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LAW ENFORCEMENT INNOVATION AND DIFFUSION:

A NETWORK ANALYSIS OF POLICE ACCREDITATION

by

JEREMIAH PAUL JOHNSON

A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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ii

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Abstract

LAW ENFORCEMENT INNOVATION AND DIFFUSION:

A NETWORK ANALYSIS OF POLICE ACCREDITATION

by

Jeremiah Paul Johnson

Dissertation Director: Dr. Jon Shane

This study seeks to identify network structures capable of predicting innovation uptake among law enforcement organizations. Utilizing a mixed-methods approach, diffusion is studied through the lens of a single innovation, state law enforcement accreditation. Quantitative data culled from a variety of social artifacts in two New England states are used as a basis for the study. Relational data extracted from meetings held by a private police chief's association over an 11 year period were used to construct an affiliation matrix. Social network analysis demonstrates that actors with high levels of centrality are more likely to self-select state accreditation enrollment than their less embedded counterparts. However, network position had no significant effect on whether or not the innovation was adopted successfully. Policy documents obtained from 22 law enforcement organizations that had recently enrolled in a state accreditation program were subjected to text network analysis in order to measure organizational responses to innovation uptake. Patterns of organizational language, including pronounced structural shifts by agencies that adopted accreditation, are indicative of mimetic and normative isomorphism. Study findings and their attendant implications are approached through an institutional theory perspective.

Keywords: Accreditation; CALEA; diffusion; innovation; institutional isomorphism; institutional theory; police organizations; social network analysis; text network analysis.

<p align="center">**Dedication**</p>

<p align="center">*Non nobis, Domine, Domine*</p>

<p align="center">*Non nobis, Domine*</p>

<p align="center">*Sed nomini, sed nomini*</p>

<p align="center">*Tuo da gloriam*</p>

<p align="center">*(Psalm 115:1)*</p>

I would like to dedicate this dissertation to my loving family who have endured much and received far too little in exchange:

To my precious treasure, **Nadia**, who not only catalyzed this doctoral pursuit, but vicariously endured every struggle and victory along the way. The journey to this milestone took longer than expected, but she never doubted me once. Many marriages falter in graduate school without the added pressures of a police shift-work schedule or children. Somehow we emerged stronger. Her daily (and nightly) sacrifices were not lost on me, nor were they in vain. Hopefully we will recoup whatever time was lost, tenfold. #TeamJohnson

To my ten year old daughter, **Tayler**, who has never known a day outside the womb in which her daddy was not in graduate school. Keeping tabs on my progress motivated me to write as I never wanted to report the same page count two days in a row.

To my eight year old son, **Hunter**, who would regularly offer to write this "distertation" on my behalf and even volunteered his XBOX 360 headset for dictation purposes.

To my younger daughters, **Skyler** (age 4) and **Amber** (age 1), who were spared the worst, but did much to inspire and encourage my heart.

To my maternal and paternal grandmothers, **Katherine Roberts** and **Irene Johnson**, both of whom passed during my time in the doctoral program. Their love and support will not soon be forgotten.

Table of Contents

List of Tables

Tables

List of Figures

Figures

Chapter I

Introduction

There is a growing cultural and corporate obsession with innovation, although the term itself has been diluted from overuse and may be somewhat passé (Kwoh, 2012). Corporate innovation teams, innovation consultants, and even chief innovation officers are now commonplace in the private sector. A content analysis of annual and quarterly reports filed with the Securities and Exchange Commission showed a 64% increase in the usage of the word over a five year period (para. 5), and there is growing support to suggest that self-referential claims of innovativeness are more for show than a reflection of anything substantive. The fascination with innovation is not limited to the private sector; professional associations, reform advocates, and even the White House have come to embrace the concept of programmatic innovation via the evidence-based movement (Clear, 2009). Policy think-tanks and even philanthropic groups are engaging the public sector in an attempt to engender innovative practices. Increasingly, these efforts are being directed towards the American criminal justice system. Policing has a well-established history of superseding innovations that include methods of patrol, technology, special programs, and management techniques (King, 2000, p. 303). However, there is considerable variation between police organizations when it comes to innovativeness. Policing researchers have tried to account for this, but often advance competing perspectives that preclude any definitive consensus (p. 304). Likewise, the academic study of organizational innovations has grown exponentially across multiple disciplines, yet findings have failed to converge and are challenging to synthesize due to their sheer breadth (King, 1998; King, 2000; Rogers, 2003; Wolf, 1994).

Purpose of the Study

The purpose of this dissertation is to elucidate patterns of programmatic innovation among American law enforcement agencies. There are noteworthy examples of diffusion studies in the policing literature (Burruss & Giblin, 2014; Darroch & Mazerolle, 2012; Doerner & Doerner, 2009; Giblin, 2006; Giblin & Burruss, 2009; King, 1998; Kraska & Cubellis, 1997; Kraska & Kappeler, 1997; Morabito, 2010; Skogan & Hartnett, 2005; Weisburd & Lum, 2005; Weisburd, Mastrofski, Greenspan & Willis, 2004; Weiss, 1997; Young & Ready, 2014). This small, but growing body of literature generally seeks to explain why specific innovations are adopted or why some organizations may have a greater propensity for being innovative.

This dissertation seeks to contribute to the growing body of police diffusion literature through the context of law enforcement accreditation. Although this topic has been previously studied by Doerner and Doerner (2009), this dissertation provides a unique explanatory framework utilizing institutional theory and social network analysis (SNA). These theoretical and methodological approaches are underrepresented in the policing literature, yet hold considerable promise for interpreting how and why this programmatic innovation has spread or conversely, failed to spread.

