Exploring a Multi-organizational Leadership Team's Problem-Solving Styles

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Abstract

As multiple Roanoke based companies began to move out of the region, a large number of community leader began to fear for long-term economic stability. Three of the largest organizations in the region came together to envision a healthcare, education, and life science district on the outskirts of downtown Roanoke. The leaders of the City of Roanoke, Carilion Clinic and Virginia Tech ideated about a mile-long district from Roanoke Memorial Hospital to downtown Roanoke. Their vision was to recruit businesses and industries that were healthcare or life science based or companies that supported these sectors. These sectors were targeted with the hope of attracting knowledge based companies with highly skilled positions that paid higher salaries. The purpose of this qualitative research study was to determine the factors that aided in building a strong leadership team to address economic development issues. The study explored how a multi-organizational leadership team addressed problems by leveraging social capital. The population assessed was the leadership team that is currently leading the Innovation District in Roanoke. A total of 10 individuals participated. All of the participants completed a one-hour semi-structured interview and completed the Kirton Adaption-Innovation Inventory (KAI) as a measure of problem-solving style. Findings of the study include: 1) strong relationships of team members from past experiences form strong teams; 2) through the original members' social networks the multi-organizational team was formed; 3) team members responses reflected their personal KAI scores as they related to team dynamics; 4) mitigation of Problem Bs in this group increased the effectiveness of solving Problem A for this high performing multi-organizational team; and 5) social capital may leverage effective problem solving when there is mutual respect of team members. The limitations of a case study methodology provides findings that may only be attributed to these participants.

Chapter One: Introduction

Background and Setting

The City of Roanoke, Virginia, is transitioning from a blue-collar railroad town with a strong history in manufacturing and transportation to a healthcare and higher education hub. The drivers of this transformation are the City of Roanoke, Virginia Tech, and Carilion Clinic. Because of this collaborative partnership, an innovation district has formed on the edge of downtown Roanoke. As Dr. Timothy Sands, the president of Virginia Tech has explained, "The idea behind an Innovation District is to attract talent that can live, work and play in a region, without the need to commute, who can run into other people of talent just in the routine things you do in a day. It is a physical concentration of talent in the same physical space" (Rife, 2015, para. 37).

After the City of Roanoke assisted Carilion in 2008 to purchase land located across from the hospital, Carilion and Virginia Tech collaborated to form the Virginia Tech Carilion Medical School and Research Institute. The partnership was the first phase in developing Roanoke's Innovation District. The Virginia Tech Carilion Medical School is an example of a triple helix (Etzkowitz, 2002-2011, p. 2) approach, as Virginia Tech, Carilion Clinic, and the City of Roanoke partnered together to form the medical school and the research institute. Throughout the project, the state of Virginia has also been a partner in the project, providing funding and support. Forming a collaborative medical school and research institute provided an opportunity for students and doctors to work closely together for knowledge transfer. Universities throughout the country play a large role in facilitating economic development in their communities and in the states in which they exist. Higher education plays an increasingly critical role in the economic competitiveness of local, state, and national economies (Lane, 2012).

Higher education institutions can act as a bridging actor for public and private partners, and the process of doing so is at the heart of this study.

As the medical school and research institute quickly grew the leadership team recruited other industries and businesses; such as, technology businesses, an entrepreneurial acceleration center, pharmaceutical companies, entertainment, and recreation. Through strong and weak ties that the leadership team had, the innovation district began to form. As Katz and Wagner (1996) have explained, "The social ideals of innovation districts are unlike customary urban revitalization efforts that emphasize the commercial aspects of development, innovation districts help their city and metropolis move up the value chain of global competitiveness by growing the firms, networks, and traded sectors that drive broad-based prosperity" (p.2). The goal of the project is to create a district that will stimulate development, recruit talent, and develop a sustainable economic development model for the Roanoke Valley.

As the District is underway, it keeps expanding as multiple local organizations are now contributing; including, Virginia Western Community College, Jefferson College of Health Science, the Roanoke-Blacksburg Technology Council, and the Roanoke Higher Education Center. The community leaders that began the project used their regional ties as a starting point in their social networks to recruit diverse leaders from public and private sectors to help plan and implement the project. Just as Moran (2007) explained, "Multi-organizational projects will be expected to accomplish more and more in the future, because organizations need to integrate their skills and resources in a highly competitive environment" (p. 20).

After forming a strong group to lead the Innovation District project, the team will need to use it's social capital to leverage the initiative for growth and sustainability. As the project expands, there will be a need to recruit more public and private partners to provide expertise and

resources. As Clark and Feldman (2000) have suggested, "It has become foundational in economic geography that firms co-locate in order to share common infrastructure and labor markets, to take advantage of locally embedded technologies, production processes, and institutions, and to reduce transportation and transaction costs" (p. 672).

Statement of the Problem

It is vital for the leaders of the Innovation District in Roanoke, Virginia, to have strong team dynamics through effective problem solving for economic progress. A variety of academic literature currently addresses multi-organizational collaboration, problem solving, and social capital. However, to date, little research has been conducted to define how multi-organizational leadership teams successfully leverage social capital to address economic development issues. Further, there is little research examining how personality characteristics, such as problem-solving style of the organizational representatives, are connected to large-scale multi-organizational change.

As members began to recruit new members, they were conscious of bringing diversity into the group. They wanted a diverse representation from organizations, gender, ethnicity, and status. However, problem-solving styles were not consciously considered during the recruitment process. While many business consultants have anecdotal evidence of the importance of problem-solving style to be included as a measure of diversity in building social capital, there is little research conducted to date to provide evidence supporting these perceptions.

Purpose of the Study

The purpose of this case study is to explored how a multi-organizational economic development leadership team may solve problems by leveraging social capital among it's members. In order to do so, first a KAI practitioner identified team members' problem solving styles. Then, being blind to identified KAI scores, I interviewed participants to explore how team member's problem-solving styles may connect to the effective management of diversity of thought that arises in groups of decision makers for the purpose of improving internal social capital.

Project Objectives

This analysis addressed the following:

1. What are the characteristics of the team members and their collective goals for the Innovation District?
2. How do the team member's individual problem solving styles relate to personal reflections on team dynamics?
3. How are team members using social capital to form a diverse group to address problems associated with developing the innovation district?

Definition of Terms

Adaption-Innovation Theory (A-I Theory)- A-I Theory is founded on the assumption that all people solve problems and are creative- both are outcomes of the same cognitive function. The theory distinguishes between level and style of creativity, problem solving, and decision making and provides insight into how more adaptive and more innovative individuals work together to solve problems and manage change.

Coping Behaviors- A learned technique available from cognitive resource; it occurs when behavior needs to be in a style not in accordance with an individual's preferred style of solving problems.

Innovation – Innovation is solving a problem by first altering the cognitive structure to develop a solution, which provides space for the structure to be developed through refinement and modification (Kirton, 2011).

Innovation District- An innovation district consists of anchor institutions and companies that cluster and connect with start-ups, business incubators and accelerators in a geographic area that is transit-accessible and technically-wired (Katz and Wagner, 1996). While the word innovation in describing an innovation district has similarities to Kirton's definition of innovation, in that multiple organizations collaborating in this way may be paradigm breaking, it should be noted that more adaptive individuals are equally needed in the problem-solving process of forming an innovative district.

More Adaptive –Kirton (1994) has characterized more adaptive individuals by, precision, reliability, efficiency, prudence, discipline, conformity. He has suggested that more adaptive individuals possess the following characteristics:

- Adaptive individuals seek solutions to problems in tried and understood ways.
- Adaptive individuals minimize challenges by improvement and greater efficiency, with maximum of continuity and stability.
- Adaptive individuals are seen as sound, conforming, safe, and dependable.
- Adaptive individuals seem impervious to boredom and are able to maintain high accuracy in long spells of detailed work.

