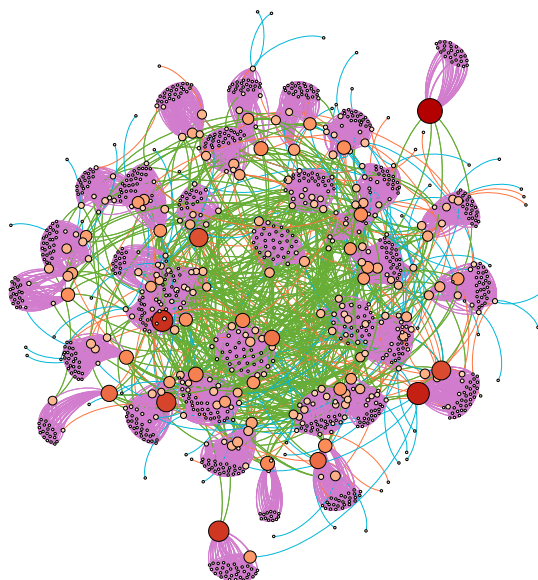


Figure 10. Betweenness centrality. This figure illustrates the betweenness centrality of network members with all variables used in its calculation overlaid on the cohort subgroupings. The lines or edges are the various relationships between individual graduates. The orange-to-rust circles or nodes are the individuals, with the sizes and change in hue of the circles representing the betweenness centrality of each network member.

This interesting-looking figure is the only one that identifies the 83 respondents (circles) separate from the other network members (dots). This is the combination of all four of the previously discussed relationships and those that comprise the data making up the betweenness centrality measure. The size of the circle and the hue of the circle represent the same centrality measurement; smaller nodes are light orange and indicate a smaller centrality, while large nodes are dark rusty orange and indicate a greater centrality. From the visualizations it is apparent which members are more central in the network as opposed to the others. The individuals and the cohorts from which they come can be identified with the social network analysis tool and this can be useful to the parent organization who will wish to know the identities of those who are the most central in their network. A look at the cohort groupings in Table 10 shows the difference in the betweenness centrality scores of cohort groupings starting with the founding members

who have attended the longest, in grouping A, and moving right, over time to those who have joined most recently, in grouping F.

Table 10

Average Betweenness Score of Network Members by Cohort Grouping

A (2000-2003)	B (2004-2007)	C (2008-2011)	D (2012-2014)	E (2015-2017)	F (2018)
0.0157798	0.0153875	0.0086601	0.0077291	0.0064561	0.0049576

The betweenness centrality score introduced a challenge when drafting survey questions that would provide the information needed while being reasonable for the survey-taker. For example, in order to calculate a betweenness centrality score of each respondent, relationships had to be identified and names associated with the relationships provided from the respondents. This was challenging because respondents were required to remember names of individuals as far back as 18 years ago and had no way to recall or be prompted with the names. Also, there was a limit of three names that could be supplied, which automatically limited the number of relationships that were accounted for. The relationships that were named were cohort membership, those individuals whom the members had formally recommended to the program, and those network members who were most influential in their civic action. The employer data for each person was taken from the database and also included in the calculation of the betweenness index. Despite the challenges, the betweenness scores when calculated and compared by cohort grouping (Table 10) do show what one might expect; the network members who have been in the network longest and making more connections over time have on average higher betweenness scores than those who have joined the network more recently.

The visualizations, as an analysis tool, were successful in immediately demonstrating the variety of relationships, patterns of interactions, and the betweenness scores represented. The utilization of visualizations of networks and related interpretations of them can be useful tools for leadership of networks in decision making. Designing survey questions with this visual output in mind is important and should be approached deliberately.

Degree centrality for interaction ties.

Another challenge was adapting the questions in the new context that could have changed the meaning of the questions as compared to the original. Tsai and Ghoshal (1998) asked leaders of business units about which units they spend the most time socially pointing to the type of interaction as important. That was altered in this study's social network context to questions about types of interactions with network members and numbers of interactions over a 12-month period. Those numbers were used for the degree centrality. The question asked about number of interactions with Learning Journey members, Cohort members, and Other Network members and respondents indicated they interacted least with Learning Journey and most with Other Network members. Respondents in the founding and earlier groupings, A and B indicated they were more likely to interact with Other Network members, while groupings C through the newbie grouping F indicated they were more likely to interact with fellow Cohort members. Although the construction of the interaction ties scale was difficult and the reliability analysis of the scale showed a low Cronbach's alpha (.397), the resultant data were nonetheless interesting and useful. In thinking about how to improve the reliability of the interactions ties scale, it was suggested that the survey questions include an intensity measure and that can be incorporated into a future study.

Interaction ties findings.

Finding 1: The members of the graduate network overall or more loosely bound, while the members of the cohorts are more tightly bound.

Finding 2: Actions by and interactions with network members impact the civic action of other network members.

Finding 3: Recruitment of participants to the Graduate Network is resulting in members from the same companies.

Finding 4: The interaction tie measurement needs to be redesigned so that there is a better representation of the relationships.

Finding 5: Visualization tools are helpful in analyzing a community action network.

Trust/ trustworthiness results.

When developing the questions to measure trust, it was originally planned to use a direct question for trust, ie., ‘Indicate your agreement with the statement, I believe the members of this group to be trustworthy in that they would not take advantage of me professionally.’ This is similar to the wording of the trust question by Smith (1997). The leadership of the network’s parent organization opposed this question as they felt that it would actually introduce a fear that network members were being taken advantage of. Therefore, the question was changed to a proxy of reciprocity based on Blau (1964). To aid the survey-taker in understanding the context of the question, it was introduced in the survey as a question about trust. Q9 and Q10 then asked for agreement with the statement, ‘I believe that if I give value (to The Center, to other Network Members), then value is given back to me.’ Reliability analysis of this measure showed a Cronbach’s alpha of .763, which indicates it is a reliable measure. Table 11 details the combined

responses while Table 12 shows the responses to the question about trust of Network Members by cohort groupings for comparison.

Table 11

Survey Question: I believe that if I give value to..., then value is given back to me

Scale	The Center	Network Members
Strongly Agree	44 (34.6%)	33 (25.9%)
Somewhat Agree	50 (39.3%)	66 (51.9%)
Neither	27 (21.2%)	23 (18.1%)
Somewhat Disagree	4 (3.1%)	3 (2.3%)
Strongly Disagree	2 (1.5%)	2 (1.5%)

This table shows that overall, respondents have high trust of both the parent organization (The Center) and of Network Members. When the Network Member responses are broken down by cohort grouping (Table 12), the responses do not show much variability by grouping.

Table 12

Comparison of Cohort Groupings. I believe that if I give value to Network Members, then value is given back to me

Cohort Group	Strongly Agree	Somewhat Agree	Neither	Somewhat Disagree	Strongly Disagree
2000-2003 (A)	4 (22%)	10 (56%)	3 (17%)	0%	1 (6%)
2004-2007 (B)	1 (17%)	4 (67%)	0%	1 (17%)	0%
2008-2011 (C)	4 (16%)	13 (52%)	7 (28%)	0%	1 (4%)
2012-2014 (D)	8 (28%)	17 (61%)	3 (11%)	0%	0%
2015-2017 (E)	9 (31%)	13 (45%)	6 (21%)	1 (3%)	0%
2018 (F)	6 (50%)	4 (33%)	1 (8%)	1 (8%)	0%
No ID (G)	1 (11%)	5 (56%)	3 (33%)	0%	0%

Trust/trustworthiness finding.

Finding 6: Overall there is high trust of network members with the leadership of the parent organization as well as with fellow network members. This is the only variable that showed a consistency in responses across all cohort groupings.

Shared vision results.

For the Shared Vision variable, two questions were presented. One asked about perceptions of sharing similar civic goals with members of three groups and the other asked directly about a shared goal. Q7 asked for agreement with the statement, 'I believe I share similar civic goals with the overall members of this group.' Respondents answered for each of the groups The Center, My Cohort, and other Network Members. Q8 asked for agreement with the statement, 'The Business/Civic Leadership Forum inspired me to action.' Both questions were answered by respondents using a five-point Likert scale of agreement and coded numerically as follows: 1=strongly disagree to 5=strongly agree.

Reliability analysis of the combined measure indicated a Cronbach's alpha of .749 pointing to high reliability in the measure items. Table 13 includes combined responses with respect to the three different perspectives. Table 14 is a comparison of cohort groupings for the same question about sharing a similar goal but only from a single perspective...other Network Members.

Table 13

Survey Question: I believe I share similar civic goals with the overall members of this group

Scale	The Center	My Cohort	Network Members
Strongly Agree	57 (44.8%)	41 (32.2%)	35 (27.5%)
Somewhat Agree	59 (46.4%)	78 (61.4%)	57 (44.8%)
Neither	9 (7.0%)	5 (3.9%)	32 (25.1%)
Somewhat Disagree	2 (1.5%)	2 (1.5%)	3 (2.3%)
Strongly Disagree	0%	1 (.7%)	0%

In this table, respondents agreed or strongly agreed in large percentages that they shared similar civic goals with the parent organization leadership (91.2 percent) and their fellow cohort members (93.6 percent) and showed low neither agree nor disagree percentages of 7.0 and 3.9, respectively, pointing to confidence in the agreement. But that is in contrast with the percentages seen in the responses about Network Members. Only 72.3 percent of respondents agreed or strongly agreed that they share similar civic goals with other network members. A full 25.1 percent indicated they neither agreed nor disagreed. While the differences are not significant and the responses indicate overall agreement with the statement about shared similar goals, the difference seen in the perception of shared goal with Network Members is worth mentioning and in Table 14, that set of responses is further analyzed by cohort grouping.