Limitations of Extant Methodologies

Social science is often associated with the study of human behavior at the individual level, with a focus on personal attributes, although certain social structures (e.g. culture, institutions, etc.) may transcend individual action.

The explanatory and predictive ability of quantitative criminological research is sometimes castigated, revealing underlying meta-questions about science's ability to understand human behavior (Manzi, 2010; Martinson, 1974; Young, 2011). Young's (2011) metaphorical *datasaur*, an unwieldy creature with a small theoretical head, a gluttonous belly hungry for regression analysis, and a small tail symbolizing inconclusive findings, presents a humorous but ultimately unflattering critique of present-day quantitative criminology (p. 15). Young argues that all too often, researchers proffer universal generalizations without considering important contextual aspects such as people, structure, history and place (p. 14). Perhaps only the staunchest quantitative apologists would deny the relevance of such factors, yet few are willing to acknowledge the inherent limitations associated with traditional variable-based methods of inquiry.

Common empirical methods like sampling may fall short because they either ignore or inadequately account for interdependence among individuals or other units of analysis (e.g. organizations). The sample survey has been described as "a sociological meat grinder, tearing the individual from his social context and guaranteeing that nobody in the study interacts with anyone else in it" (Barton, 1968, p.1). The practice of treating human subjects as isolates is somewhat ironic given prevailing theoretical traditions within sociology and criminology that tend to emphasize the importance of human interaction. It may be that the statistical principle of independence which, in the proper context, treats interdependence as an error can create some cognitive dissonance (Papachristos, 2007). Whatever the reason, there is an ostensible disconnect between criminological theory and the discipline's staple methods of research and analysis.

When researchers do try to account for interdependence, they often rely on proxy measures like gang membership or the number of delinquent friends; this can actually distort patterns of social structure (Papachristos, 2007).

It would be reasonable to expect divergent findings among studies that ignore or improperly operationalize interdependence. The Evidence-Based Policing Matrix provides an elegant illustration of just how unpredictable human behavior can be when it comes to individual interventions (Lum, Koper, & Telep, 2011). The Evidence-Based Policing Matrix is a system of classifying extant policing interventions utilizing a number of axes including "specificity of prevention mechanism", "type or scope of target", and "level of proactivity". Not only did the target category for "individuals" produce an abundance of non-significant findings; it was the only target category in the matrix where iatrogenic results were observed. It should be noted that police interventions targeting "groups", which would naturally incorporate aspects of social interdependence, were successful 75% of the time (Lum, Koper, & Telep, 2011).

Dissatisfaction regarding the explanatory power of regression-based models paired with limited successes in replication studies have led to calls for new approaches in criminal justice research including randomized field trials (Manzi, 2010) and evidence-based interventions (Weisburd & Neyroud, 2011). Elevating the rigor of criminal justice research is certainly a positive goal.[1] Despite the shift towards new directions in criminal justice research, calls to refocus scientific inquiry using methods that can accurately capture social interaction are woefully underrepresented.

The practice of treating human beings as isolates is somewhat analogous to the way in which organizations were once perceived.

There are competing definitions regarding the nature of organizations, but in the mid-20th

Century the prevailing approach was to view organizations as *closed systems*. In closed system

models, the organization is largely unaffected by external forces. This understanding has been

supplanted by more developed frameworks that acknowledge the complexities of the external

environment, yet researchers have struggled to empirically measure these forces. Organizations

are not "islands in a lonely sea"; rather, they must interact with other organizations and actors on

a frequent basis (Maguire, 2003, p. 26). Not only do organizations themselves interact, but they

(organizations) are comprised of individual actors. Parsing out the distinctions between

collective and individual action is further complicated by modern conceptualizations like

organizational learning (Levitt & March, 1988; Senge, 1990) and the organizational life-course

perspective (King, 2009) that effectively anthropomorphize organizations.

Although organizations are no longer treated as isolates, attempts to empirically capture

interaction and interdependence at the individual and organizational level are limited.

Traditional variable-based approaches, while of some value, cannot adequately account for

interaction between organizations and organizational actors. This is a considerable oversight and

constitutes a gap in several literatures, including the formal study of police organizations. Not

only is there a veritable gap, but failure to consider the potential effects of interaction threaten to

undermine the validity of prior research. Statistically significant correlations observed between

two or more organizational variables could in fact be spurious relationships caused by a

confounding factor (i.e. interaction).

The area ripest for exploring the potential latent effect(s) of interaction is the study of

innovation and diffusion among criminal justice organizations.

The word innovation may be synonymous with invention in the vulgate, yet these terms differ substantively in the literature. Invention is the "process by which original policy ideas are conceived" (Berry & Berry, 2007, p. 223). This is differentiated from innovation, which occurs when a government or organization adopts a preexisting policy or program. While invention is a relatively rare occurrence, innovation can occur frequently. The spread of innovation is known as diffusion (p. 224). There are a variety of variable-based models capable of explaining the spread of innovations. These tend to focus either on internal determinates (i.e. intrinsic organizational variables) or external factors such as geographic proximity. Regional diffusion models may claim to capture evidence of interaction, but mileage is a rather inadequate operationalization, even when used as a proxy measure. Some policing researchers have suggested that innovation and diffusion be examined through the lens of social networks (Degarmo, 2012; Doerner & Doerner, 2009; Rodan & Galunic, 2004, p. 542). This call has ostensibly fallen on deaf ears as SNA has only been applied to the organizational context of policing in a singular instance (Young & Ready, 2014). There is a similar paucity observed in the criminal justice literature. This is somewhat surprising given the logical and heuristic appeal of human interconnectivity. Criminal justice has flirted with the role of social networks when it comes to offender based studies, but still lags far behind academic disciplines like sociology and medicine, both of which have an established body of literature on the linkage between networks and innovation. The role of organizational network relationships in the criminal justice system or the effects thereof is largely unknown.