More Innovative - Kirton (1994) has characterized the more innovative individuals as, undisciplined, thinking tangentially, approaching tasks from unsuspected angles. He has argued that more innovative individuals possess the following characteristics:

- Innovative individuals are said to be more likely to discover problems outside the paradigm and discover awareness of respective solutions.
- Innovative individuals can be seen as abrasive, unsound, impractical and often shock more adaptive individuals.
- Innovative individuals are capable of detailed routine (system maintenance) work for only short periods of time.
- Innovative individuals are quick to delegate routine tasks.

Problem A and Problem B - The problem in which a group comes together to solve may be called Problem A. The group coming together to address Problem A encounters more problems due to the differences of perceptions among its members on how to solve Problem A, which are labeled Problem Bs. These Problem Bs are distractions from solving Problem A, and arise when different interests of team members surface as various group members gain perceived privilege that outweigh and overrule the agreement to address Problem A (Kirton, 2011; Creed, 2010). There may only be one Problem A for the group to focus on, as two Problem As leads to a Problem B. However, there may be multiple Problem Bs,

Social Capital - The central proposition of social capital theory is that networks of relationships constitute a valuable resource for the conduct of social affairs, providing their members with a collectively owned capital, a 'credential' which entitles them to credit, in the various senses of the word (Bourdieu, p.199).

Triple helix - The triple helix denotes the relationship between universities, industries, and governments as one of relatively equal, yet interdependent. Universities, industries, and governments relations are emerging from different institutional starting points in various parts of the world, but for the common purpose of stimulating knowledge-based development. Older development strategies, whether based primarily on the industrial sector, as in the US, or the governmental sector, as in Latin America, are being supplemented, if not replaced, by knowledge-based development strategies, drawing upon resources from the three spheres. (Etzkowitz, 2002-2011, p. 2).

Limitations of the Study

This case study was limited by the access to Innovation District leaders due to their availability and schedules. The researcher allowed three months to conduct interviews in the hope that all participants invited to participate would be available during that period. There are also limitations to the methodology of a case study that are considered in the research. Case studies have been faulted for their lack of representativeness and the lack of rigor in the collection, construction, and analysis of the empirical materials that give rise to this study" (Hamel, 1993). Thus, findings based on this study are limited to this team of available individuals. Also, this study is only a snapshot of a team working towards developing the Roanoke Innovation District. There may have been contrary findings prior to this study and after this study as the team continues to work together to form the Innovation District. Thus, this study should not be generalized to other Innovation Districts of it is only a snap shot of information.

Basic Assumptions

In completing this research, my assumptions included that study participants would provide trustworthy information. Interview questions were directly related to team problem

solving and the creation of the Innovation District so the participants understood the purpose of the study. Also, the individuals representing the institutions were equal players in the formation of the team and each operated as independent problem solvers working in collaboration with fellow team members.

Significance of the Problem

I aimed to understand how multi-organizational leadership teams address problems by leveraging social capital, specifically to have an impact on an economic development project. With the aim to improve the economy in the Roanoke Valley, a strong team with understanding of each other was needed to develop the Innovation District, thus the reason for the team to be aware of different problem-solving styles among its members. By understanding the approach that each person takes to problem solving, the differences in the problem-solving styles of individuals, and the relationship(s) among members, the team may ultimately take an inventory of their members to understand the type of person to recruit. New members can fill gaps between two problem solvers' styles, as well as improve trust and understanding for each other. People form multidisciplinary teams because of expertise and skillsets; however, few form teams based on individuals' problem solving styles. Through interviews and a problem solving assessment, this study provides evidence concerning how style as a key variable of interest affects the collaborative process. See chapter three for more on this study's research methods.

Chapter Two: Literature Review and Theoretical Framework

This chapter outlines concepts comprised in building the case for the study. It begins with an exploration of innovation districts and a review of what is known about problem solving in multi-organizational leadership teams. In this case, it is important to understand how multi-organizational teams approach problem solving, address large economic problems, and build a sustainable foundation. The case study used the KAI (Kirton's Adaption-Innovation Inventory) to determine the individual problem solving styles of an innovation district's leadership team: which will lead to comparing their problem-solving styles to interviews conducted. This step will permit analysis of the team's ability to resolve Problem Bs for the purpose of solving Problem A, while understanding how those more adaptive and more innovative are coping on the team. Further, this study focused on how a team addressed problems for success and how leaders and actors contributed to the project's sustainability of a project.

Team problem solving may lead to stronger relationships which will play a crucial role as the Innovation District matures in Roanoke, encouraging cross collaboration between academia, healthcare institutions, technology, high tech manufacturing, etc. As new ideas move outside of a single organization, lateral relationships across boundaries, rather than hierarchical bureaucratic structures, become more important (Etzkowitz, 2002-2011).

Innovation Districts

An innovation district consists of anchor institutions and companies that cluster and connect with start-ups, business incubators, and accelerators in a geographic area that is transit-accessible (Katz and Wagner, 1996). According to Lengrand and Chatrie (1999), "Productivity is no longer seen as an ''additional productivity of operations,'' but instead as a ''systemic

productivity of relations'' where a firm's competitiveness depends on the productivity of its ''interfaces'' or ''interactions.''

Innovation districts contain economic assets, physical assets, and networking assets. Economic assets are the firms, institutions and organizations that drive, cultivate or support an innovation-rich environment. Physical assets are the public and privately-owned spaces; which are buildings, open spaces, streets and other infrastructure designed and organized to stimulate new and higher levels of connectivity, collaboration, and innovation. Networking assets are the relationships among actors, such as among individuals, firms, and institutions, that have the potential to generate, sharpen, and/or accelerate the advancement of ideas. When these three assets combine with a supportive, risk-taking culture they create an innovation ecosystem, which facilitates idea generation that may accelerate commercialization (Katz and Wagner, 1996). See Figure 1.

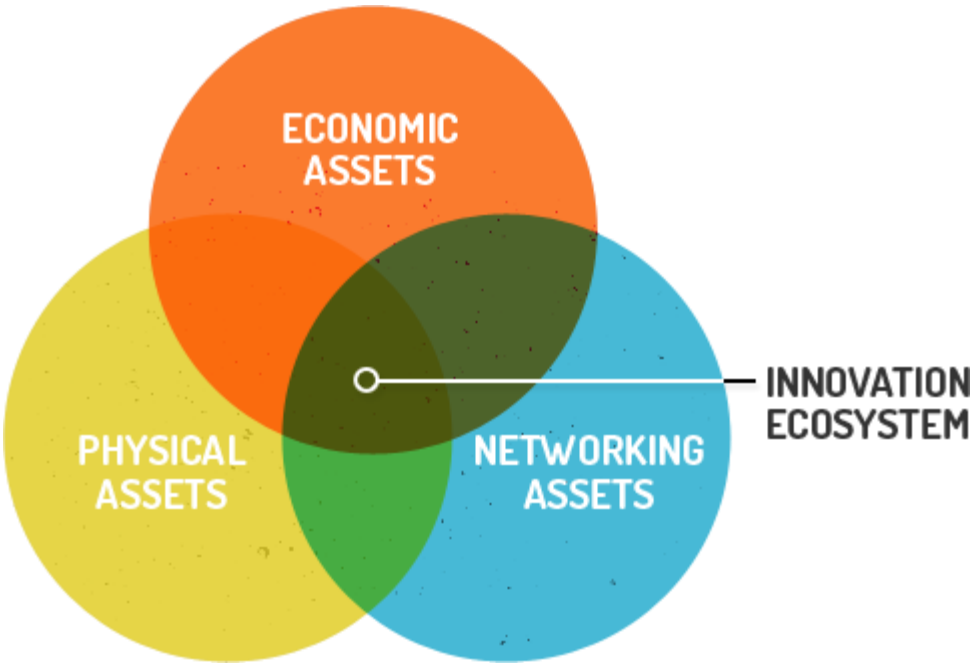

Figure I. Innovation Ecosystem (Katz and Wagner, 1996)

The development of innovation districts has gradually shifted the discussion from co-location of producers to co-location of innovators (Clark 2010). As traditional economic development models are struggling in some cities, the idea of an innovation district can spark an alternative way of attracting and retaining talent and companies. Another attractive component of an innovation district is the accessibility to restaurants, shopping, entertainment, and outdoor recreation. As Katz and Wagner (1996) suggest, "Our diverse population demands more and better choices of where to live, work and play, fueling demand for more walkable neighborhoods where housing, jobs and amenities intermix" (para. 3).