Table 14

Comparison of Cohort Groupings. I believe I share similar goals with Network Members

Cohort Group	Strongly Agree	Somewhat Agree	Neither	Somewhat Disagree	Strongly Disagree
2000-2003 (A)	4 (22%)	6 (33%)	6 (33%)	2 (11%)	0%
2004-2007 (B)	1 (17%)	2 (33%)	3 (50%)	0%	0%
2008-2011 (C)	7 (28%)	14 (56%)	3 (12%)	1 (4%)	0%
2012-2014 (D)	5 (18%)	17 (61%)	6 (21%)	0%	0%
2015-2017 (E)	10 (34%)	11 (38%)	8 (28%)	0%	0%
2018 (F)	7 (58%)	2 (17%)	3 (25%)	0%	0%
No ID (G)	1 (1%)	5 (56%)	3 (33%)	0%	0%

When looking at the data by cohort groupings, it appears that those in the earliest or first years of the program, groupings A and B show lower overall agreement with the statement about sharing similar civic goals with Network Members as compared to other groupings. This is interesting as the interaction ties data indicate they are remaining engaged, despite this fact.

The results of the second question in this measure, demonstrating a shared goal, are seen in Tables 15 and 16. A stated goal of the parent organization is the expectation of civic action by graduate network members following the completion of the leadership program. This question asks about agreement with the statement that the leadership program inspired them to action and therefore showing demonstration of a shared goal. Table 15 represents results of the combined responses regarding the leadership forum inspiring network members to action, while table 16 is the comparison of cohort groupings for the same question.

Table 15

Survey Question: The Business/Civic Leadership Forum inspired me to action

Scale	Number (Percent)
Strongly Agree	37 (29.1%)
Somewhat Agree	61 (48.0%)
Neither	26 (20.4%)
Somewhat Disagree	2 (1.5%)
Strongly Disagree	1 (.7%)

Here, the combined responses shows that overall a majority of respondents (77.1 percent) agreed or strongly agreed that the leadership program inspired them to action. A moderate number (20.4 percent) neither agreed nor disagreed.

Table 16

Comparison of Cohort Groupings. The Business/Civic Leadership Forum inspired me to action

Cohort Group	Strongly Agree	Somewhat Agree	Neither	Somewhat Disagree	Strongly Disagree
2000-2003 (A)	7 (39%)	5 (28%)	5 (28%)	0%	1 (6%)
2004-2007 (B)	1 (17%)	2 (33%)	3 (50%)	0%	0%
2008-2011 (C)	7 (28%)	13 (52%)	5 (20%)	0%	0%
2012-2014 (D)	9 (32%)	12 (43%)	6 (21%)	1 (4%)	0%
2015-2017 (E)	7 (24%)	17 (59%)	4 (14%)	1 (3%)	0%
2018 (F)	2 (17%)	8 (67%)	2 (17%)	0%	0%
No ID (G)	4 (44%)	4 (44%)	1 (11%)	0%	0%

In the analysis of responses by the cohort groupings, it appears that the network members of the founding or early cohort groupings (A and B) do not share as strong agreement with this statement about being inspired to action as do the network members who joined in the last 10 years. This is similar to what was seen in the responses about shared vision. And again, the result is interesting as the interaction ties data indicate these groups are remaining engaged, despite this fact.

For the two shared vision items, the network members overall believe they share similar civic goals with the organization's leadership and with network members and demonstrated they do share at least one goal of civic action. When compared by cohort grouping, the network members who joined earliest had lower percentage agreement with both shared vision items. This could be instructive to the parent organization who may wish to consider this when developing and communicating their vision.

Shared vision finding.

Finding 7: Over time, the vision of the organization may have changed or is perceived to have changed.

Qualitative content analysis of resource exchange.

The survey questions for the variable Resource Exchange had to be adapted to the new context from the original study in which the questions were focused on interactions within a firm. In their distilled form, their questions were essentially about different types of interactions, and so that is the direction that was taken in developing the survey questions for this study.

For the Resource Exchange variable, respondents were asked in Q11, Q12, and Q13 about their interactions with three subgroups of graduate network members (Learning Journey group, Cohort, Network Members). The question asked, 'Based on

experience with this group, indicate the number of individuals with whom you have interacted within the last 12 months and describe the interactions with these individuals.’ They described their interactions in open-ended free-text-entry responses. Their written answers were interpreted and coded using the conventional content analysis approach as recommended by Elo and Kyngas (2008) and Hsieh and Shannon (2005). Reliability analysis of the combined resource exchange measure indicated a Cronbach’s alpha of .698 pointing to reliability of the scale.

Description of content analysis.

The open-ended survey questions similarly asked for a description of interactions with three different subgroups of network members and so answers were similar in content in order to be categorized. The method for interpreting the responses was not clear cut and so following the expert recommendations found in the two studies, a deliberate stepwise approach to conducting the content analysis, including the use of raters, was taken. Initially it was confusing when one of them stated that from the inductive approach the categories and other levels of ordering the data would reveal themselves, but it actually worked just like that. There were 12 categories of interactions and then a higher order organization of the categories that emerged.

First, all write-in responses were read completely and then from the review of the responses, themes emerged and were noted. The themes were grouped into 12 categories into which all of the responses could be assigned. This is an inductive approach to category assignment as suggested by Elo and Kyngas (2008). It was observed that respondents named up to three and no more than three descriptors of their interactions and so the rating file was organized so that there were three answer columns for each of the three different network groups. Definitions for each of the 12 categories were

developed and corresponding keywords of words or phrases were identified to increase accuracy of rater interpretation and coding of the interactions (Table 17).

A higher order grouping was also derived placing the categories into one of three levels of interaction in order to value the interactions by significance. The higher order groupings of active interactions, passive interactions, and no interactions were assigned a significance value of 2, 1, and 0, respectively (Table 17).

Table 17

Categories of Interactions with Network Members

Category	Significance Value
1. Business relationship/ Professional engagement/ Networking Definition: This is an interaction that is active or intentional and related to sharing a similar business interest, or making business referral; or doing projects where their expertise or interest aligns; or professional networking. The interaction is about a business or professional benefit. The interaction occurs outside of the parent organization events. Business interactions as a result of working for the same employer are part of a separate category. Keywords: Business; Professional; Serve on board (not org); Strategic thinking; Meetings; Client; Networking	2
2. Civic action (shared) Definition: This is an interaction that is active or intentional and the focus of the interaction is related to a civic topic or matter. Keywords: Work on civic topic; Discussion on civic topic; Charitable work; Houston improvements	2
3. Collaborative work Definition: This is an interaction that is active or intentional. It is less focused on the topic and more focused on the action of collaborating. Differs from business/professional that is more about networking. Keywords: Collaborated; Collaborative work	2
4. Information sharing Definition: This is an interaction that is active or intentional and is related to sharing of information or conversing using various communication mediums. Keywords: Information sharing, Social media, Email, Phone calls	2
5. Mentoring Definition: This is an interaction that is active or intentional and for the purpose of one member mentoring another member. Keywords: Mentor, Get advice, assistance	2

6. Social	2
Definition: This is an interaction that is active or intentional and conducted face to face in social settings. It is focused on the social aspect as opposed to a business purpose. Social media is not part of this category. Keywords: Social; Social engagement; Cocktails; Burgers and beers; Informal lunches; Luncheon; Dinner; Happy hour	
7. Fundraising	1
Definition: This is an interaction that is more passive in nature. The interaction between members is as a result of fundraising activities of one to another and so there is an uneven interest in the interaction. Keywords: Fundraising; Charitable work	
8. Organization activity/ Event attendee	1
Definition: This is an interaction that is more passive in nature. The interaction between members occurs as a result of them attending the same events or parent organization activity and is an unintentional interaction. Keywords: Event attendance; (Org) Luncheon; (Org) event; Center activities; Function attendance	
9. Work	1
Definition: This is an interaction that is passive in nature. The interaction between members occurs as a result of them working for the same employer and engaging in work related activities. Keywords: I know them through work; All are part of my company; Work social; Work colleagues; Work with them on a daily basis.	
10. Don't know other grads	0
Definition: No post forum interaction has occurred because respondent does not know other grads. Keywords: I don't know who is a grad; May be a grad but I am not aware.	
11. None	0
Definitions: No other post forum interaction has occurred. Keywords: Nothing; None; N/A; Don't recall	
12. Recent grad	0
Definition: No interaction has occurred because all interactions within last 12 months are related to attendance in the leadership forum. Keywords: Just completed forum; Recent grad; The class interaction; Learning journey	

As an example of the definitions, keywords and significance values, one category of interactions is named **Business relationship/ Professional engagement/ Networking**. It is **defined** as an interaction that is active or intentional and related to sharing a similar business interest, or making a business referral; doing projects where their expertise or interest aligns; or professional networking. The interaction is about a business or

professional benefit to one or both involved. The interaction occurs outside of the parent organization activities. Interactions that are a result of working for the same employer are part of a separate category. The **keywords** or phrases to watch for when interpreting the interactions in this category are business, professional, serve on the board, strategic thinking, meetings, client, and networking. Since the category is about active or intentional interactions, then items in this category are given a **significance value** of two.