Research Questions

A scientific inquiry purposed with the exploration of organizational network relationships raises several provoking questions.

Foremost is the question of whether it is possible to accurately identify network relationships among policing organizations. Beyond this methodological question of boundary specification lie a variety of fundamental research questions that serve to guide this dissertation. First, are network relationships capable of explaining or predicting innovation uptake? Individual actors may be more or less likely to successfully adopt an innovation based upon their relational position in a given network. Secondly, do networked models of innovation and diffusion hold better explanatory value than extant models? Finally, can analysis of network relationships provide an empirical basis for how and why organizations change?

Significance of the Study

The study of innovation and diffusion is best approached through the lens of a single issue (Berry & Berry, 2007). This dissertation undertakes a nomothetic examination of organizational innovation and diffusion utilizing the contextual frame of law enforcement accreditation. Although the dissertational focus will be limited to one specific innovation, it is believed that answers to the aforementioned research questions will not only yield important explanatory information regarding the nature of innovation and diffusion as it pertains to accreditation, but that this information will be largely generalizable to other policing innovations.

This dissertation's application of network analysis to study patterns of innovation and diffusion among police departments is the first of its kind. The National Research Council's (NRC) Committee to Review Research on Police Policy and Practices concluded that little is known about how the innovation process works in policing or how it can be facilitated (Skogan & Frydl, 2004, p. 107). The NRC formally recommended that researchers undertake "a special study of innovation processes in policing, one that is designed to include factors that can be influenced by federal and state governments" (p. 107).

As this statement suggests, understanding how innovations diffuse between policing organizations holds considerable import for the advancement of evidence-based policing (Burress & Giblin, 2014).

Finally, this method provides a rare opportunity to empirically test a variety of theoretical presuppositions associated with two organizational theories (i.e. institutional theory, institutional isomorphism). Both the theoretical and methodological approaches utilized in this dissertation independently constitute a unique contribution to the field of criminal justice that will measurably advance the formal study of police organizations and extend the application of social network theory beyond that of criminal offender networks.

Chapter II

Theoretical Framework and Review of Literature

Innovation and Diffusion

As previously mentioned, academic study on the topic of organizational innovation has largely failed to converge. Explanations for the present state of the field are largely attributed to methodological differences in the conceptualization and operationalization of innovation (Rogers, 2003). Wolfe (1994) offers a helpful typology to winnow the scope of literature by classifying innovation studies into three different streams: *diffusion studies*, *innovativeness studies*, and *process studies*. Diffusion studies seek to answer how innovations spread through a population of potential adopters (p. 407). Innovativeness studies tend to focus on the organizational determinates that influence the propensity for innovation uptake (p. 408). Finally, process studies look at the temporal sequence of innovations at the organizational level (p. 409). This dissertation falls squarely under the diffusion studies stream, as does much of the extant policing innovation literature. The present review of innovations literature will primarily focus on the context of police organizations although methodologically relevant studies from other academic disciplines will also be reviewed. Before delving into the policing literature, it is important to first address the history of innovation studies as well as key concepts.

Diffusion is best understood as a process involving a number of components. "Diffusion is the process by which (1) an innovation (2) is communicated through certain channels (3) over time (4) among the members of a social system" (Rogers, 2003, p. 11). Diffusion can lead to a number of outcomes including adoption, rejection, or discontinuance (a decision to terminate a prior adoption) (p. 21).

According to this conceptualization, diffusion is a social process that is almost wholly dependent on communication. Such an understanding dovetails seamlessly with the underlying premises of SNA. In fact, some of the earliest sociological studies of diffusion highlighted the importance of interpersonal social networks. These studies varied greatly from a topical perspective, including the diffusion of ham radios in the United States (Bowers, 1937); the diffusion of hybrid corn seed among Iowa farmers (Ryan & Goss, 1943) and the diffusion of a new pharmaceutical drug prescribed by doctors in Illinois (Menzel & Katz, 1955). These three studies were undertaken in different locales by researchers from different subfields of sociology. Furthermore, the participants sampled in these studies came from vastly different occupations and social classes. Despite such marked variation, the findings across these diffusion studies were remarkably similar, particularly when it came to the rate of adoption. Researchers noted that over time, the rate of adoption formed an S-shaped, sigmoid curve (i.e. logistic curve). The diffusion models were characterized by a relatively slow pace of initial adoption, followed by a period of rapid growth. Eventually, the rapid rate of adoption leveled off as the innovation reached an upper threshold known as a saturation point (Rogers, 2003; Ryan & Gross, 1943; Weisburd, et al., 2004). According to Rogers (2003) most innovations exhibit an S-shaped curve, but the slope can vary depending on the overall pace (p. 23).

Somewhat ironically, the number of scholarly innovation and diffusion publications continues to grow at a steady rate and has yet to taper off (p. xviii). In recent years, policing researchers have used this very framework to study a variety of organizational, technical, and programmatic innovations in American law enforcement.