Multi-Organizational Leadership Teams

As local government, higher education, and healthcare institutions collaborate, there is a better chance for long-term community growth and financial sustainability. Moran (2007) has explained, "In the case of multi-organizational projects, individual organizations engage in interactive processes to accomplish a project, combining resources and expertise not possessed by a single organization, developing a "collaborative advantage," which might help them to achieve organizational objectives that otherwise could not be achieved."

Lowndes (1998) has observed, "The growth of multi-agency partnerships form part of a strategy to open up local decision-making processes." Working together offers organizations the possibility for improved delivery of individual objectives and the creation of new opportunities (Huxham 1996; Carley 1991). However, Moran (2007) warned that multi-organizational projects present specific challenges to management because they require collaboration of diverse organizations with their own goals for the project. As multiple established organizations collaborate, new opportunities arise. However, it is important as groups collaborate they manage diversity to solve Problem A and mitigate the Problem Bs.

Adaption and Innovation

In order to understand and manage the diversity of problem solving styles, it is pertinent to apply adaption-innovation (A-I) theory. Kirton (2011) has used the terms more adaptive and more innovative to position individuals on a continuum to understand their need for structure while problem solving. A-I theory suggests all people have a unique problem-solving style used to frame their respective view of the problem to be solved (Kirton, 1976). Kirton postulates that everyone is creative and able to solve problems. However, since everyone approaches problem solving differently, in their own style, it may be challenging to solve complex problems collectively. To identify how one prefers to solve problems, Kirton developed the KAI to measure problem-solving styles of individuals, which offers insights into how individuals work in teams and manage organizational change. By understanding each other's problem-solving style, which does not relate to motivation, culture, or intelligence, teams are able to create strategies for success recognizing that key individuals may be leveraged because of their unique perspective on the problem to be solved.

The KAI is a psychometric instrument with completer's scores ranging from 160 to 32 points with a general population mean of 95 points. People that have a KAI score between 95 and 160 points are considered more innovative while scores between 95 and 32 are considered more adaptive, with respect to the general population (Kirton, 2003). The more adaptive prefer problems to be associated with more structure and the more innovative prefer solving problems with looser structure. More adaptive individuals tend to approach problem solving within theories, policies and paradigms, then work to improve the current system. Those who are more innovative are more likely to disregard the current structure and change it completely as a way to problem solve. For example, in terms of rules of the road for drivers, the more adaptive prefer

the structure of speed limits, stop signs, and traffic lights to enable their preference to get from one place to another. They appreciate the rules as they see them as a way to preserve order and keep people safe. However, the more innovative may see the rules as constricting and limiting in preventing their preference of where they want to go and how fast they can get there. Problem solvers working together must agree on the structure with a desired degree of enabling and limiting. The structure agreed upon works until a new problem emerges in which the structure needs to be renegotiated. This example of driving is provided not to indicate that more adaptive or more innovative have different attitudes towards driving, but rather that the more innovative prefer to see the limits of structure and the more adaptive prefer to see the enabling of structure (Kirton, 2011).

The difference in KAI scores between two people is not as noticeable if their scores are less than ten points apart. If scores are ten or more points apart, then diversity in problem solving style becomes apparent. Increasing the point spread between two people along the KAI continuum increases the effort needed to work together, as Kirton (2003) explained, "At 20 points, difficulties in mutual understanding and collaboration begin to become apparent; after that, the difficulties seem to rise steeply rather than linearly" (p. 230).

Each person on a team has his or her own individual problem solving style and is an agent of change (AC^1) (Kirton, 2003). The consensus group within the team is composed of individuals within ten points on either side of the group's KAI mean score with each individual designated as an AC^2; and those individuals located beyond this subset are described as AC^3s. As the team evolves and changes players, people within the team can change from an AC^2 to an AC^3 depending on who is on the team.

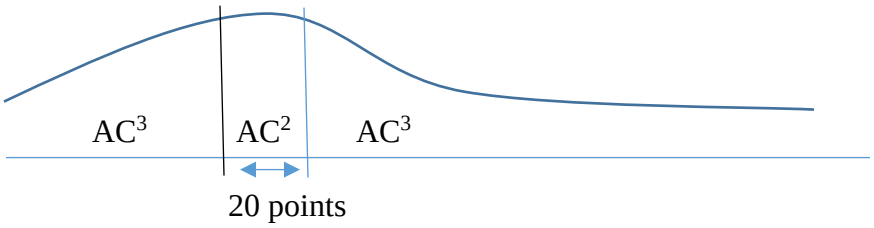

Figure II. Agents of Change

Kirton (2011) describes the process of operating outside one's natural problem-solving style as a "coping behavior", which is comprised of techniques one learns and exhibits if motivated to use the learned techniques to solve the problem at hand. One may cope for a period of time to adjust to operate more adaptively or more innovatively, but it will create stress for the team member. To relieve stress, a bridger may be used to assist in the coping process (Kirton, 2011). A bridger is a team member with a social role to work as a liaison between the more adaptive and more innovative team members to communicate successfully to both sides of the continuum. This may be a vital role in team problem solving. Kirton (2003) explains, "Bridgers, like good leaders, play a significant role in group cohesion and thus to the diminution of Problem B, permitting added focus on Problem A" (p. 247).

As people come together to solve a problem, the identified challenge is called Problem A (Kirton, 2011). As a team, other problems will arise and may get in the way of solving Problem A, which are Problem Bs (Kirton, 2011). As Kirton (2003) has explained, "Individuals have two problems when collaborating: to solve the problem requiring their collaboration (Problem A) and the management of each other (Problem B); successful groups spend much more energy on Problem A than Problem B" (p 205). The objective of any such process should be to expend more time and other scarce resources on solving Problem A than on solving Problem B (Kirton, 2003).

However, the particular case of multi-organizational projects present specific challenges to management because, to be successful, they require collaboration of diverse organizations with their own objectives regarding the project, and with probably different strategic goals and priorities (Jones et al. 1998). It is important for a team to work towards a common mission and a set of long-term goals to address Problem A, the reason that they came together in the first place. This task may become easier if the team understands each other's problem-solving styles.

Kirton (2011) has termed the generation of ideas, methods, products, and processes which are paradigm consistent as adaptive, and paradigm breaking ideas are defined as innovative. The general population uses the word innovation in a slightly different way than the way that Kirton defines innovation in A-I theory. In popular culture, the word innovation does not distinguish between Kirton's definitions of innovation and adaption, as both innovative ideas and adaptive ideas may be novel and solve problems. With respect to A-I theory, innovation is solving a problem by first altering the cognitive structure to develop a solution, which provides space for the structure to be developed through refinement and modification (Kirton, 2011). Adaption, on the other hand, is first refining the cognitive structure with a solution geared towards efficiency, which thereby alters the cognitive structure through modification (Kirton, 2011).