After the categories, definitions, keywords and significance values were assigned, then the data were ready to be interpreted and coded. In addition to the researcher, two other individuals or raters were trained individually to review and interpret the responses of the three questions and were provided a template spreadsheet and the definitions, keywords and values. They separately interpreted the content and assigned a code or rating to each of the responses onto the spreadsheet, then compared their work. The initial inter-rater agreement was 87 percent, but then all raters met to identify and discuss differences in their interpretations and found 100 percent agreement.

Table 18 shows the responses to the question, 'Based on experience with this group, indicate the number of individuals with whom you have interacted within the last 12 months and describe the interactions with these individuals.' The significance value shown is related to the categories and the assignment of the interaction significance as described previously.

Table 18

Comparison of Cohort Groupings. Estimated number of network members interacted with over past 12 months and interactions significance

Cohort Group	Total Interactions	Avg. Per Respondent	Significance Value
2000-2003 (A - 18)	175	9.7	1.8
2004-2007 (B - 6)	30	5.0	1.3
2008-2011 (C - 25)	179	7.2	1.5
2012-2014 (D - 28)	407	14.5	1.7
2015-2017 (E - 29)	293	10.1	1.8
2018 (F - 12)	301	25.1	.8
No ID (G - 9)	87	9.7	1.7

In this table, the cohort identification column includes the n for each grouping for a reference point. The analysis by cohort grouping shows the numbers of people whom the members estimated they had interacted with in the last 12 months and the types of interactions. There were a lot of interactions reported and some variability among the groupings. It appears that the members who joined most recently (Groups D and E, excluding outlier F) have interacted with other members in greater numbers than those who joined earlier in the program (Group A).

That is not to say the founding members of the earlier years are not engaged...they are...and their interactions are higher order as seen in the significance value. Remember, the significance value is the score given the types of interactions as described in Table 17. If members are engaged in level 2 activities, these are deliberate and intentional interactions among members, like engaging in a social activity or networking. That is in contrast to level 1 actions that are incidental or not deliberate, such as attending the same event or working for the same employer. The interactions as described by the founding cohorts are at the higher level of interactions. It is not clear

what is motivating the members who have been in the network the longest to remain as engaged, but it may be that the answer is in the continued programming of the parent organization. This may be an area where the data may inform decision making about programming.

The original question asked about interactions over the last 12 months with members of network subset groups, such as the Learning Journey, Cohort and other Network Member groups. When looking at the types of interactions that the network members had with one another within the three different network subsets they did appear to be slightly different by group. For example, when describing interactions with fellow cohort members, the interactions included a lot of social activities, but when describing interactions with other network members outside of their cohort, those were more superficial and mostly involved interactions at the regular events of the parent organization.

Another interesting response when respondents were asked about their interactions with other network members that are not of their cohort, was that they may have unknowingly interacted with other network members not knowing that they were graduates of the leadership program. This type of information provides a greater understanding of how network members view being a member of the graduate network and their ability to identify others, which may influence changes to the organization's programming and communication.

Resource exchange findings.

Finding 8: Members of founding or early cohorts are remaining engaged and with higher order interactions.

Finding 9: Members are engaging in higher order interactions with fellow cohort members and lower order interactions with other network members.

Finding 10: Members may not be able to identify network members outside of their cohorts.

Value creation results.

In preparing the survey questions for this measure, a search of the literature was not so helpful as value creation is typically defined from the context of firms or businesses and not from the context of actions of social networks and their relational aspects of value creation that may be non-tangible (like learning or gaining new knowledge) and thus non-measurable. In the original 1998 survey, Tsai and Ghoshal defined value that was created as new products or innovations of the company, which made measurement simple for them. The approach taken for this study in the new context was to ask the parent organization to define what created value is when considering collaborative action of the graduate network members. This resulted in a couple of interesting conversations about what is considered value and their expectation of the network members for created value. Further it was not clear if value is different from the perspective of the organization vs. the perspective of the network member but if yes, which should be included in the survey responses?

In the end the parent organization identified value items based on what they have seen as post-Forum actions of their graduate network members. They derived a list of items that were used as responses in Q18 that asked, 'When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.' Respondents chose from a drop-down list of seven value items, plus the option for 'Other' as well as the option 'Nothing happened.' It is interesting to note that most of the value items on

their list are actions that do not involve other network members and are individual actions, like running for office, as opposed to collaborative actions. It is also interesting that they did not include donations from graduate network members as a value item as that is part of their goals and programming. See Table 19 for a tabulation of responses and Table 20 for a comparison of cohort groupings in several categories. For study questions in which an ‘Other’ response was provided and written in, those responses were incorporated into the original responses. They are discussed further in Chapter Five.

Table 19

Survey Question: When thinking about your post-Forum actions, please indicate what happened next. Select all that apply

Value Item	Number of Respondents
I formed a continued interaction with those whom I met.	38
I served on the [organization] board or committee.	33
I joined non-profit board.	26
Other.	20
Nothing happened.	17
I joined a post-Forum action group.	11
It changed my life.	7
I ran for office.	2
I started a non-profit organization.	2

Respondents were able to choose multiple items from the drop-down list and so the total of all responses was 156. When the responses ‘nothing happened’ were removed, the total of value items was 139. In the value items list an ‘other’ response was provided in case the drop-down list of value items was not comprehensive and missed something obvious. Of 139 responses, 20 responses of ‘other’ were selected and after a

review of the write-in explanation, it was determined answers could have been categorized into two additional value items: ‘increased knowledge, understanding or awareness’; and ‘created opportunities at my workplace.’ The remainder of the ‘other’ responses were a variant of ‘nothing happened’ but with detail. The survey question also asked for additional details for all responses and those additional details were not analyzed as part of this study but will be for the benefit of the parent organization. The ‘additional details’ narratives contain information about network member attitudes and perceptions as well as suggestions for the future.

Table 20

Comparison of Cohort Groupings. When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.

Cohort Group	Value Items	Avg. Per Respondent	Served on board	Formed interaction	Nothing happened
2000-2003 (A - 18)	17	.94	6	3	3
2004-2007 (B - 6)	11	1.83	1	2	0
2008-2011 (C - 25)	27	1.08	8	7	1
2012-2014 (D - 28)	29	1.04	5	9	9
2015-2017 (E - 29)	49	1.69	10	14	2
2018 (F - 12)	16	1.33	2	3	2
No ID (G - 9)	2	.22	1	0	0

In this table of value creation data by cohort groupings, the *n* for each grouping is included for reference. It is interesting to note that there are periods when network members graduated from the leadership program and did not engage in many activities, but in the last four or five years that trend changed. It is not known how this aligns with events in the history of the organization, but the leadership of the parent organization will know and make sense of those findings.

Value creation finding.

Finding 11: There appears to be a disconnect between parent organization and network members regarding the definition, identification and measurement of value.

Analysis and Findings by Cohort Grouping

Five social network constructs were measured, and the scales analyzed to determine the reliability of the measures after they had been changed from the original context to the new study context. Each of the variables were interesting in different ways during the construction of the survey instrument and in what was learned once analyzed. The analysis in this section is focused on assessing each of the cohort groupings from A to E after putting results of all of the constructs together for each grouping. This approach to analysis provides a snapshot of various aspects of each cohort grouping for even greater understanding of network membership over time. Grouping B is not assessed since the sample size was so small. Grouping F is not assessed as they are considered an outlier group having graduated from the program only a few months before the survey. They have had no time to build relationships, engage in high valued interactions and create value in a way that can be compared meaningfully here. Grouping G also is not assessed as respondents did not identify with a cohort it is not known what years they joined the network.

Cohort grouping A; 2000 – 2003.

The members of cohort grouping A include the founders of the community action network and it is assumed they joined the organization with high enthusiasm and a sense of shared purpose. The measurement of interaction ties with the betweenness index is the highest of all groups, and indicates they have remained engaged over time, bringing new members into the network and connecting parts of the network to otherwise unconnected

parts. In the measure of trust of the network, 78% either strongly agreed or agreed that if they give value, then value is received; while 17% neither agreed nor disagreed. This trust score is high considering the fact that many members of this respondent group have been part of the network for 19 years.

When asked about shared goals with network members, barely half of the respondent group, 55%, either strongly agreed or agreed that they shared similar goals with network members. A moderate percentage, 33%, answered they neither agreed nor disagreed, and nearly 12% of respondents disagreed or strongly disagreed with the statement. It is not known definitively why these scores are seen, but it may be a result of the passage of time with leadership change, adjustment of strategy and programming changes, that a perception of multiple, but not similar goals exists. Or it could be that they are just unsure of sharing goals with this particular group (Network). Consider that their responses to the same question about their fellow cohort members and leadership of the organization netted much different results.

When asked about being inspired to action from participation in the leadership program, a modest 67% indicated they either strongly agreed or agreed to being inspired to action, while 28% indicated they neither agreed nor disagreed with this statement pointing to either a case of not being sure or they had been both inspired and not inspired over the long period of time and could not answer. In a next study, the question could be more explicit by defining a specific period of time. The resource exchange responses are related to interactions with network members, numbers of people with whom they interacted over the last 12 months and the types of interactions in which they engaged. Grouping A identified 175 people with whom they interacted, equaling on average 9.7 people per respondent in that group. That is a moderate average in comparison to other

cohort groupings, however, the types of interactions they engaged were those that are considered deliberate and more meaningful. They showed a significance value of 1.8, on a scale of one to two. So although they engaged in a moderate number of interactions, they were more meaningful. One note about the responses in this group is that some of them indicated they may have interacted with other network members and not known it, and so could not count them.