Some policing innovations, like Compstat and paramilitary police units (PPU), have diffused rapidly across American policing. Compstat, the brainchild of New York Police Department (NYPD) legend Jack Maple, was implemented by the NYPD under Commissioner Bill Bratton in 1994 (Bratton & Knobler, 1998; Weisburd, et al., 1994). Compstat is best described as a system of managerial accountability characterized by accurate and timely intelligence, effective tactics, rapid deployment, and relentless follow-up and assessment (Shane, 2007; Willis, Mastrofski, & Weisburd, 2007). Weisburd et al. (2004) sampled 615 American police agencies, inquiring whether a Compstat model had been implemented or was planned. Analysis of respondent data indicated that 32.6% of large agencies and 11% of small agencies had already implemented a Compstat-like program; 25.6% and 29.3% of large and small agencies, respectively, were planning to adopt the innovation (p. 6). By querying date of Compstat adoption, the researchers were able to plot the diffusion curve and project a 90% saturation rate in 2007 (p.10). Based on these data, Compstat-like programs would be among the fastest growing innovations across a variety of sectors and industries (p. 10).

Another American policing innovation that has mirrored similar rates of diffusion is that of PPUs. In 1973, the National Advisory Commission on Criminal Justice Standards and Goals [NACCJSG] released their seminal report entitled, *A National Strategy to Reduce Crime*. In their report, the Commission formally recommended that police agencies with more than 75 employees should have a tactical force for special crime problems. Prior to this point, PPUs had been diffusing slowly and were primarily used only in large cities. Over the next 20 years, uptake of PPUs increased steadily. Not only did the cumulative number of PPUs grow in midsize towns and cities, but new and "innovative" ways of using PPUs grew exponentially (Kraska & Cubellis, 1997; Kraska & Kappeler, 1997).

New PPU tactics that diffused rapidly included serving warrants, drug raids, and proactive patrol (Kraska & Cubellis, 1997, p. 614-617).

Other studies of police innovation and diffusion have focused on the spread of technologies like crime mapping (Weisburd & Lum, 2005; Giblin, 2006), experimental use of on-officer video cameras (Young & Ready, 2014), and regional information sharing systems (Skogan & Hartnett, 2005). In the latter study, analysis of adopting and non-adopting agencies found that uptake was highly correlated ($p > 0.001$) with both accreditation status and membership in the study state's chiefs of police association. In fact, every accredited law enforcement agency in the study region ultimately adopted the information sharing system. Accreditation diffusion itself has been studied at the state level in Florida, which has its own state sponsored accreditation program (Doerner & Doerner, 2009). Although the researchers expressed interest in applying social network analysis towards accreditation diffusion, they concluded that this method was too difficult (p. 788). Instead, Doerner and Doerner utilized geographic distance as a proxy measure for social influence and additionally tested a host of independent variables best described as organizational characteristics. Only a handful of variables (e.g. prior accreditation at the national level) were found to predict state accreditation uptake. Fascinatingly, geographic proximity to an accredited neighbor was negatively associated with state accreditation. As distance from the nearest accredited neighbor increased, the likelihood of accreditation uptake also rose (p. 790). This paradox points to an underlying cause not readily seen in the data, one that could be explained by relational network models (i.e. SNA).

The application of SNA to the phenomenon of law enforcement diffusion is limited to a single empirical study.

Young and Ready (2014) sought to account for the diffusion of cognitive frames, not across police organizations, but among patrol officers within a single police department. By utilizing a randomized field trial model, Young and Ready found that officer attitudes towards on-officer video cameras were shaped through shared events and workgroup discourse with other officers who had volunteered to use the devices (p. 15-16). This study highlights how peer interaction can function like a contagion, diffusing perceptions of legitimacy regarding organizational innovations (p. 5).

Diffusion studies have also sought to explain some of the more substantive policing movements like community oriented policing (COP) (Burruss & Giblin, 2014; Morabito, 2010) and intelligence-led policing (ILP) (Darroch & Mazerolle, 2012). These studies move beyond mere description and undertake an explanatory approach to modeling diffusion. Both innovations present a challenge to researchers due to variation in the conceptualization and operationalization of COP and ILP. Rather than assessing whether law enforcement agencies are in fact practicing COP, both Morabito (2010) and Burruss & Giblin (2014) relied on self-report data gleaned from the Law Enforcement Management and Administrative Statistics (LEMAS) survey. Morabito (2010) compared these data with local government and community characteristics common to innovations literature. The three most significant independent variables were identified as size of the department, the level of organizational commitment, and the local form of government (p. 580). Conversely, Burruss & Giblin (2014) utilized a latent factor analysis model designed to account for institutional forces at work (e.g. professionalization, publications, etc.). Controlling for crime, agency size, and region, they found that external institutional forces were the most significant factor for the diffusion of community policing (p.15).

The community policing movement has waned in the last decade due to a confluence of factors and other strategic approaches like ILP have captured the attention of practitioners and researchers alike. Darroch & Mazerolle (2012) studied the spread of ILP among police forces in New Zealand by querying attitudes and perceptions held by individual officers across a broad spectrum of organizational topics. Uptake of ILP was associated with localized examples of transformational leadership and clear organizational goals regarding crime prevention (p. 24).

The role of executive leadership is fundamental to the uptake of innovations like COP and ILP. Morabito (2010) points to the centralized structure of police agencies in which the authority to adopt or reject a given innovation rests in the hands of a few individuals (p. 571). Likewise, case studies of COP implementation suggest that the police chief is the most important factor when it comes to innovation (Skolnick & Bayley, 1986; Sparrow, Moore, & Kennedy, 1990). These studies highlight the importance of executive leadership, yet overlook what should be a demonstrable factor when it comes to innovation and diffusion, the network relationships between executives and the organizations they manage.