Leveraging Social Capital to Build Stronger Communities

Social capital has two components: first, a resource that is connected with group membership and social networks, and second, a quality produced by the totality of the relationships between actors, rather than merely a common 'quality' of the group (Bourdieu, 1980). A social network may construct groups to address complex problems and take steps to solve the problems. Social capital allows individuals to resolve collective problems more easily

(Moran, 2007). It refers to the norms that enable collective action which creates the base for inclusive growth and sustainable development (Soumyananda and Dinda, 2014). According to Putnam (1993), social capital serves a number of functions such as allowing citizens to resolve collective problems more easily, greasing the wheels that allow communities to advance smoothly, and widening our awareness of the many ways in which our fates are linked.

High levels of social capital may lead to relationships that are more effective and help adapt organizational structure to technology and market needs (Fukuyama, 1995). The use of social capital may create an ecosystem that encourages collaboration, cooperation, and expansion. A study by Rocha et al. (2010) found that companies with higher social capital are more innovative, both in process and product innovation; noting Rocha et al.'s definition is aligned with the commonly held views of innovation, not Kirton's (2011) definition of innovation as previously presented. As Katz and Wagner (1996) have posed, "The inclusion of networking as its own asset category is supported by a growing body of research that reveals how networks are increasingly valuable and prolific within innovation-driven economic clusters." (p. 13)

As Landry et al. (2000) have observed, "In the social network theories, innovation results from combinations of tangible forms of capital in conjunction with intangible forms of capital characterized by disorderly and sustained interactions occurring between firms and diversified sets of actors. (p. 6)" In their study on social capital and innovation that involved 440 industrial companies, Landry et al. (2000) concluded that different dimensions of social capital have a positive impact on innovation through collaborative problem solving.

As the Innovation District's leadership team formed, the original members used social capital to recruit new team members with specific skillsets to aid in the team's success. By using

their strong and weak ties, the original leaders have recruited a respectable group of regional leaders.

A Triple Helix Approach

The partnership among universities, government and industry, and the innovation that is stimulated from this relationship is called a triple helix approach. The triple helix approach may develop a fluid exchange of ideas and technologies, with fewer barriers between academia and industry for information flow (Etzkowitz, 2002-2011). It has been applied in various contexts to analyze how much knowledge production is associated with technological development (Shin, Lee and Kim, 2012).Figure II

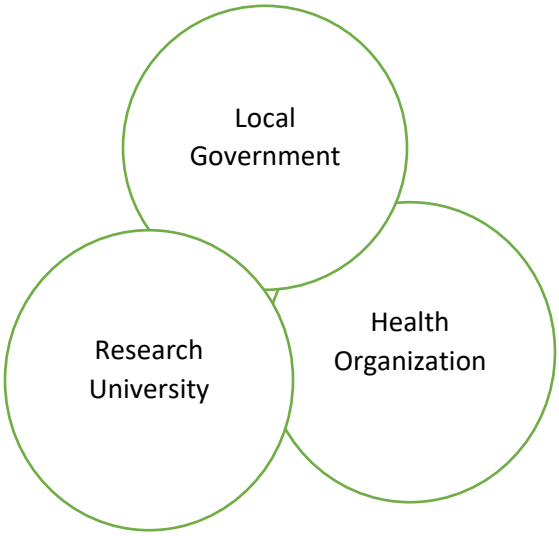

Figure III. Triple Helix Model (Etzkowitz, 2002-2011, p. 4)

In this development model, institutional spheres overlap and collaborate and cooperate with each other. As Etzkowitz (2002-2011), has observed, "This is different from previous industrial parks and planning models, where each company operated separately and did not collaborate on a regular basis (p.4)." Recent triple-helix research expands the research scope

from a simple partnership between similar entities to cross sector partnerships (Shin, Lee and Kim, 2012). As regions have sought to create a self-reinforcing dynamic of knowledge-based development, hybrid organizations such as technology centers and virtual incubators have been created (Etzkowitz, 2002-2011, p 11).

By forming partnering relationships between the City of Roanoke, Carilion Cilinic, and Virginia Tech, it was possible to start creating the Innovation District in Roanoke. Each organization brings different resources that strengthen the project; for example, the City of Roanoke brings knowledge of real estate, land use, permitting, and economic development. Carilion provides the knowledge of medicine and has access to many doctors that can teach and mentor students. Virginia Tech comes to the table with access to faculty, knowledge, and a need for an urban environment for its medical students.

Strong and Weak Ties

Wellman (2001) explains strong ties as, "An interest in being together as much as possible through frequent interactions in multiple social contexts over a long period and a sense of mutuality in the relationship, with the partner's needs known and supported (p. 2031)." The emotional closeness between two actors motivates them to invest time and energy in sharing complex, tacit, or confidential knowledge (Hansen, 1999).

Weak ties normally have a small amount of common contact and only cross paths from time to time. The contacts provide increased reach for an individual's work, such as promotion opportunities, professional recognition, and social integration (Haythornthwaite, 2001). Another aspect of weak ties is providing informational resources rather than support and exchange of confidences (Wellman, 1992). Weak ties are what Granovetter (1973) refers to as bridging ties. A bridging tie links two people that are not currently linked. One definition of bridging refers to

the ability of such networks to create ‘bridges’ to connect sectors that, otherwise, would have never come into contact. The common claim is that bridging social capital has positive effects on the diffusion of information and trust, thus fostering transactions and economic activity (Westlund, 2009).

As the Innovation District’s leadership team has grown, its team members have used their strong ties to recruit new members to the table with specific expertise. For example, when a financial capital expert was needed to assist in fundraising, the team leading the Innovation District reached out to a financial consultant through its strong ties that had extensive experience raising money for large start-up projects. Weak ties have also been used to perform research and investigate other innovation districts around the country. Through their strong and weak ties, the team is able to find qualified individuals and resources needed to advance the project.

Chapter Three: Methodology Section

Research Design

As the economy in Roanoke, Virginia, evolves, it is important to understand how multi-organizational teams can come together to solve problems. This case study explored how a multi-organizational team addressed problems through leveraging social capital with the goal to improve development and sustain economic growth. Yin (2009) suggests, "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p.18). Case studies are preferred in the following situations (Yin 2009): when, how or why questions are being asked; and when the focus is on a contemporary phenomenon. The researcher seeks to explore how social capital was leveraged to bring a team of people together in order to address economic development problems.

Participants Selection

Ten of the thirteen people from the Innovation District's leadership team participated in this research by completing the KAI and individual interviews. The leadership team is made up of leaders from participating organizations and includes economic development directors and specialists, and local government political and agency heads. The represented organizations from which people were interviewed include Virginia Tech; City of Roanoke; Virginia Tech Carilion Medical School; Skyline Capital Strategies; Virginia Western Community College; Roanoke Blacksburg Accelerator, Virginia Western Community College; Roanoke Regional Partnership, and Roanoke Blacksburg Technology Council (See Figure IV). The study began with invitations to everyone on the leadership team to participate. Due to schedule conflicts, only ten members of the team were able to participate.

Figure IV. Innovation District Leadership Team Chart

Instrumentation and Data Collection

For the collection of data, the researcher conducted semi-structured interviews to understand the perspective of the participants. As Harrell and Bradley (2009) have explained,

> Semi-structured interviews are used often in policy research. In semi-structured interviewing, a guide is used, with questions and topics that must be covered. The interviewer has some discretion about the order in which questions are asked, but the questions are standardized, and probes may be provided to ensure that the researcher covers the correct material. This kind of interview collects detailed

> information in a style that is somewhat conversational. Semi-structured interviews are often used when the researcher wants to delve deeply into a topic and to understand thoroughly the answers provided (p. 27).