And finally, the value that this group created, based on the value items that were provided, were on the low end of the range of all cohorts. The total number of value items for this group totaled 17 or .94 per respondent. The majority of value from this group was seen in ‘committee or board service’ and ‘continued interactions with others.’ It is not known why the value items for this grouping was lower than nearly all other cohort groupings, but it may be a function of being the founding cohorts and expectations of membership when they joined. It may also be that the value they created was not included in the dropdown menu.

Cohort grouping B; 2004 – 2007.

The members of cohort grouping B joined the network early in the development of the leadership program. This group is different from the other cohort groupings in that there were curiously few respondents from this period. The fact that there are so few cases in this grouping, point to something very different in the network members who joined during this four-year period.

Cohort grouping C; 2008 – 2011.

The members of cohort grouping C represent those who joined the network midway through the history of the leadership program and network membership. The measurement of interaction ties with the betweenness index is consistent with the timing

of their membership entrance, bringing new members into the network and connecting parts of the network to otherwise unconnected parts. In the measure of trust of the network, only 68% either strongly agreed or agreed that if they give value, then value is received; while a full 28% neither agreed nor disagreed. This trust agreement score is in the low range in comparison to other cohort groupings.

When asked about shared goals with network members, grouping C had the highest agreement percentages of all cohort groupings. A large percentage of the respondent group, 84%, either strongly agreed or agreed that they shared similar goals with network members. Only 12% answered they neither agreed nor disagreed. These numbers represent a contrast with cohort grouping A and the beginning of a new trend in responses to this shared vision question. When asked about being inspired to action from participation in the leadership program, a large majority, 80%, indicated they either strongly agreed or agreed to being inspired to action. A moderate portion of respondents, 20%, indicated they neither agreed nor disagreed with this statement.

The resource exchange responses are related to interactions with network members, numbers of people with whom they interacted over the last 12 months and the types of interactions in which they engaged. Grouping C identified 179 people with whom they interacted, equaling on average 7.2 people per respondent in that group. That is a moderate average in comparison to other cohort groupings, and the types of interactions they engaged in were mixed in significance. They showed a significance value of 1.5, on a scale of one to two. And finally, the value that this group created, based on the value items that were provided, were on the low end of the range of all cohorts. The total number of value items for this group totaled 27 or 1.08 per respondent.

The majority of value from this group was seen in ‘committee or board service’ and ‘continued interactions with others.’

Cohort grouping D; 2012 – 2014.

The members of cohort grouping D represent those who joined the network more recently than midway through the history of the leadership program and network membership. The measurement of interaction ties with the betweenness index is consistent with the timing of their membership entrance. In the measure of trust of the network, a great majority, 89% either strongly agreed or agreed that if they give value, then value is received; and only 11% neither agreed nor disagreed. This trust agreement result is the highest among all groupings and the only one with 0% who strongly disagreed or disagreed with the statement.

When asked about shared goals with network members, a majority of the respondent group, 79%, either strongly agreed or agreed that they shared similar goals with network members, while 21% answered they neither agreed nor disagreed. When asked about being inspired to action from participation in the leadership program, a majority, 75%, indicated they either strongly agreed or agreed to being inspired to action. Again, a moderate portion of respondents, 21%, indicated they neither agreed nor disagreed with this statement.

The resource exchange responses are related to interactions with network members, numbers of people with whom they interacted over the last 12 months and the types of interactions in which they engaged. Grouping D identified 407 people with whom they interacted, equaling on average 14.5 people per respondent in that group. That is a large number and is by a large margin the highest average seen in comparison to other cohort groupings. Further, the types of interactions they engaged in were in the

high range of significance. They showed a significance value of 1.7, on a scale of one to two. Given the level of interactions, one might expect that the value creation results be high, but they are not. The value that this group created, based on the value items that were provided, were on the low end of the range of all cohorts. The total number of value items for this group totaled 29 or 1.04 per respondent. The majority of value from this group was seen in ‘committee or board service’ and ‘continued interactions with others’ and this group had the majority percentage of ‘nothing happened’ answers. A scan of the ‘additional details’ of the value creation responses provided some insight into this result. Many indicated they would like to do more, one, for example asking for guidance and another stating that post-forum engagement never materialized. Others indicated they were already civically active prior to participating in the leadership program.

Cohort grouping E; 2015 – 2017.

The members of cohort grouping E include those who have participated in the leadership program and joined the network in the most recent years. The measurement of interaction ties with the betweenness index is the lowest of the groups compared and is consistent with what one might expect with members who are the newest to the network and have not yet had the opportunity to establish relationships and numerous connections. In the measure of trust of the network, 76% either strongly agreed or agreed that if they give value, then value is received; while a moderate 21% neither agreed nor disagreed. This trust score is interesting in that it is lower than that of grouping D, with a moderate portion of the respondents indicating a neutral response. One might expect an inverse correlation of the trust score with member time in the network, meaning those who joined the network most recently and have the shortest time in service will have the highest trust

score. As a point of confirmation, the agreement results for grouping F, the cohort from 2018 and the most recent members to join the network was 84%. It is unclear why the trust result for grouping E is lower than for D. When asked about shared goals with network members, 72% indicated they either strongly agreed or agreed that they shared similar goals with network members. A moderate percentage, 28% answered they neither agreed nor disagreed.

When asked about being inspired to action from participation in the leadership program, a full 83% indicated they either strongly agreed or agreed to being inspired to action. A small number of respondents, 14%, indicated they neither agreed nor disagreed with this statement. The resource exchange responses are related to interactions with network members, numbers of people with whom they interacted over the last 12 months and the types of interactions in which they engaged. Grouping E identified 293 people with whom they interacted, equaling on average 10.1 people per respondent in that group. That is a moderate average in comparison to other cohort groupings, however, the types of interactions they engaged were those that are considered deliberate and more meaningful. They showed a significance value of 1.8, on a scale of one to two. So, although they engaged in a moderate number of interactions, they were more meaningful.

And finally, the value that this group created, based on the value items that were provided, were on the high end of the range of all cohorts. The total number of value items for this group totaled 49 or 1.69 per respondent, the second highest number of value items of all cohort groupings. The majority of value from this group was seen in 'committee or board service' and 'continued interactions with others.' Significant to grouping E is the variety in the selections of the value items. While most cohort groupings selected a few responses from the dropdown, respondents of this cohort

grouping selected all of the value items and had the most members who selected ‘it changed my life.’ If comparing all cohort groupings with that of the founding members in grouping A, then grouping E would be the cohort grouping most similar in all constructs, except for value creation.

Cohort grouping findings.

Finding 12: The small sample size made analysis by cohort impossible and even the cohort grouping may not be an accurate representation of the population.

Finding 13: The construct of time appears to play a part in perceptions of network members.

Summary

In this chapter, the results of the 20-question graduate network survey were described beginning with a narrative of the characteristics of the study participants followed by the survey results and analysis for each of the five study variables. Although the Tsai and Ghoshal 1998 model of social capital and value creation was used as the framework for this study, this researcher did not seek to replicate or prove the validity of the model. Instead the model is used to assess a community action network, taking a component-based approach to understanding social capital and value creation in that context. In the next and final chapter, the survey results and analysis are discussed.

Chapter V

Discussion

Organizations and academic institutions are increasingly utilizing social networks within and outside of their organizational structures to combine work of members toward a community issue or a social goal. For those groups and their leaders who wish to understand the makeup and actions of the networks in which they are involved, in order to make strategic decisions about them, a mechanism does not exist to formally assess them. This study seeks to understand the social network factors of social capital and value creation in a community action network. Using Tsai and Ghoshal's 1998 model of social capital and value creation, and a set of questions adapted from their survey instrument, a community action network was assessed. This study is not a replication or test of the Tsai and Ghoshal model; however, the model was used as the framework on which the current study measurements and subsequent analysis were based.

The Community Action Network

The community action network that was chosen for this study was the graduate network of a local civic organization that hosts leadership forums in a cohort-based program lasting four to six months each. The process for recruiting individuals to the leadership program (increasing network membership) involves formal recommendations from current graduate network members and from local employers, like banking institutions. The organization has been hosting the leadership forums from the year 2000 until the current time and since then 35 sets or cohorts of graduates have completed the program. In the process of working together on this project, and developing questions for the survey, the leadership of the organization underwent their own transformation in thinking about their network. For example, they had not considered before their

definition of value creation, and so the research journey for them was just as valuable as the resulting data from the study. The number of respondents from the graduate network was 127 or 16 percent and the cases from that number that were used in the social network analysis were the 83 in which respondents provided their name. The results that are seen might have been different had there been a larger response. Further, since the program is cohort-based, then a natural level of analysis is the cohort level. Although there was a high representation of the cohorts (31 of 35 represented), and the cohort groupings revealed interesting information about the network and provided meaningful comparisons, a larger response might have allowed for each cohort comparison. Instead, cohort groupings were established for making comparisons over time.

Measuring Social Capital and Value Creation in the New Context

The Tsai and Ghoshal 1998 model provided a clear way to think about a component-based approach to studying the community action network. In their study, however, they suggest correlations between the several social capital constructs and show them to be true through their study of a network of business units of a firm. There was an initial desire to show that the same correlations are true of a community action network but because of the significant differences between the two contexts it was determined the model did not fit. A cursory review of this study data from that viewpoint revealed that some of the assumptions of the original study were not proved in these results. This study instead focused on determining what measures from their model could be used to develop an assessment tool for better understanding the innerworkings of community action networks.