Academic study of private sector organizations, namely those dealing with corporate boards, has long recognized the importance of intercorporate network relationships between executives.

Interlocking Directorates

In the United States, all publically traded corporations must have a governing board of directors comprised of at least three individuals; large corporations often have 10 or more individuals serving on its board, some of whom come from outside the company (Mizruchi, 1996, p.272).

These outside directors regularly serve on the boards of other corporations (e.g. banks) as do some internal directors. These informal relationships, known as interlocking directorates, serve to connect both individuals and organizations (Levine & Roy, 1979). Viewed from this perspective, American corporations are highly interlocked. An analysis of Fortune 500 companies found that the median number of intercorporate interlocks (organizational level) was 7, but that the distribution was skewed by a small number of firms with upwards of 50 interlocks (Davis, 1991, p. 592).

There are a wide range of etiological explanations for the existence of interlocking directorates (e.g. collusion, class cohesion, monitoring), yet interlock as a means of organizational legitimacy is particularly compelling (Mizruchi, 1996). "By appointing individuals with ties to other important organizations, the firm signals to potential investors that it is a legitimate enterprise worth of support" (p. 276). The reasons for interlock are perhaps less important than their effects upon organizational performance and other phenomena, like diffusion. It would be reasonable to hypothesize that the degree of interconnectedness found on corporate boards is positively correlated with organizational performance. However, several decades of research has only produced mixed findings about this relationship (Larker, So, & Wang, 2013; Mizruchi, 1996). Even recent studies diverge on this question. Larker et al (2013) found that those firms with the highest degree of board centrality outperformed their lesser connected counterparts in stock market returns. Despite this ostensible advantage, interlocked firms may actually have an iatrogenic effect when it comes to stock performance following a merger or acquisition.

A study of S&P 1500 data found that interconnected CEOs engaged in more merger and acquisition activity, but that these deals were emblematic of "value destructive behavior", ultimately leading to lower stock prices for shareholders (Khatib, Fogel, & Jandik, 2015).

The sometimes volatile world of corporate mergers and hostile takeovers via shareholder vote spawned an innovative boardroom strategy in the early 1980s that became known as the *poison pill*. When faced with the prospect of a hostile takeover contrary to the wishes of the board, board members can discourage the acquisition by intentionally devaluing the stock in ways that benefit the current shareholders, yet work against the interests of the acquiring company (Wolonick, 2014). Diffusion of the poison pill as a corporate strategy mirrors the classic sigmoid curve. Early adopters often faced the looming threat of a hostile takeover, yet this characteristic largely disappeared as the innovation rapidly diffused between 1985 and 1989 (Davis, 1991). By 1989, 60% of all publically traded Fortune 500 companies had a poison pill provision in place (p. 587). The diffusion of the poison pill is particularly intriguing when considering the possible role of interlocking directorates. Although the concept of the poison pill received extensive coverage in the financial news media, this innovation was largely diffused by interlocking directorates, not headlines. Davis (1991) found that not only could the raw number of interlocking directorates predict the poison pill's adoption rate, but that the interlocks actually formed a network through which corporate contagion could spread. "As more of a firm's contacts adopted the pill, the firm's own predicted rate of adoption subsequently increased" (p. 605).

Organizational Theory

The growing importance of organizations in modern society cannot be understated, so much so, that Perrow (1991) argues other key social structures (e.g. family, religion) now function more like dependent variables in relation to organizations. Much of social and economic life is now dictated or at least heavily influenced by organizations. The domineering role of organizations in the industrial age was quickly realized by the likes of Marx and Weber whose writings are among the first formal studies of organizations. Organizational theory was developed from these early observations and is fundamentally concerned with the structure and behavior of organizations. For the purposes of this dissertation, organizational theory is defined as a group of related concepts, principles, and hypotheses used to describe and explain observed structural and behavioral characteristics of organizations (Hodge & Anthony, 1991).

Weber (1968), widely recognized as the father of organizational theory, was struck by the power of organizational bureaucratization which was catalyzed by the expanding markets of the industrial age. Bureaucracy was the manifestation of rationality in the organizational setting (DiMaggio & Powell, 1983, p.147). Rational bureaucracy brought about great efficiencies, but also generated externalities in the lives of workers. Weber (1968) proffered an ideal type of bureaucracy that included features like fixed areas of activity ordered by rules, a hierarchical structure, the importance of written documents in determining action, the necessity for expert training, full engagement by bureaucratic officials in their duties, and management by a set of general rules that can be learned.

The guiding principles of rationality were eventually merged with scientific approaches to management that relied heavily on measurement, experimentation, and the formalization of technical rules.

Late 19th and early 20th Century researchers like Taylor and Hawthorne typify what is now referred to as the technical or rational approach to organizational theory. According to the technical/rational approach, organizations must compete and adapt through the development of rationalized formal structures (Meyer & Rowan, 1977, p. 342; Scott, 1987). The formalization of organizational rules and structures is readily observed in Wilson's (1943) prodigious work, *Police Administration*.

It can be argued that American police organizations still reflect Weber's ideal bureaucracy, or that formalized systems of command and control remain firmly entrenched. Public agencies, including the police, zealously maintain the outward appearance of rationality when it comes to organizational structure. This view is well represented by the ubiquitous table of organization, readily available on police department websites (Los Angeles Police Department [LAPD], 2013). Yet not all organizational behavior can be explained using the technical/rational model and outward appearances may belie reality.