Each participant was asked to complete the KAI, a psychometric inventory used to identify problem-solving style. The inventory is untimed but it typically only takes about 10 to 15 minutes to complete. Kirton (2003) indicated in his development of the KAI, "Initial validation is based on six general population samples, specifically collected for that specific purpose and not increased by any causal additional information collected for other purposes (p 67)." There is not a significant correlation in A-I scores and age or education. However, there is a small correlation with the demographic variable, sex. Women, on average, are about one third of a standard deviation (6 to 7 points) more adaptive than men (Kirton, 2003). The KAI was designed with a number of checks that help indicate whether the respondent is answering as intended (Kirton, 2003) and designed for adults with work experience. Six general population samples, totaling over 2,500 respondents, yielded internal reliability coefficients of around .87 (ranging from .84 to .89).

Ten participants completed the KAI inventory. A Virginia Tech professor, who is a certified practitioner, administered the KAI which added protection to respondents and improved confidence in published results. Once all ten respondents completed the inventory, the certified KAI practitioner provided me with the KAI scores to compare to the interview responses. The certified KAI practitioner held the results until after the interviews were transcribed to prevent bias when framing the interview questions for the findings section.

I developed a set of interview questions that were reviewed by the research committee. Please see Appendix I to review the interview questions. I asked thirteen members of the

Innovation District's leadership team to participate in the interviews and ten members accepted the invitation. The interview questions collected the stakeholders' perspectives concerning the leadership team and its goals for the Innovation District in Roanoke, and the team's ability to solve problems through leveraging their social capital. More specifically, the interview questions addressed tactics for developing the leadership team, how the participants use their relationships to solve complex problems, and the stakeholders' view on using social capital for long-term sustainability. The interviewer refrained from inserting her opinion and remain focused on the set of questions. Interviewers must stay neutral, no matter what he or she thinks or hears (Harrell and Bradley, 2009).

During each interview, the interviewer explained the logistics, benefits, and risks reflected in the participation of this study. The interviewer also asked the participant to agree to the terms and conditions of the consent form to verify their permission to participate in the study. The consent form was shared and signed at the beginning of each interview. In the study, there were two women and eight men that were interviewed.

Data Analysis

After the interviews were completed, each participant's interview was coded and analyzed by using framing as a qualitative approach. Framing is conceptually connected to the underlying psychological processes that people use to examine information, to make judgments, and to draw inferences about the world around them (Hallaham,1999). Framing allowed the researcher to understand the problem solving preferences of the leadership team as these relate to how each person views the problems the innovation district addresses. The researcher used an audio recorder to capture the interview. Researchers can analyze data gathered from the in-depth

interviews to code patterns and relationships within the data, which then formed the prominent frames (Fisher, 1997).

As Johnston (1995) has suggested, "To identify frames the use of a text-dependent micro-discourse approach which emphasizes analysis of words and phrases should be considered." After transcribing the interviews, the answers were put into a chart and categorized into similar responses. From the commonly used phrases and answers, the researcher was be able to map out themes among the team. After the interviews were transcribed, the researcher identified themes within the three areas of interest: 1) multi-organizational collaboration; 2) problem solving styles; and 3) use of social capital. In addition, the KAI scores were compared and analyzed to understand the full spectrum of problem solving styles within the team.

The participant's individual scores were charted on a continuum and grouped into three categories based on their distinction as an Agent of Change (AC) in this team. First, each person on the team had his or her own individual problem solving style and is an agent of change (AC^1) (Kirton, 2003). The consensus group within the team is composed of individuals within ten points on either side of the group's KAI mean score with each individual designated as an AC^2 (and those individuals located beyond this subset are described as an AC^3s). Themes were then examined from the participants' interviews for differences between people located in the consensus group (AC^2s), those who were adaptive AC^3s and those who were innovative AC^3s. Examining the data identified from the interviews from each of these three groups allowed themes to emerge regarding how these group members viewed Problem A and viewed working with each other.

Timeline & Budget

The timeline on the research project spanned from January 2017 to August 2017, allowing enough time to interview participants and analysis the data. The supplies used were minimal. The only cost associated with the study was the KAI inventory that cost $15 per person to total $150; however, the fee was waived for research purposes.

Chapter Four: Findings

Introduction

This chapter explores the comparisons between the KAI inventory and the interviews in relation to the three research questions. The purpose of this case study is to explore how a leadership team solves problems by leveraging social capital. To meet the purpose of this study, team members of the Innovation District completed the KAI inventory to identify individual's problem solving styles. KAI scores were then used to group team members to explore how problem-solving styles affect team member's management of diversity within the team. As Kirton (2011) indicates, through effective management of diversity of thought, groups of decision makers can improve their productivity. In this section, the research answered the project objectives from chapter one.

1. What are the characteristics of team members and their collective goals for the Innovation District?
2. How do the team member's individual problem solving styles relate to their personal reflections on team dynamics?
3. How are team members using social capital to form a diverse group to address problems associated with developing the innovation district?

Research Question 1: Characteristic of the Innovation District Team

Ten participants from the Innovation District leadership team participated in this study. The study began with everyone that served on the leadership team at the beginning of the study, a group of thirteen individuals; however, three were not available for interviews. Two of the three people not available hold positions at Carilion Clinic and the third person works for the Virginia Tech Carilion School of Medicine. The ten participants consisted of seven people who

served in president or CEO level positions. The other three individuals held positions that supports the president or CEO in their organizations. Nine of the ten participants have lived in the Roanoke region for more than ten years. Many of the team members were invited to participate on the Innovation District leadership team due to their relationships formed on previous projects. For example, the opportunity for a seat on the board for RAMP, a business incubator within the Innovation District attracted many decision makers and leaders. Members from this group were recruited to work on the Innovation District project due to relationships that they had formed. There were two women and eight men that were interviewed. The sample group ranged in age, from 37 to 72 years old. Out of the nine people who provided their age, the mean age of the group was 56.5 years old.

Of the ten participants completing the KAI, the mean of the group was 108.8 points, indicating a more innovative group on average. KAI scores in this group ranged between 65 points being the most adaptive individual, to 143 points being the most adaptive individual. Note that because the means of the team is at 108.8 points, those individuals with KAI scores less than 108.8 points are more adaptive in the group, and those with more than 108.9 points are more innovative in the group. Thus, five individuals were identified in the AC^2 group, with scores ranging between 99 and 119 points. This left two individuals as more adaptive AC3s with scores less than 99 points, and three individuals as innovative AC^3s with scores more than 119 points. See Figure V and Figure VI for more information on participants KAI scores.

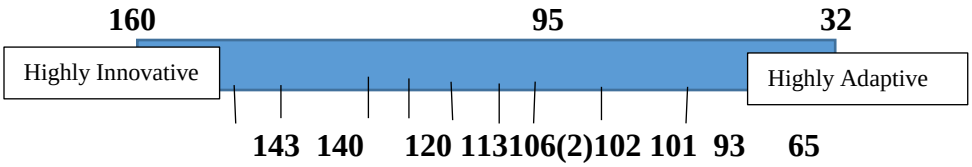

Figure V. Individual KAI Score Chart

Participant	KAI Score
Participant 1 (P1)	65
Participant 2 (P2)	93
Participant 3 (P3)	101
Participant 4 (P4)	103
Participant 5 (P5)	106
Participant 6 (P6)	106
Participant 7 (P7)	113
Participant 8 (P8)	120
Participant 9 (P9)	140
Participant 10 (P10)	142

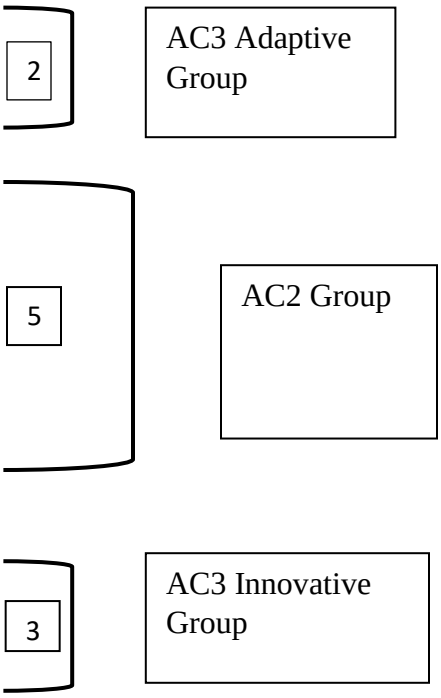

Figure VI. Participant KAI Chart

The main goal of the project, the group's Problem A, is to create a district that will stimulate development, recruit talent, and develop a sustainable economic development model for the Roanoke Valley. Although Problem A is broad, the team is dedicated to making decisions based on the main goal. In order to be successful in addressing Problem A, the team will need to mitigate all of the Problem Bs; which could include varying ways of addressing Problem A.