Implications for Practice and Research

This study utilizes the model and survey questions of Tsai and Ghoshal's 1998 study of social capital and value creation that were adapted to assess a community action network. Several social network constructs were measured using a survey and visualization tools and the results were analyzed. From the analysis, a snapshot of the community action network was made that can aid in decision-making for the leadership of the parent organization. A number of findings, most of them specific to the organization, are listed in Table 21 and described below.

Table 21

Findings and Implications for Practice and Research

Findings	Implication for Practice and Research
Finding 1 Network structure	Implication for practice - organization
Finding 2 Members influence	Implication for practice - organization
Finding 3 Recruitment practice	Implication for practice - organization
Finding 4 Interaction tie measure	Implication for practice and research
Finding 5 Visualization tool	Implication for practice and research
Finding 6 High trust	Implication for practice - organization
Finding 7 Perception of vision	Implication for practice - organization
Finding 8 Founders engaged	Implication for practice - organization
Finding 9 Types of interactions	Implication for practice - organization
Finding 10 Member identification	Implication for practice - organization
Finding 11 Defining/measuring value	Implication for practice and research
Finding 12 Sample size	Implication for research
Finding 13 Construct of time	Implication for research

The findings are based on what was learned in the analysis of each of the variables and the cohort groupings. They are reviewed here and the related implications are then discussed.

Finding 1: Network structure. The members of the graduate network overall or more loosely bound, while the members of the cohorts are more tightly bound. This is seen in the relationships and the types of interactions between members. The implication for the parent organization is they may use this information to provide new opportunities for members with similar interests across cohorts to engage with members outside of their cohorts. Especially in consideration of related Findings 2 and 10.

Finding 2: Member influence. Actions by and interactions with network members impact the civic action of other network members. A large majority of members indicated that other network members influenced them to civic action. The implication for the organization is they may use this information and the identification of the greatest influencers in the network to foster and build on this success through programming and communication.

Finding 3: Recruitment practice . Recruitment is resulting in members from the same companies. The implication for the organization is that this finding does not point to a positive or negative outcome, but rather an observation. The result of recruiting from the same workplace is that membership in the network may not represent the diversity of professionals or expertise that exists in the city. The parent organization can decide if that is a significant factor in their organization and whether they wish to continue their recruitment strategy or expand into different professional domains.

Finding 4: Interaction tie measure. The interaction tie measurement needs to be redesigned so that there is a better representation of the relationships. The implication of this finding to future practice and research is that in the original study, the interaction ties were the relationships between business units of a company. In this study, several relationships between network members were identified and used to develop the measure, but it is not clear if the design of the scale resulted in an accurate depiction of the network ties. For this measure, the identification of each node is important and that requirement proved challenging for individuals who had to remember names and were limited in the number of names they could provide. This is an area to be further developed if one were to replicate this study.

Finding 5: Visualization tool . Visualization tools are helpful in analyzing a community action network. The implications of this finding for practice and research are that visualizations (using the Gephi tool) added a level of analysis that were a valuable complement to the quantitative data. An error of this researcher was not fully understanding at the beginning of the study how important the development of the survey questions was to the quality of the output of the visualizations. This should be instructive for others who plan to use the tool. It is recommended that visualizations be part of social network analyses of this type.

Finding 6: High trust. Overall there is high trust of network members with the leadership of the parent organization as well as with fellow network members. An interesting point is this is the only variable that showed a consistency in responses across all cohort groupings. The implication for the organization is that in research studies, trust is measured sometime with a direct measure and sometime with a proxy measure. In this study, although a proxy was used, it was introduced in the survey as a question about trust and so there is confidence of this researcher that the survey-taker understood the proxy question. The very high agreement with trust, while a positive point of interest, may not be too surprising as the individuals who participated in the survey may have done so because they are trusting of the organization. This is not to say that the parent organization cannot rely on this result as being informative; they can as the result showed consistency among all members no matter when they joined, and that is positive. This is also instructive as it appears that those who trust the organization remain engaged, so a deliberate effort to fostering behaviors that increase trust is encouraged.

Finding 7: Perception of vision. Over time, the vision of the organization may have changed or is perceived to have changed. This has implications for the organization in that the responses to both of the questions about shared vision, the founders cohort groupings had different (lower) levels of agreement as compared with other cohort groupings. This may be a function of the passing of time, with changes in leadership, vision and strategy. The parent organization may use this data to inform communications of their vision in whatever medium it is shared; as well as future strategic planning in which the vision is revised or changed, so that all members, engaged or otherwise are informed. This is also instructive in that the founders are staying engaged despite being in non-agreement about a shared vision.

Finding 8: Founders engaged. Members of the founding or early cohorts are remaining engaged and with higher order interactions. This is an interesting finding that has implications for the organization. Many of the founding members joined the network nearly 20 years ago and may not have a shared vision with the rest of the network but they are remaining engaged and having higher order interactions. The efforts of the parent organization to keep them engaged and interacting with others should be continued and even increased through acknowledgements, formal appointments, etc.

Finding 9: Types of interactions . Members are engaging in higher order interactions with fellow cohort members and lower order interactions with other network members. This has implications for the organization. Data from the responses about interactions are important because it confirms other findings indicating relationships between cohort members are stronger than those between network members not in the same cohort. Although this is a natural outcome of the leadership program delivery, additional effort may be made to encourage cross-cohort engagement that involves collaborative work, social activities or other interactions that are considered higher order.

Finding 10: Member identification. Members may not be able to identify network members outside of their cohorts. This is related to the previous finding and also instructive for the parent organization who may wish to provide mechanisms for members to find others within the network with similar interests or expertise that could be leveraged for their benefit.

Finding 11: Defining/measuring value . It is important to correctly define value creation in order to identify and therefore measure value items. This has implications for future practice and future research. In this study, there appeared to be a disconnect between the expectations of the parent organization and the network members regarding value creation. Even though the organization stated an expectation of network members collaborating on civic-based projects, the list of value items they provided for the survey question about value mostly included items that are pursued individually. Further, the value item that was the most selected was related to continuing an ongoing relationship with people whom they met. This is instructive not only for the parent organization but also for those who might seek to measure the value created from their social network.

The very first step in doing this is spending time deciding what value is, at all levels, from the organization view, the network view, to the member's view and communicating that expectation to network members. After that, one can determine the value items and how to measure them. If this model were to be standardized and used to analyze other social networks, then a set of guidelines would need to be drafted to aid in this aspect of the analysis as each individual network would have different expectations for value creation.

Finding 12: Sample size. The small sample size made analysis by cohort impossible and even the cohort grouping may not be an accurate representation of the population. This has implication for future research. Although the response to the survey was high from the perspective of the parent organization, and at its highest level of analysis provided valuable insights, the responses divided into the cohort groupings may have been too small for credible analysis. If the study were to be replicated and analysis were to be planned for both the macro- and meso-levels as done here, then an approach to securing survey completion at the meso-level needs to be designed.

Finding 13: Construct of time. The construct of time appears to play a part in perceptions of network members. This has implications for future research. What is the function of the construct of time on the activities, interactions, perceptions and outcomes of network members? It is unclear why differences were seen in the responses from cohort members from different periods and it would be interesting to determine if the passage of time is a factor to be considered or if it is the point in time that they joined. This can be instructive for those who are creating survey perception questions when studying social networks in which members have remained engaged for long periods of time.

This study's approach to assessment of the community action network is one that can be replicated in the study of other networks. It has implications for the field because an assessment tool such as this does not currently exist, but could be useful to many other organizations who wish to assess and analyze their community action networks.

Recommendations

The responses to the survey questions for all constructs taken together provide important insights into the perceptions and actions of the community action network members. The new data provides the parent organization with a wealth of information that will be useful in strategic decision-making. For example, when looking at the analysis by cohort groupings for all constructs, it appears that there is a period of time in the network membership when interactions and value creation were somewhat stagnant. Additional analysis of these findings by the parent organization will be useful in identifying the cause/effect relationship between programming and outcomes. Also, results point to areas they may wish to consider when approaching recruitment to the leadership program for more diversity of professional domains in their network. And importantly, the parent organization will want to focus on defining the value they are hoping will be created by their organization, establishing and communicating shared goals as well as expectations for post-forum action. This is significant in the ability to measure outcomes for future growth and funding. Finally, it was observed in some of the comments that network members are not able to identify others outside of their cohorts. That is another area in which to focus with programming like reunions, formal appointments to board or committee seats, and recognition in newsletters and other communications in which members are identified.

Limitations

There are several limitations of this study that must be taken into consideration. The most significant one is the adaptation of the survey questions and measures of the constructs from the original context. Tsai and Ghoshal (1998) measured social capital and value creation in a firm and the level of analysis was the business unit. In the current study, social capital and value creation of a community action network is measured and analyzed at the level of the individual and cohort grouping. The construction of the survey and measurements for each of the variables were adapted for the new context that is very different than the original study. It is possible the adaptation of the questions may have altered the intent or meaning of the measurement inadvertently. The measures for several variables must be redeveloped before the next iteration of the survey. For Interaction Ties, members must have a way to select names of those network members with which they have a relationship instead of trying to remember names. For Value Creation, the parent organization defined what they believed was the value they expected was being created from their network, but it is possible that network members define the value that was created completely differently. Further, the value items they described were those as the result of individual actions as opposed to collaborative network actions. Until better definitions and measures are created to address value creation in community action networks, then inappropriate measures will be utilized. For the Shared Vision questions, a time delineation like 'last 12 months' should be added.