Organizational studies of policing have evolved considerably from Wilson's (1968) typology of police behavior. There is now a diversity of theoretical explanations that have been used to explain organizational behavior in the police context. These include critical theory, resource dependence, political economy, labor process theory, contingency theory, and institutional theory (Baxter, 1989, p. 286-287). Despite this apparent theoretical heterogeneity, modern scholarship on police organizations has slowly become bifurcated between two prevailing organizational theories. King (2009), in advancing his own life-course perspective of police organizations, notes the dominance and scholarly value of (structural) contingency theory and institutional theory (p. 218).

Despite a common origin in organizational theory, contingency and institutional theories are conceptually antipodal when it comes to the precise nature of the organizational environment. As previously mentioned, the conceptual understanding of organizations has shifted from that of a closed system to an open systems perspective (Maguire, 2003). In the open systems view, organizations must navigate complex environments filled with a variety of external forces with whom they must interact (e.g. media, citizens, politicians, other branches of government, community stakeholders); these entities are sometimes referred to as sovereigns (Crank, 2003; King, 2009). Depending on organizational and environmental conditions, sovereigns can exert considerable influence on organizational behavior. This is particularly true for police organizations which have been described as the most visible form of government (Goltz, 2006).

Structural Contingency Theory

Primary divergence between contingency and institutional theories involves the perceived level of rationality believed to exist in the organizational environment. Contingency theorists view the external environment as rationally constructed; organizations adapt to changes in the external environment in a logical, efficient manner (Baxter, 1989; Donaldson, 1995). Although it is not always formally identified, contingency theory is "the implicit foundation of nearly every study of police organizations" (Maguire & Uchida, 2000, p. 535).

Contingency theorists can generally be classified into two groups based on their conceptualization of organizational change as an active or passive process (King, 2009). Under the first conceptualization, organizational change is viewed as a passive response to external forces (i.e. sovereigns). Alternatively, some structural contingency theorists conceptualize organizational change as a rational adaptation leveraged by the organization as a means to control the external environment.

Despite disagreement as to whether organizational change is a passive or proactive response to the external environment, both views maintain theoretical homogeneity; each adaptation is rationally constructed and serves to engender organizational survival and greater organizational efficiency.

Wilson's (1968) seminal work entitled *Varieties of Police Behavior* held to the former view regarding the external environment and effectively catalyzed a body of scholarship seeking to explain how various contingencies (e.g. history, technology, environment) shape police organizational behavior.[2] A review of Wilson's typology demonstrates his conception that community variables (e.g. size, governmental structure, racial composition, etc.) were instrumental in determining the structure and behavior of police organizations. For example, Wilson identified several cities that practiced a watchman style of policing. The watchman style placed an emphasis on serious crime and order maintenance, yet police officers maintained a high level of discretion for non-serious crimes. Observed variation between cities in regard to discretionary enforcement for crimes like gambling or dealing with drunks and minorities was largely attributed to different community standards as dictated by the political leadership and the police chief (Wilson, 1968, p. 143). Wilson's study is obviously a product of the era in which it was authored, yet there is clear construct validity associated with his premise that police organizational behavior should be viewed as a dependent variable.

While Wilson relied on a somewhat simplistic quantitative design, a recent study by Zhao, Ren, and Lovrich (2010) applied quantitative methods to test the viability of contingency theory in explaining police organizational change during the 1990s. Specifically, Zhao et al. (2010) looked at the phenomenon of structural change within the police organization as predicted by its relationship to the external environment.

In this study, the external environment was operationalized using several factors including organizational size, use of technology, and environmental complexity (e.g. socioeconomic demography). It is important to note that these factors were treated as independent variables thereby advancing the notion that organizational change is largely a reactive process. For example, adaptation to new technology (or the lack thereof) would be a potential determinate of change within the police organizational structure (p. 215). Likewise, larger police organizations and those with stronger finances would be expected to exhibit higher levels of organizational change. Despite application of several different models, the study found "remarkable stability of structural arrangements in American police organizations" (Zhao et al., 2010, p. 222). These findings are somewhat surprising given the ostensible philosophical and structural changes commonly associated with the COP movement (e.g. flattening of organizational hierarchy). Although not discussed, the lack of observed structural change actually perpetuates the institutional theory perspective (Crank, 1994). Organizational growth, spending, and acquisition of new technology without a concomitant shift in organizational structure smacks of institutional legitimacy, not efficacy.

Another example of structural contingency theory comes from the previously discussed study on the growth of Compstat in the 1990s (Weisburd et al., 2004). The study is more exploratory than explanatory, but respondent agencies were queried about their motivations for adopting Compstat. The answers provided were diverse, yet were "strongly related to a department's expressed desire to reduce serious crime and increase management control over field operations" (p. 15). Although structural contingency theory was not explicitly identified in the study, the stated motivations for adopting Compstat were clearly framed as a rational adaptation to control crime and effectively manage personnel.

This understanding can be explained by the technical/rational model (Willis et al., 2007), but is a better fit with structural contingency theory; namely, a proactive adaptation intended to control the external environment.

Institutional Theory

In contrast to contingency theory, institutional theorists posit that organizations exist in complex, value laden environments (Crank, 2003; Zucker, 1987). In order for organizations to successfully navigate through such environments (i.e. survive), they must first be perceived as legitimate. Legitimating activities often involve conformity to established structures (Crank, 2003; Crank & Langworthy, 1992; Mastrofski & Uchida, 1996; Zucker, 1987). Examples of legitimacy producing structures include professional certification, conformity to governmental regulations, and accreditation (Crank & Langworthy, 1992; Zucker, 1987). Organizations operating in institutionalized environments are rewarded when they establish "correct structures and processes'', often with little regard to organizational efficiency (Scott & Meyer, 1983, p. 149). Institutionalization, with its emphasis on organizational legitimacy and reputation, can also help explain patterns of innovation and diffusion. The more a given innovation positively affects reputation, the more likely it is to diffuse rapidly and be retained by the organization (Zucker, 1987, p. 453). Institutional theory predicts that legitimacy conferring innovations will not only be adopted rapidly and retained, but that there is a tendency to receive these innovations with uncritical acceptance (p. 453). Because legitimacy is valued above organizational efficiency, there is no need for independent evaluation.