Research Question 2: Reflections on Team Dynamics

Theme 1: Strong relationships form strong teams

From the interview process, it became clear that the members of the leadership team had a strong relationship with each other before joining the team. Almost all members expressed the success of the team dynamics were due to their close ties. For example, one responded stated,

"The greatest strength of this project is that everybody has respect for each-other and we all work well together" (P10, personal interview, 2017). Another replied, "There are people on this team that I have worked with on community projects for years. We trust each other and have a great relationship" (P5, personal interview, 2017). Due to their strong ties before the project began, they were able to build a team that initially trusted each other. All ten participants had previously worked on another work related project with at least two other participants. This finding is consistent with the literature, as the emotional closeness between two actors motivates them to invest time and energy in sharing complex, tacit, or confidential knowledge (Hansen 1999).

Theme 2: A leadership team was formed through social networks

When the participants were asked how they became involved with the Innovation District project, Participant 3 responded, "Through my work with the Roanoke Blacksburg Technology Council's Blueprint, I became interested in this project. One of the most important elements of these projects are building relationships with new people in the region and connecting education and economic development" (P5, personal interview, 2017). With a KAI score of 101, and interest in building relationships, Participant 3 seemed to play the role of bridger between the majority group (AC^2) and the more adaptive group (AC^3); seemingly in the context of style as well as expertise with respect to her work.

Participant 1 added, "I was asked to be on the team and conduct research for the project. During the meetings, I take notes and then conduct research" (P1, personal interview, 2017). With a KAI score of 65, Participant 1 seemed to feel comfortable with a structured role on the team. While participant 10, with a KAI score of 142, added, "I asked my boss if I could join the team. I am very interested in contributing to the team to create exciting changes for the region" (P10, personal interview, 2017). This response shows P10's desire to create change and move the

region in a new direction. Interestingly, the most adaptive person was asked to join the team and sought a specific role, while the most innovative person asked to join the team with the desire to create change in the region. This finding is concurrent with how more adaptive and more innovative individuals approach the structure of teams, with more adaptive individuals adhering to being more cautious with formal authority associated with the structure of the team, and the more innovative individual less so (Kirton, 2011).

Theme 3: Preference of Problem-solving Style and Management of Change

As participant's interview responses were compared to their KAI scores the researcher found a link between participants' problem-solving style and their answers. The participants' scores ranged from more adaptive to more innovative with the majority of the participants found in the mid-range of the scale. The mean for the group was 108.8, the most innovative team member had a score of 142 points and the most adaptive member has a score of 65 points. Therefore, the consensus group (AC^2s) of this team included the five individuals who had scores between 99 and 119 points.

During their individual interviews, participants were asked about their view on the pace of the project. The researcher analyzed the participants' responses that communicated their views and experience. Out of ten participants, two of the more adaptive respondents replied that the project was moving at a deliberate speed, six respondents from all categories added that it was moving at a good pace and two of the more innovative suggested that it could be moving faster. Participant 1 (KAI score: 65) said, "Deliberately at this point, the group has been meeting for about two years. Sometimes there are external factors that change the pace. If you move too fast, then you are going to make mistakes. This project is going to take a while, it is long-term" (P1, personal interview, 2017). The more adaptive participant expressed that the group needed

to move slowly to avoid making mistakes, which aligns with the characteristics of more adaptive individuals. Participant 10 (KAI score: 142) said, “It was moving at a good pace until the group’s convener took a new job” (P10, personal interview, 2017). The previous convener of the group was more innovative (KAI score: 120) which was one of the closest to participant 10’s score. Participant 10 added that they hope that the person that fills the position will be creative and supportive of the project.

Research Question 3: Problem-solving Style and Social Capital

Theme 1: Leadership Team Perceived Problem A and Problem Bs

Each person’s personal view of the leadership team’s effectiveness was recorded, transcribed, and analyzed. The participants were asked how they personally viewed the leadership team’s effectiveness in addressing its main goal. Responses of participants were coded and charted to find similar themes.

These factors were grouped into a positive view and a negative view of the team’s effectiveness. In general, the team agreed that the right people were on the leadership team due to the fact that they share the same passion, motivation, and desired outcomes; all indicating a mutual respect towards achieving agreement on how to address Problem A. The negative views indicated that members were feeling stressed about multiple components to the project, funding, or they did not yet have enough information to form views on the effectiveness of the project. Another theme that surfaced was the need to hire the right person to replace the city manager. During the study, the city manager who played a key role in the project took another job. Four of the ten participants expressed a desire for a new city manager to have experience in creating innovation districts or similar development projects. P10 (KAI score: 142) said, “Due to leadership changes (city manager), unfortunately you know you can't move as fast as you need to

but my hope is that we will bring on some leadership that understands the importance of the innovation corridor" (P10, personal interview, 2017). As a more innovative individual, Participant 10 viewed the leadership change as a setback for the project. P5 (KAI score: 106) added, "We did have the interruption with [city manager] leaving created an unanticipated hiccup. We have picked up the pieces to move right on" (P5, personal interview, 2017). Participant 5, saw the city manager's departure as just a small interference and did not foresee it slowing down the pace of the project. See Table I for a listing of each participant's main perceived Problem B.

Table I: Perceived Problem Bs by Participant

Participants	**Problem Bs**		
Participant 1 (KAI Score: 65)	Many Components to the project Need for funding	2	AC^3 Adaptive Group
Participant 2 (KAI Score: 93)	Too early to know the outcomes of the project without more insight on funding		
Participant 3 (KAI Score: 101)	Make sure that we are spending funds on the right part of the project	5	AC^2 Group
Participant 4 (KAI Score: 103)	Lack of financial capital		
Participant 5 (KAI Score: 106)	Who will step up financially to fund the next step		
Participant 6 (KAI Score: 106)	Loss of the city manager		
Participant 7 (KAI Score: 113)	Did not see many problems outside the main problem		
Participant 8 (KAI Score: 120)	Concerned about the future city manager's leadership style	3	AC^3 Innovative Group
Participant 9 (KAI Score: 140)	Need to include more people from the private sector		
Participant 10 (KAI Score: 142)	Project moving slow since the city manager left his position		

After charting and framing Problem Bs from the group as a whole, there were common themes among the AC^3 adaptive group and the AC^3 innovative group. The main concern among the AC^3 adaptive group was the need for financial capital to fund the project. This group repeatedly mentioned that the project needed a funding source to be successful. For example, P1 (KAI score: 65), "Unless we are about to secure more funding, we won't be able to build the structures necessary for the project" (P1, personal interview, 2017). It was hard for Participant 1 and 2 to understand how the project would move forward without a large amount of funding from the state or the private sector. With more adaptive AC^3s typically concerned about internal threats to the group (Kirton, 2011), funding was clearly an important problem requiring attention as perceived by these individuals.