Another limitation of the study is the sample size that was mentioned before and also must be considered by the parent organization as they make decisions based on these results. It was hoped that a per-cohort analysis could also be conducted but the small sample size made that inadvisable. Therefore, analysis was conducted on cohort

groupings, instead. Related to the sample size is the fact that the population of the community action network that is engaged and active and creating value may be the same population that answered the survey and so a bias may exist in the responses. And finally, a limitation of the study is the error that can be introduced when utilizing a content analysis process that is subjective and prone to mistakes of interpretation.

Future Areas for Study

Some of the limitations just described point to several areas for needed future study. The first is the issue of standard measures for Interaction Ties and also Value Creation in this particular context. Once those can be determined then an overall model of social capital and value creation in community action networks can be proposed. It would be interesting to find if the measures used in this study could be replicated in other networks. The process used for the content analysis appeared to work well for this study, and so it would be interesting to know if it would continue to work well in another setting. Also, it would be interesting to find if value creation can be predicted using these constructs, as suggested in the original study. An area of research that is related that might provide further insights into social capital and value creation is the sociologic study of collective action theory.

Conclusions

The research problem motivating the topic of this study is one that has intrigued this researcher for a number of years having observed the phenomenon of community action networks or research collaboratives powered by very smart, hard-working and motivated individuals not producing any value. Although this study does not claim to answer why that happens, it does suggest a way to study component parts of a community

action network, to move beyond theory and provide a practical method for measuring and assessing them in order to make better decisions for their future.

If we go back to the story relayed in Chapter Two about the network in Houston made up of 150 professionals that created no value, we can use this model to understand it from a new perspective. There were a number of people in that network, but there was not a lot of personal engagement except in small pockets and social engagement was not provided for or encouraged. Since most members did not know each other well to begin with, then they more than likely did not have high trust among themselves. They may have been able to articulate a shared vision for the network, but that did not include and was different than the personal vision they had for themselves. Because there was not a lot of member-to-member engagement as opposed to committee-to-member engagement, then there were not a volume of interactions in which the resource exchange would have taken place. Although goals were communicated, a definition of created value was never determined up front and so it is not clear what value, if any, was created from this group. It is not known if emergent relationships were established and continue to flourish today. More data is needed through meaningful and detailed follow-up with members like that conducted with the community action network in this study. What is known is the network did not realize its goals and disbanded. Therefore, we can conclude that understanding the dynamics of networks and value creation through the framework of social capital could have better informed the actions and decisions of its decision makers.

Can a model for assessing social networks like this one be constructed and utilized? This study analyzed a community action network using a new model of social capital and value creation. This study and its model helps to move those who are interested in that question one step closer to an answer.

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Appendix A

Graduate Network Survey Questions

APPENDIX A. Graduate Network Survey Questions

DESCRIPTION OF RESEARCH

This survey is designed to capture information and provide analysis of the Graduate Network from the lens of network science. In particular we are focused on 'social capital' of a network and how it is related to 'value creation' of the network.

This study is important not only for the Center for Houston's Future, but may also provide a way for other organizations to better understand and perhaps predict or direct outcomes from their networks.

Social capital of a network refers to the combined resources of the members in the network. This could be knowledge, expertise, financial assets, etc.

Three components of social capital that are measured in this study are the structural component called **network ties**, the relational component called **trustworthiness**, and the cognitive component called **shared vision**. How are these components related to the value that is created by a network?

Value creation is any new value that is created by a member or by the network as a result of network member interactions.

The questions in this survey are designed to measure these various components.

QUESTIONS

The first set of questions is focused on when you participated in the Center for Houston's Future Leadership Forum. If you attended more than one session, answer the questions thinking about your most recent Leadership Forum.

Q1. Scroll and select the YEAR you attended the Center's Leadership Forum. If you attended more than one session, select year of your most recent Leadership Forum.

- 2000 – 2018
- I don't recall

Q2. Of the year you selected, please indicate which SESSION you attended.

- Spring
- Fall
- I don't recall

Q3. Scroll and select the category that most closely matches your Learning Journey topic.

- I don't recall.
- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy

- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding
- Transportation and Infrastructure

Q4. What civic areas interest you? You may select multiple categories.

- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy
- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding
- Transportation and Infrastructure
- Other

Q5. In what civic areas do you have personal or professional expertise? You may select multiple categories.

- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy
- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding
- Transportation and Infrastructure
- Other

GROUPS DEFINITIONS

During your Leadership Forum experience, you had the opportunity to engage with various groups. It is the actions and interactions within these various groupings that are of interest in this survey.

The Center – The Center for Houston’s Future and its leadership.

The Graduate Network - all individuals who have participated in the Business/Civic Leadership Forum.

Your Class – ~30 member group who participated in the overall Leadership Forum program with you.

Your Learning Journey Group – ~8 member group who participated in a specific Learning Journey with you.

Other CHF Grads – all other members of the Graduate Network who are not in Your Class.

As you recall, social capital is the combined resources available from network members and social capital is broken down into three components.

The next set of questions is focused on the social capital component of SHARED VISION. We want to understand your vision when participating in the leadership forum and how that compared with other members.

Q6. Please indicate your primary reason for attending the Center's Business/Civic Leadership Forum

- Leadership Forum experience
- Connectivity across the network
- To enhance professional position
- Company recommended me
- Did not have clear vision for why I was attending
- Other

Q7. Indicate your agreement with the following statement for each group:
"I believe I share similar civic goals with overall members of this group."

The Center
My Class
Other CHF Grads

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q8. Indicate your agreement with the following statement,
"The Business/Civic Leadership Forum inspired me to action."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The next set of questions is focused on the social capital component of TRUST. Trust can be defined and measured in various ways. In this study, it is defined as a function of **reciprocity**, of value given and value received. It can be anything of value to the recipient, like time, information, consideration, etc...

Q9. Indicate your agreement with the following statement:

"I believe if I give value to the Center, value is given back to me."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q10. Indicate your agreement with the following statement:

"I believe if I give value to members of the Graduate Network, value is given back to me."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The final set of questions is focused on the social capital component of NETWORK TIES and how VALUE is CREATED through NETWORK INTERACTIONS.

Q11. Answer the following questions based on experience with members of YOUR CLASS

- Indicate the number of individuals in this group with whom you have interacted within the last 12 months.
- Describe the interactions with these individuals (eg. Information sharing, collaborative work, social engagement, etc.)

Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP

- Indicate the approximate number of individuals in this group.
- Indicate the number of individuals in this group with whom you have interacted within the last 12 months
- Describe the interactions with these individuals (eg. Information sharing, collaborative work, social engagement, etc.)

Q13. Answer the following questions based on experience with OTHER CHF GRADS

- Indicate the number of individuals in this group with whom you have interacted within the last 12 months
- Describe the interactions with these individuals (eg. Information sharing, collaborative work, social engagement, etc.)

Q14. Have you recommended (formally) other professionals to attend the Center for Houston's Future Business/Civic Leadership Forum?

- Yes
- No

Q15. Please provide the names of individuals whom you have recommended formally to participate in the Center for Houston's Future Business/Civic Leadership Forum.

- Name 1 - First and Last Name
- Name 2 - First and Last Name
- Name 3 - First and Last Name

Q16. Of the individuals whom you named in the previous question, which have participated or will participate in the Center for Houston's Future Business/Civic Leadership Forum?

- Name 1
- Name 2
- Name 3

Q17. Name three (3) members of the Graduate Network whom you believe have contributed most to the value you have received from the Leadership Forum program.

- Name 1 - First and Last Name
- Name 2 - First and Last Name
- Name 3 - First and Last Name

Q18. When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.

- I served on the CHF board or committee.
- I formed a continued interaction with those whom I met.
- I joined a post-Forum action group.

- I joined a non-profit board.
- I started a non-profit organization.
- I ran for office.
- It changed my life.
- Nothing happened.
- Other

Q19. Provide additional details about your selection(s) in the previous question.

END OF SURVEY

D1. The Center asks that you please update your PROFILE INFORMATION. This information will not be included in the survey results or reporting.

Name must be provided to be entered into drawing.

- First Name
- Last Name
- Company Name
- Preferred email
- Preferred phone number

D2. Scroll and select the INDUSTRY in which you work currently.

- Accommodation and Food Services
- Administrative and Support and Waste Management and Remediation Services
- Agriculture, Forestry, Fishing & Hunting
- Arts, Entertainment and Recreation
- Construction
- Educational Services
- Finance and Insurance
- Healthcare and Social Assistance
- Information (Newspaper, Telecomm, Data processing)
- Management of Companies and Enterprises
- Manufacturing
- Oil & Gas
- Other Services (except Public Administration)
- Professional, Scientific and Technical Services (Legal, Accounting, etc.)
- Public Administration (Religious, Civic and Social Organizations, Governmental, Political, etc.)
- Real Estate and Rental and Leasing
- Retail Trade
- Transportation and Warehousing
- Utilities
- Wholesale Trade

R1. Please provide the names and contact information of individuals who might be interested in the upcoming Business/Civic Leadership Forum.