Institutional theory may seem untenable at first blush because organizations convincingly maintain an outward appearance of legitimacy.

Furthermore, institutional theory challenges many assumptions that are widely held regarding

institutions and social action (Zucker, 1987, p. 443). Once the veil is lifted, however,

institutional forces are evident in many aspects of organizational behavior. These forces are

readily observed in public organizations which are highly institutionalized. Research has

demonstrated that public agencies are actually more prone to institutional forces than private or

non-profit sectors (Frumkin & Galaskiewicz, 2004). This is especially true for police agencies

"which are exemplars of institutionalized organizations" (Crank, 2003, p. 187). Institutional

behavior permeates policing and can even help explain sweeping organizational changes like the

COP movement of the 1980s and 90s (Crank, 1994) and Compstat (Willis, 2013; Willis et al.,

2007).

Myth, ceremony, and production within the institutional environment.

Closely related to the notion of institutional legitimacy is that of social and institutional

myths. Myths are important because they imbue institutions with meaning and engender

legitimacy (Crank, 1994, p. 331). Myths may be viewed through a functional perspective

whereby myths validate and reinforce social customs and institutions (Crank, 1994, p. 331). The

focus of this dissertation, institutional accreditation, reinforces myth through ceremonial rituals:

> Accreditation proceeds through such ritualized (scripted) procedures as establishing an
>
> outside review committee, conducting interviews with faculty and students, collecting
>
> data through internal audits of libraries and other educational resources, and so forth.
>
> The enactment of such rituals is the essence of accreditation. (Barley & Tolbert, 1997, p.
>
> 99)

It can be argued that institutionalization itself is actually a process guided by myth construction (Crank, 1994, p. 326). Meyer and Rowan's (1977) seminal paper thoroughly examines the relationship between formal organizational structure in the institutionalized environment with that of myth and ceremony. They argue that elements of formal structure such as professions, programs, and even technology can function as myths (p. 344). When myths are successfully implemented within the organizational setting (e.g. structure, activities) it serves to generate legitimacy among actors in the institutional environment (Crank & Langworthy, 1992, p. 339) thereby increasing chances for organizational survival (Meyer & Rowan, 1977). These myths are rationalized and quickly become entrenched aspects of the organization. Unfortunately, institutional myths are often adopted without regard for their actual efficiency or efficacy. In some cases, such formal structures can actually work directly against these principles of production. When organizations engage in myth construction, they must appropriate and or reallocate valuable organizational resources. Such a shift necessarily distracts organizational actors from task performance thereby reducing organizational efficiency (Zucker, 1987, p. 443). Institutionalized organizations must somehow deal with inconsistencies between structure and technical production. This is achieved through *decoupling* (i.e. disconnecting formal structures from evaluation) and the *logic of confidence* (i.e. applying a "good faith" standard that overlooks errors and lack of production) (Meyer & Rowan, 1977, p. 357-358; Zucker, 1987).

Likewise, ceremony plays an important role within the institutional environment. Ceremonial rules are transmitted by myths within the organizational environment (Meyer & Rowan, 1977, p. 355).

Ceremonial rules and ceremonial production serve to legitimize organizational or unit level performance, but ultimately have a negative impact in regards to efficiency. There is, in fact, an inverse relationship between criteria that govern ceremony and efficiency. As explained by Meyer and Rowan (1977) "… conformity to institutionalized rules often conflicts sharply with efficiency criteria and, conversely, to coordinate and control activity in order to promote efficiency undermines an organization's ceremonial conformity and sacrifices its support and legitimacy" (p. 340-341). There are limited instances where police legitimacy can be ceremonially stripped away instead of added. For instance, the ceremonial removal and replacement of police chiefs, often triggered by some precipitating event, can be viewed a means to regain public legitimacy (Crank & Langworthy, 1992, p. 358). Likewise, high profile blue-ribbon panels held at various periods of time during the 20th century also served this function (Crank, 1994). The growing popularity of federal consent decrees (Goode, 2013) may provide a modern example of this ceremonial function.

The policing profession itself is highly ceremonial and is rife with institutional myths. Kelling (1991) rails against the myth known as the criminal justice system along with the crime-control mindset that this metaphor tends to inculcate in the police.

> Crime-control ideology is rife with metaphor: 'Wars' are fought against crime; detectives solve cases using Sherlock Holmes-like ratiocination; Justice is a robed, blindfolded woman bearing a scale; the police are a 'thin blue line' protecting innocent civilians from criminal marauders. (Kelling, 1991, para 12)

The professional era of policing during the 20th century embraced this crime-fighting occupational identity (Johnson, 2011; Walker, 1992) which arguably persists today despite clear empirical evidence that only a small percentage of police work actually involves apprehending and arresting criminals (Green & Klockars, 1991). Crank (1994) similarly argues that a watchman myth was reinforced through broken windows theory (among other things) and that the myth was eventually coupled with the community policing movement.