On the contrary the AC^3 innovative group was more concerned about losing the city manager. Multiple people feared that with his departure, the project would lose momentum and slow down. P10 (KAI score:142) expressed this fear by saying, "With the departure of the city manager, who was the convener of the project, I worry that we are going to lose speed" (P10, personal interview, 2017). Participant 8 added, "We have to recruit the right type of person as the next city manager. We need someone that can move this project forward" (P8, personal interview, 2017). With more innovative AC^3s typically concerned about external threats to the group (Kirton, 2011), these individuals were looking outside the paradigm of the group as their chief concern.

Theme 2: Mitigating Problem Bs to Solving Problem A

The research sought to discover the types of problems (Problem B) the leadership team faced that affected solving the main problem (Problem A). When the participants were asked if there were distractions, P2 (KAI score:93) responded, "I think that there is a need to focus

because I think part of the issue is how to take something from a 30,000 foot concept and make it operational" (P2, personal interview, 2017). As a more adaptive individual to the group, their response was in line with their style, showing that they may be seeking more structure and direction. In contrast, P9 with a KAI score of 140 replied, "In order to keep this project moving at a good pace, we need to add people from the private sector to leverage the project." (P9, personal interview, 2017). As Participant 6 is in the AC^2 consensus group, their statement indicated less concern about potential Problem Bs and more concern about the perceived agreement on moving forward with addressing Problem A. In general, the more adaptive participants believed there was a need to dedicate more time to the project and narrow the focus, while the majority of the more innovative team members responded with a way to make the project move faster. The two main Problem B themes that did arise among the whole team were the lack of financial capital and the loss of the city manager.

To understand how the team moved past secondary problems, the participants were asked how they overcame distractions from solving the main problem (Problem A). The respondents had a variety of answers, for example, P7 (KAI score: 120) said "I think that there has been some circular nature to what we have done. We have had maps drawn then later extended the boundaries. There has been stops and starts to the project. I would have hoped for more progress by now. We may need to hire a third party to focus on the details." P2 (KAI score 93) replied with, "It is going to require some patience. There needs to be one organizing execution arm for all of this that is focused on this to help achieve each milestones." Another more adaptive participant (P1, KAI score: 65) added, "We need to define each member's role and what role their organization will play. A consensus building activity could help. General consensus building is key." From the responses, there was an indication that the more adaptive wanted to

add more structure to the committee, with a desire to refine team roles for improving efficiency. The more innovative individual, on the other hand, thought there could be more focus on Problem A by looking outside the team for help. As Kirton (2013) states, there is a need for all groups to negotiate the proper amount of structure needed, and agreement on what the structure may be. In doing so, the more adaptive individuals prefer to seek refinement of the team structure while the more innovative may look outside the team structure for a solution.

Theme 3: Using Social Capital to Solve Problems: Comparing the AC^3Adaptive Group and the AC^3 Innovative Group

Each team member interviewed mentioned the strength of their relationships with the other members on the team. Team member KAI scores did not seem to reflect any perceived differences in their outlook on relationship building and the critical need to build social capital. After comparing the AC^3 Adaptive Group and the AC^3 Innovative Group, the two groups were in agreeance. The answers across the scale were very similar. In the AC^3 innovative group, P8 (KAI Score 140) said, "I don't think most communities would have gotten nearly as far as we have … We have made a lot of progress due to strong social networks that have already been developed. It is a really incredible to see the strength of the network here. It is not something a consultant can bring. The relationships in Roanoke are so strong that we can just pick up the phone and our partners will show up to help. There is not a competitive spirit it is a very collaborative spirit" (P8, personal interview, 2017). In the AC^2 group, Participant 3 explained (KAI Score of 101), "Strong relationships make all the difference. I think it is important to be supportive of those in their other offerings. You have to support these folks in the other things they are doing and many of the different players support each other on different things. Knowing that reinforces the strength of the relationship" (P3, personal interview, 2017). In the

AC^3 Adaptive Group, P2 (KAI Score 93) answered similarly, “The greatest technique is to work with the partners not just in the innovation corridor projects but other projects that they are working on” (P2, personal interview, 2017). It was found that the more innovation and the more adaptive felt that strong social capital played a major role in the success of the innovation district. Since strong ties were established before starting the project, the project was able to move faster due to mutual respect and trust. The team members enjoyed working together and valued each other as equals on the team.

Chapter Five: Conclusions and Recommendations

Conclusions

As Kirton (2003) has suggested, "To achieve effective collaboration of diverse teams attempting to solve diverse problems requires knowledge and skills that need to be learnt, including how to manage ourselves and others, and how to close gaps between us and between the problem solver and the problem" (p. 309). As the Innovation District continues to grow in Roanoke, Virginia, it is important for the multiple organization leadership team to leverage social capital to maintain a strong team of diverse problem solvers. According to Rife (2015), "[Virginia] Tech and Carilion leaders said the new collaboration would build their institutions' national and international reputations, launch business endeavors, create high-paying jobs, attract top-notch clinicians and faculty and improve the health of people living in Southwest Virginia" (para. 7). By focusing on Problem A, the team will be able to minimize additional problems, Problem B so they can be more successful.

The members of the leadership team began as a small group of community leaders that represented the City of Roanoke, Carilion Clinic, and Virginia Tech. As the project grew and the scope increased, the team worked hard to recruit new team members to help lead the Innovation District project. Two of the members that were recruited happen to be individuals that fell in the more adaptive group. Although recruited for their technical skills, they had the appropriate problem solving styles to help make the team more cognitively diverse. The team members had one thing is common, they all expressed a passion for the project and hoped to contribute to improving the Roanoke Regional economy.

The participants' scores ranged from more adaptive to more innovative. The majority of the participants fell into the mid-range of the scale. The adaptive individual showed an interest

in adding more structure to the project team; however, the more innovative did not see it as a problem to have less structure. The majority of the individuals fell between 113 and 101 (AC^2s), with two outliers on the more adaptive side with scores of 93 and 65 (adaptive AC^3s) and three on the more innovative with scores of 120, 140, and 143 (innovative AC^3s). The core group of five AC^2 members seemed to work well with the more adaptive and more innovative AC^3 members, with mutual respect. It appears that while there may be diversity of thought with this team, the strong prior strong relationships of built mutual respect among team members have allowed the team focus on Problem A, which is congruent with A-I theory (Kirton, 2011).

Based upon the findings of this research, the leaders on the innovation district team came together in the beginning with established relationships. As the needs of the teams became broader, they have used strong and weak ties to recruit new members for the team with different areas of expertise. For example, after the initial planning stages, the team needed someone with a strong background raising financial capital to pay for the project. Through networking with strong ties, the team was able to find someone with the right skill set to enhance their team. The more innovative and the more adaptive felt that strong social capital played a major role in the success of the innovation district. Now that the larger team is in place, the members are bringing together their individual problem solving styles to solve problems collectively. In order to be successful, the focus needs to stay on the main goal (Problem A) and mitigate all other issues (Problem Bs; Kirton, 2011).

It is evident in this case study that A-I theory, and participants problem-solving styles were indicative of the team dynamics of this multi-organizational group working to develop an innovation district. While many groups form based on expertise, organizational representation, and demographic representation, this case study provides evidence that problem-solving style

should also be considered as a measure of diversity for high performing groups. Just as each one of us has diversity that guides our thought when forming a team, each one of us has blind spots in our thinking due to not being exposed to another person's diversity. Problem-solving style, a variable indicating diversity of thought and related to our personality, should also be considered as a key variable in the science of team dynamics.

Recommendations for Practice

As awareness can lead to acceptance and tolerance of diversity, it is important to understand how each team member prefers to solve problems. The team's performance and commitment to the project can also be improved by the acceptance of diversity of thought. It is recommended that the team participate in training to understand A-I theory and how to practically use the concepts to improve team problem solving. Training can aid in recognition of preferred styles. By recognizing preferred styles, teams can improve their relationships and improve trust in each other recognizing problem-solving style is independent of motivation, intelligence, and culture.