1-First and Last Name

1-Email address

1-Phone number

2-First and Last Name

2-Email address

2-Phone number

3-First and Last Name

3-Email address

3-Phone number

Thank you for participating in the Center for Houston's Future Graduate Network Survey | Summer 2018.

If you provided your name, it will be entered into a drawing for an iPad.

Winner will be notified via email in August 2018.

[Click link for GRADUATE RESOURCES \(Word doc\)](#)

Appendix B
Communications Strategy



GRADUATE NETWORK

SURVEY / SUMMER 2018

Launch & Communications Strategy

The University of Houston and the Center for Houston's Future (CHF) will collaborate on a survey of the graduates of the CHF Business/Civic Leadership Forum in the *CHF Graduate Network Survey / Summer 2018*.

The Graduate Network is made up of approximately 1000 individuals who participated in the CHF leadership program between the years 2000 and 2008. Graduates are provided opportunities to interact and collaborate with other network members through ongoing programming of the CHF. The online survey is designed to gather information on graduate perceptions and network interactions post-graduation. Responses will be reported in aggregate to the leadership of the Center for Houston's Future to inform elements of their strategic planning.

The Center will provide approval to use the distribution list of their Graduate Network, will launch the survey, will facilitate communications to assist with announcements and reminders, and will provide incentives as described below.

All recruitment materials developed by either the University or Houston researcher or the Center for Houston's Future must contain the following statement, "*This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713)743-9204.*"

Branding:

It is understood that the CHF has its own communications professional to address branding. This banner graphic is representation of possible branding of survey for email communication and flyers or promotional media at Leadership Reunion. 'Network' graphic is provided.

Branding Graphic:



Timeline for development and launch of survey

See documents as identified for suggested verbiage

June 2018

- Finalize survey questions in Qualtrics | Test
- Announcement at Event | Leadership Reunion
- Announcement of survey with Summer Salon messaging (A)

July 2018

- IRB approval
- Announcement of Survey in Newsletter (B)
- Announcement at Summer Salon
-

August 2018

- 1st Launch survey with email from Brett (C)
- 16th Review responses in Qualtrics to determine if calls to Graduate Network members will need to be made.
- 24th Reminder of completion in email from Brett (D)
- 31st Conclude survey
- 31st Award the Incentive Gift (iPad)

September 2018

- Begin analysis

December 2018

- Reporting of data

Incentive Gifts

The Center for Houston's Future has offered to provide incentives to potentially increase the percentage of graduates' participation in the survey.

- **iPad** – each graduate who completes a survey and provides a name will be entered into a drawing for a chance to win an iPad.
- **Graduate Resources** – each graduate who completes a survey will receive 'graduate resources' as defined by the Center for Houston's Future that will be auto-delivered upon completion/submission of the survey. This includes an Email signature with live link to CHF, plus verbiage for Vitae and links to social media, etc.

Communications Documents

- Doc A) June - Email announcement that 'survey is coming' (with Summer Salon messaging)
- Doc B) July – Verbiage for Newsletter
- Doc C) August 1 - Email announcement at 'Launch'
- Doc D) August 24 - Email reminder of completion

Survey Design

- Doc E) Consent verbiage
- Doc F) Survey questions

Document A) Email announcement that 'survey is coming'

To: Graduate members

From: Brett Perlman

[Branding Graphic]

Hello members of the Leadership Forum Graduate Network:

I am excited to announce a recent partnership with researchers from the University of Houston to conduct a survey this summer of our graduate network. We are calling this effort the *CHF Graduate Network Survey | Summer 2018*.

The benefit of the survey results to the Center for Houston's Future is the ability to further understand your perceptions of the **value** the Business/Civic Leadership Forum has brought to you, post-graduation. Reported data will be posted and available to you.

We are seeking 100 percent participation of our graduates and encourage your response so that the results of the survey truly represent the perceptions and activities of our unique graduate network, leaders who represent business interests across the region.

In July, you will receive an email message from me with the link to the brief survey and you will have one month to respond.

Please let me know if you have any questions about this message or the survey that is coming soon!

This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713)743-9204.

Document B) Verbiage for announcement in Newsletter

The Center for Houston's Future is partnering with researchers at the University of Houston to engage in a survey of the CFH Graduate Network beginning August 1, 2018, and concluding on August 31, 2018. Communication about the online survey and a link to complete it will be distributed by the CFH.

The purpose of the survey is to understand the perceptions of the Graduate Network members regarding their participation in and outcomes of the Business/Civic Leadership Forum.

The survey will provide an option for participants to remain anonymous. The data will be reported in aggregate and made available to members of the Graduate Network through the portal.

The benefit of this collaboration between UH and the CHF will be the receipt of formally-gathered data that will assist us in programmatic changes or strategic planning. It will also provide a mechanism for measuring future Graduate Network outcomes.

The survey is part of a thesis project of a doctoral student at the University of Houston. The research study entitled, *Factors of social capital related to value creation in a cohort-based network*, seeks to understand how the structural, relational and cognitive components of social capital impact the outcomes, or what is created by networks through their member interactions.

This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713)743-9204.

For questions about the survey, contact

Document C) Email announcement at launch

To: Graduate network

From: Brett Perlman

[Branding Graphic]

Hello members of the Leadership Forum Graduate Network:

Thank you to those members who have expressed an interest in and enthusiasm for our *Graduate Network Survey* being launched here, **today**.

As you may know, we are partnering with researchers from the University of Houston to conduct a brief, yet formal survey of our graduate network. The benefit of the survey results to the Center for Houston's Future is the ability to further understand your perceptions of the **value** the Business/Civic Leadership Forum has brought to you, post-graduation, for our future strategic planning. Reported data will be posted and available to you.

Select this **link today** to take you to the survey of 20 questions. It should take no longer than 12 minutes to complete. Responses will remain confidential and all results will be reported in aggregate. The last day to respond is **August 31st** and a reminder will be sent one week prior to this date.

We are seeking a 100 percent response of our graduates and encourage your participation so that the results of the survey truly represent the perceptions and activities of our unique graduate network, leaders who represent business interests across the region.

Incentives. All graduate members who complete the survey and provide their name will be entered in a drawing to win an iPad and will also receive a set of Graduate Resources.

Please let me know if you have any questions about this communication or the *Graduate Network Survey*. Thank you in advance for your thoughtful participation.

This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713)743-9204.

Document D) Email reminder of completion

To: Graduate network

From: Brett Perlman

[Branding Graphic]

Hello members of the Leadership Forum Graduate Network:

Thank you to those members who have already responded to the *Graduate Network Survey* that was launched on August 1, 2018.

This is a **friendly reminder** to those who still have not yet responded to take a few minutes of your time today to complete the survey.

As you may know, we are partnering with researchers from the University of Houston to conduct a brief, yet formal survey of our graduate network. The benefit of the survey results to the Center for Houston's Future is the ability to further understand your perceptions of the **value** the Business/Civic Leadership Forum has brought to you, post-graduation, for our future strategic planning. Reported data will be posted and available to you.

Select this **link today** to take you to the survey of 20 questions. It should take no longer than 12 minutes to complete. Responses will remain confidential and all results will be reported in aggregate.

The last day to respond is **August 31st**, and so this is the final reminder.

We are seeking a 100 percent response of our graduates and encourage your participation so that the results of the survey truly represent the perceptions and activities of our unique graduate network, leaders who represent business interests across the region.

Incentives. All graduate members who complete the survey and provide a name will be entered in a drawing to win an iPad and will also receive a set of Graduate Resources.

Please let me know if you have any questions about this communication or the *Graduate Network Survey*. Thank you in advance for your thoughtful participation.

This project has been reviewed by the University of Houston Committee for the Protection of Human Subjects (713)743-9204.

Document E) Consent verbiage

[Page 1 of the Survey is the formal consent for Graduate Network members to participate in a research study.]

Thank you for taking part in this survey of the Center for Houston's Future Business/Civic Leadership Forum **Graduate Network**. Your response will provide us with important information about the network and your engagement so we may better understand the value and impact of the Leadership Forum and to inform strategic improvements.

This survey is being conducted from August 1, 2018 through August 31st, 2018 and has been distributed to the Spring 2000 to Spring 2018 graduates of the Leadership Forum, the Graduate Network.

You will be given the option of providing your name and updating your contact information or remaining anonymous.

At the completion of the survey, if you have provided your name, it will be entered into a drawing for an iPad and you will also receive a set of 'Graduate Resources' that will be auto-distributed to you.

It is our desire for 100 percent response of the Graduate Network, so we appreciate your participation. However, choosing not to take part will involve no loss of benefit to which you are otherwise entitled.

The survey contains 20 questions and should take no more than 12 minutes to complete.

The results of the survey will be reported in aggregate with all identifying information (such as name) being removed and kept confidential. The aggregated report will be made available to the Graduate Network.

This survey is part of a doctoral thesis project being conducted at the University of Houston under the supervision of Dr. Robert Hausmann. Title of research study: "Factors related to value creation in a cohort-based social network."

If you have questions related to the survey or the project, please contact the lead researcher Sharon Pepper at sgpepper@uh.edu or Brett Perlman at bperlman@futurehouston.org. For questions regarding IRB policy and protection of human subjects, contact the University of Houston IRB Office.

I have read and understand the purpose of the survey.

- Yes, I wish to participate in the survey.