Another recommendation for the team is as a new convener comes on board, it is important to accept the new person's problem-solving style. In order to accept change, the team has to perceive the advantages that outweigh the disadvantages of new additions to the team (Kirton, 2003).

Recommendations for Future Research

This study explored how individuals on a team used social capital to build a strong problem solving team. As such, there is still the opportunity to study how the team is leveraging social capital externally for the benefit of the District. There are going to be businesses to

recruit, talent to attract, and buildings to build. The following recommendations for future research include:

- Extend the current study to external partners for different perspectives and problem solving styles.
- Replicate the study with other innovation districts to determine if findings may be similar to those reported in this study.
- Study subject based subcommittees' problem-solving styles as compared to other committees to understand how teams work together given average KAI scores among teams.

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Appendix I

Semi-Structured Interview Questions

Purpose: To explore how the use of social capital in the innovation district in Roanoke, Virginia

1. Can you begin by telling me how you became involved in the Innovation District?
2. What is the main goal of the Innovation District?
3. How do you personally view the leadership team's effectiveness in addressing the main goal(s)?
4. How are you contributing to the Innovation District's leadership team?
5. What are the benefits of your organization being part of this team?
6. Are there distractions getting in the way of achieving the main goal? How do you perceive these distractions?
7. What techniques do you use to overcome the distractions in obtaining the goal?
8. How fast is the innovation district project moving? Do you think that it should be moving faster or slower? Why?
9. How often do you network with individuals outside of the team for the benefit of the Innovation District?
10. How often do you focus on building relationships within the working group?
11. What techniques are you using to build social capital, internally and externally to the group?
12. What would you recommend to leaders in other cities that are interested in starting an innovation district?
13. Is there anything else that you would share about the innovation district in regards to social capital and problem solving?

Appendix II

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY Informed Consent for Participants in Research Projects Involving Human Subjects (FORM B)

Consent for identity to be shared in the Innovation District Project

Title of Project: Stakeholders' perspective of Social Capital in the Innovation District

Principle Investigator(s): Erin Burcham, Graduate Student at Virginia Tech

Purpose of this Research/Project: The overall purpose of this interview research is to explore the use of social capital among leaders in the Innovation District. The outcome of this research is two-fold: 1) to record the perspective of Innovation District leaders to increase knowledge of multiple organizations coming together to solve problems, and 2) to understand how social capital is being leveraged to create and sustain the economic development project.

Anonymity and Confidentiality: Your information will remain confidential for this interview-based research. Your identity will be kept confidential at all times and will be known only to the research team. If you choose to share your identity, only your name and organization will be shared. By signing below, you agree to decline complete anonymity of your "practitioner profile." This means you permit your name and the name of your organization to be listed in the Innovation District Case Study Profile and subsequent publication that may derive from it.

Subject's Permission to Share my identity in "Stakeholders' perspective of Social Capital in the Innovation District":

"I voluntarily permit the use of my identity and organization in my "Stakeholders' perspective of Social Capital in the Innovation District" Profile. I have read and understand this informed consent and the conditions of this research, and have had all of my questions answered. I hereby acknowledge the above and give my voluntary consent."

_____ Date_____ Subject signature

_____ Date _____ Witness (Optional except for certain classes of subjects)

Virginia Tech Institutional Review Board Project

Should I have any pertinent questions about this research and research process, I may contact:

Curtis R. Friedel, Ph.D.
Director, Center for Cooperative Problem Solving
Department of Agricultural, Leadership, & Community Education
214 Litton-Reaves Hall (0343)
Virginia Tech
Blacksburg, VA 24061

Ph: (540) 231-8177
cfriedel@vt.edu

Should I have any pertinent questions about research conduct, research related injuries, and research subjects' rights, I may contact:

David M. Moore
Chair, Virginia Tech Institutional Review Board for the Protection of Human Subjects Office of Research Compliance
540-231-4991
moored@vt.edu

Appendix II

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

Title of Project: Stakeholders' perspective of Social Capital in the Innovation District

Principle Investigator(s): Erin Burcham, Graduate Student, Virginia Tech

I. **Purpose of this Research/Project**: The overall purpose of this interview research is to explore the use of social capital among leaders in the Innovation District. The outcome of this research is two-fold: 1) to record the perspective of Innovation District leaders to increase knowledge of multiple organizations coming together to solve problems, and 2) to understand how social capital is being leveraged to create and sustain the economic development project.

II**. Procedures**: This study will involve willing practitioners to participate in a semi-structured interview with the researcher. The researcher will be contacting, interviewing, and transcribing the interviews under the direct supervision of Dr. Friedel—the advisor. The researcher will audio record the interview with you. The interview should last no longer than 90 minutes. You may withdraw from the study at any time.

III. **Risks**: This study has been reviewed and approved by the Virginia Tech Institutional Review Board. Your participation in this interview is in no way required or compulsory. You have the right to remain anonymous in any publication or profile documents produced from your interview. You also have the right share your identity in any subsequent publications, including outreach materials and booklets, for public dissemination. A second consent form will be provided to you when your transcribed and edited interview is complete. At that time, you may choose to consent to the use of your identity in "Stakeholders' perspective of Social Capital in the Innovation District" publications.

IV. **Benefits**: There are no financial benefits to participating in an interview. However, you may receive several indirect benefits. This would include your "Innovation District" story to be shared with you and other practitioners interested in promoting economic development projects in the region and beyond, while also highlighting the place-based work of your organization or institution. Therefore, the interview could be used in the following ways in which you could indirectly benefit from potentially being published in an economic development journal. I am also interested in possibly presenting the case study at professional conferences. You will also have access to your personal interview once it is transcribed and edited.

Virginia Tech Institutional Review Board Project

V. **Extent of Anonymity and Confidentiality**: You will remain confidential for this interview-based research. Your identity, and that of any individuals whom you mention, will be kept confidential at all times and will be known only to the research team. If you choose to share your identity, only your name and organization will be listed. No sensitive personal information will be solicited in the interview.

The interviews will be audio recorded and later transcribed by researchers, under the supervision of the committee advisor, Dr. Curt Friedel. When transcribing the interviews, codes or pseudonyms (i.e., false names) will be used for your name and any other individuals you mention. Any details in the interview recordings that could identify you will also be altered during the transcription process. These codes/pseudonyms will also be used in preparing all written reports of the research, unless you consent to sharing your identity for publication use. After the transcribing is complete, the audio recordings will be stored on a password-protected computer indefinitely.

It is possible the Institutional Review Board (IRB) at Virginia Tech will view this study's collected data for auditing purposes. The IRB is responsible for overseeing the protection of human subjects who are involved in research.

VI. **Compensation**: You will receive no fiscal compensation for participating in this study.

VII. **Freedom to Withdraw**: Your participation in this research is entirely voluntary and your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. Similarly, you are free to withdraw from this research at any time. If you choose to withdraw from the research, any information about you and any data not already analyzed will be destroyed. You are free to choose not to answer any question.

VIII. **Subject's Responsibilities**: As a participant, you are responsible for completing one interview session that should last 60-90 minutes.

IX. **Subject's Permission**

"I voluntarily agree to participate in this research. I have read and understand this informed consent and the conditions of this research, and have had all of my questions answered. I hereby acknowledge the above and give my voluntary consent."

_____ Date_____ Subject signature

_____ Date _____ Witness (Optional except for certain classes of subjects)

Virginia Tech Institutional Review Board Project

Should I have any pertinent questions about this research and research process, I may contact:

Curtis R. Friedel, Ph.D.
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