- No, I do not wish to participate in the survey, however I will update my contact information.
- No, I do not wish to participate in the survey, nor provide an update to my contact information.

DRAFT

DESCRIPTION OF RESEARCH

This survey is designed to capture information and provide analysis of the Graduate Network from the lens of network science. In particular we are focused on 'social capital' of a network and how it is related to 'value creation' of the network.

This study is important not only for the Center for Houston's Future, but may also provide a way for other organizations to better understand and perhaps predict or direct outcomes from their networks.

Social capital of a network refers to the combined resources of the members in the network. This could be knowledge, expertise, financial assets, etc.

Three components of social capital that are measured in this study are the structural component called **network ties**, the relational component called **trustworthiness**, and the cognitive component called **shared vision**. How are these components related to the value that is created by a network?

Value creation is any new value that is created by a member or by the network as a result of network member interactions.

The questions in this survey are designed to measure these various components.

QUESTIONS

The first set of questions is focused on when you participated in the Center for Houston's Future Leadership Forum. If you attended more than one session, answer the questions thinking about your most recent Leadership Forum.

Q1. Scroll and select the **YEAR** you attended the Center's Leadership Forum. If you attended more than one session, select year of your most recent Leadership Forum.

- 2000 – 2018
- I don't recall

Q2. Of the year you selected, please indicate which **SESSION** you attended.

- Spring
- Fall

- I don't recall

Q3. Thinking about your most recent Leadership Forum, scroll and select the category that most closely matches your Learning Journey topic.

- I don't recall.
- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy
- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding
- Transportation and Infrastructure

Q4. What civic areas interest you? You may select multiple categories.

- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy
- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding
- Transportation and Infrastructure

Q5. In what civic areas do you have personal or professional expertise? You may select multiple categories.

- Arts and Culture
- Diversity and Immigration
- Economic Development and Innovation
- Education and Workforce Training
- Energy
- Health and Wellness
- Human Trafficking
- Natural Environment and Greenspace
- Poverty and Income Disparity
- Resilience and Flooding

- Transportation and Infrastructure

GROUPS DEFINITIONS

During your Leadership Forum experience, you had the opportunity to engage with members of the Graduate Network in several groupings (described below). It is the actions and interactions within these various groupings that are of interest in this survey.

The Center – The Center for Houston’s Future and its leadership.

The Graduate Network - all individuals who have participated in the Business/Civic Leadership Forum.

Your Class – ~30 member group who participated in the overall Leadership Forum program with you.

Your Learning Journey Group – ~8 member group who participated in a specific Learning Journey with you.

Other CHF Grads – all other members of the Graduate Network who are not in Your Class.

As you recall, social capital is the combined resources available from network members and social capital is broken down into three components.

The next set of questions is focused on the social capital component of SHARED VISION. We want to understand your vision when participating in the leadership forum and how that compared with other members.

Q6. Please indicate your primary reason for attending the Center's Business/Civic Leadership Forum

- Leadership Forum experience
- Connectivity across the network
- To enhance professional position
- Company recommended me
- Did not have clear vision for why I was attending
- Other

Q7. Indicate your agreement with the following statement for each group:
"I believe I share similar civic goals with overall members of this group."

The Center

My Class

Other CHF Grads

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q8. Indicate your agreement with the following statement,

"The Business/Civic Leadership Forum inspired me to action."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

The next set of questions is focused on the social capital component of TRUST. Trust can be defined and measured in various ways. In this study, it is defined as a function of **reciprocity**, of value given and value received. It can be anything of value to the recipient, like time, information, consideration, etc...

Q9. Indicate your agreement with the following statement:

"I believe if I give value to the Center, value is given back to me."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

Q10. Indicate your agreement with the following statement:

"I believe if I give value to members of the Graduate Network, value is given back to me."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree

- Somewhat disagree
- Strongly disagree

The final set of questions is focused on the social capital component of NETWORK TIES and how VALUE is CREATED through NETWORK INTERACTIONS.

Q11. Answer the following questions based on experience with members of YOUR CLASS

- Indicate the number of individuals in this group of approximately 30 with whom you have interacted within the last 12 months
- Describe the interactions with these individuals in the last 12 months.

Q12. Answer the following questions based on experience with members of YOUR LEARNING JOURNEY GROUP

- Indicate the approximate number of individuals in this group.
- Indicate the number of individuals in this group with whom you have interacted within the last 12 months
- Describe the interactions with these individuals in the last 12 months.

Q13. Answer the following questions based on experience with OTHER CHF GRADS

- Indicate the number of individuals in this group with whom you have interacted within the last 12 months
- Describe the interactions with these individuals in the last 12 months.

Q14. Have you recommended (formally) other professionals to attend the Center for Houston's Future Business/Civic Leadership Forum?

- Yes
- No

Q15. Please provide the names of individuals whom you have recommended formally to participate in the Center for Houston's Future Business/Civic Leadership Forum.

- Name 1 - First and Last Name
- Name 2 - First and Last Name
- Name 3 - First and Last Name

Q16. Of the individuals whom you named in the previous question, which have participated or will participate in the Center for Houston's Future Business/Civic Leadership Forum?

- Name 1
- Name 2
- Name 3

Q17. Name three (3) members of the Graduate Network whom you believe have contributed most to the value you have received from the Leadership Forum program.

- Name 1 - First and Last Name
- Name 2 - First and Last Name
- Name 3 - First and Last Name

Q18. When thinking about your post-Forum actions, please indicate what happened next. Select all that apply.

- I served on the CHF board or committee.
- I formed a continued interaction with those whom I met.
- I joined a post-Forum action group.
- I joined a non-profit board.
- I started a non-profit organization.
- I ran for office.
- It changed my life.
- Nothing happened.
- Other

Q19. Provide additional details about your selection(s) in the previous question.

END OF SURVEY

D1. Please update your PROFILE INFORMATION. This information will not be included in the survey results or reporting.

Name must be provided to be entered into drawing.

- First Name
- Last Name
- Preferred email
- Preferred phone number

D2. Please update your BUSINESS INFORMATION. This information will not be included in the survey results or reporting.

- Company Name
- Professional Title

D3. Scroll and select INDUSTRY in which you work currently

- Accommodation and Food Services
- Administrative and Support and Waste Management and Remediation Services
- Agriculture, Forestry, Fishing & Hunting
- Arts, Entertainment and Recreation
- Construction
- Educational Services
- Finance and Insurance
- Healthcare and Social Assistance
- Information (Newspaper, Telecomm, Data processing)
- Management of Companies and Enterprises
- Manufacturing
- Oil & Gas
- Other Services (except Public Administration)
- Professional, Scientific and Technical Services (Legal, Accounting, etc.)
- Public Administration (Religious, Civic and Social Organizations, Governmental, Political, etc.)
- Real Estate and Rental and Leasing
- Retail Trade
- Transportation and Warehousing
- Utilities
- Wholesale Trade

Appendix C

IRB Document

DIVISION OF RESEARCH
Institutional Review Boards

APPROVAL OF SUBMISSION

July 3, 2018

Sharon Pepper

sgpepper@uh.edu

Dear Sharon Pepper:

On July 3, 2018, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Factors related to value creation in a cohort-based social network
Investigator:	Sharon Pepper
IRB ID:	STUDY00001083
Funding/ Proposed Funding:	Name: Other; Name: Unfunded
Award ID:	
Award Title:	
IND, IDE, or HDE:	None
Documents Reviewed:	<ul style="list-style-type: none">• HRP-503_Pepper v3.pdf, Category: IRB Protocol;• HRP-411.pdf, Category: Consent Form;• APPENDIX C. Signed letter of cooperation 5-2-18.pdf, Category: Letters of Cooperation / Permission;• APPENDIX B. Communications Strategy v.3 .pdf, Category: Recruitment Materials;• APPENDIX A.1.v2 Consent.pdf, Category: Consent Form;• HRP-502e.pdf, Category: Consent Form;• citiCompletionCertificate.pdf, Category: Other;• APPENDIX A.2.v2 Questions.pdf, Category: Study tools (ex: surveys, interview/focus group questions, data collection forms, etc.);
Review Category:	Exempt
Committee Name:	Not Applicable
IRB Coordinator:	Sandra Arntz

The IRB approved the study from July 3, 2018 to July 2, 2023, inclusive.

UNIVERSITY of HOUSTON

DIVISION OF RESEARCH Institutional Review Boards

To ensure continuous approval for studies with a review category of “Committee Review” in the above table, you must submit a continuing review with required explanations by the deadline for the June 2023 meeting. These deadlines may be found on the compliance website (<http://www.uh.edu/research/compliance/>). You can submit a continuing review by navigating to the active study and clicking “Create Modification/CR.”

For expedited and exempt studies, a continuing review should be submitted no later than 30 days prior to study closure.

If continuing review approval is not granted on or before July 2, 2023, approval of this study expires and all research (including but not limited to recruitment, consent, study procedures, and analysis of identifiable data) must stop. If the study expires and you believe the welfare of the subjects to be at risk if research procedures are discontinued, please contact the IRB office immediately.

Unless a waiver has been granted by the IRB, use the stamped consent form approved by the IRB to document consent. The approved version may be downloaded from the documents tab. Attached are stamped approved consent documents. Use copies of these documents to document consent.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

Sincerely,

Research Integrity and Oversight (RIO) Office
University of Houston, Division of Research
713 743 9204
cphs@central.uh.edu
<http://www.uh.edu/research/compliance/irb-cphs/>