Rapid response, primarily driven by the 911 system, has also been identified as a largely ineffective institutional myth (Crank & Langworthy, 1992). Myth and ceremony are visually communicated in the trappings of the police uniform along with the hierarchical rank structure present in most police departments (Crank & Langworthy, 1992, p. 342-343). These elements of policing are highly ceremonial and play into institutional myths regarding the *war on crime* and the pernicious belief in a quasi-military system of policing (Shane, 2010). Unfortunately, policing's addiction to myth-based structural and symbolic representations of quasi-military and paramilitary models can negatively impact public legitimacy (Kraska & Kappeler, 1997; Shane, 2010, p. 91).

Other ceremonial rules formally codified in policies and procedures or carried by tradition are also emblematic of institutional myths. The era of professional policing inculcated a near religious belief in randomized patrol. This myth manifested itself ceremonially through a required or expected level of output as measured by patrol miles driven. Wilson (1942) suggested that police administrators review daily vehicle reports for mileage as a measure of "good patrol work" (p. 166). Unfortunately, conformity to these categorical rules created by ceremony flew in the face of several efficiency criteria.

A final example is found in the proliferation of specialized units disconnected from traditional policing functions, such as a gang squad (Crank & Langworthy, 1994; Katz, 2001). These units may receive considerable attention and funding, yet their actual efficiency or effectiveness is rarely questioned. Similarly, other specialized units may spend a great quantity of time and money participating in various ceremonial competitions. SWAT team challenges, awards that recognize the "best" traffic division, or slightly inane contests that judge the best looking police vehicle package may garner both public and interorganizational legitimacy, yet these ceremonial awards are bestowed with little to no regard for outcome based measures. A SWAT team could perform proficiently in competitions, yet generate a pattern of socially undesirable outcomes in the real world. In this sense, these output-related activities are essentially a means to an end and have little nexus to objective conceptions of legitimacy (Moore & Braga, 2003).

Review of institutional policing literature.

The extant body of institutional policing literature is limited in size and tends to lack a solid empirical basis. History can provide a partial explanation for this void as the closing decades of the 20th century were transformative for policing. Rapid social change of the 1960s paired with failure of police agencies to fulfill their established mandate created a legitimacy crisis in American policing (Crank, 1994; Walker, 1992). Ensuing political and judicial intervention came in many forms. Particularly noteworthy were the federal block grants funded by the Omnibus Safe Streets and Crime Control Act of 1968 (Crank, 1994). Federal funds and even private monies flooded the field which in turn helped to spark a variety of innovations, although many were short-lived (e.g. team policing).

Policing research during this period was largely preoccupied with the normative identification and development of best practices (Crank, 2003; Langworthy, 1986) which is akin to action-research. Formal studies of police organizations were rare; a decade ago there were only 10 empirical studies of police organizational structures (Maguire, 2003, p.39). While useful, much of the policing literature produced during this period failed to take context (i.e. the external environment) into consideration (Langworthy, 1986). Crank and Langworthy (1992) note their surprise that, "Even though police departments are quintessential public sector agencies, efforts to assess them using an institutional perspective are almost nonexistent" (p. 341). This statement generally holds true more than twenty years later, especially when considering the vast quantity of policing scholarship produced in the interim. Regrettably, in the limited instances where organizational behavior is linked with the institutional perspective, scholars have largely failed to empirically test institutional theory. Maguire and Uchida (2000) signal that it is time to move beyond mere theoretical applications of institutional theory and develop methods to this end (p. 536).

As previously mentioned, Weisburd et al. (2004) seemingly relied on a structural contingency approach to help explain the spread of Compstat. However, several coauthors from this study later wrote about Compstat from the alternate framework of institutional theory (Willis, 2013; Willis et al., 2007). From this perspective, Compstat is not viewed as a rational adaptation to crime and disorder. Rather, the technical and scientific elements of Compstat serve to legitimize traditional policing methods. Discussing the relationship between the evidence based policing movement and policing craft, Willis (2013) argued that, "impressive electronic maps and crime statistics—the harbingers of science—help confer legitimacy on police actions while the experience-based aspects of police work continue to hold sway" (p. 6).

Weisburd, Mastrofski, Willis and Greenspan (2011) similarly chided the supposed adoption of Compstat in a work unceremoniously titled *Changing Everything so That Everything Can Remain the Same: Compstat and American Policing*.

Although not empirically tested, Crank (1994) makes a persuasive argument linking the loss of police legitimacy during the second half of the 20th century with the emergence and subsequent proliferation of COP. COP is highly symbolic and draws heavily on nostalgic myths of small town communities and the local watchman (p. 340). Furthermore, COP is highly mutable, allowing the strategy to be leveraged in ways that fit both liberal and conservative agendas (i.e. crime prevention and order-maintenance, respectively). Thus, adopting COP as an operational strategy serves to restore legitimacy in the external environment, particularly with key institutional actors (p. 347). There is some empirical evidence based on analysis of survey data linking the adoption of COP to a variety of institutional pressures (Giblin & Burruss, 2009).

Legitimacy seeking behavior among institutional actors was also observed in Katz (2001) study of police gang units. Unlike other studies from the institutional perspective, Katz (2001) was able to empirically measure institutional phenomena through a multimethodological qualitative study focusing on a single Midwestern police agency. Findings suggest that formation of the gang unit was based upon social and political factors (p. 52), yet there was scant evidence to support that a gang problem even existed in the city (p. 56). The unit struggled to gain internal legitimacy largely due to racial undertones and cultural expectations within the agency. Eventually the gang unit was able to achieve legitimacy (internal and external) by shedding its community policing orientation and shifting towards enforcement based strategies (p. 62).

Katz (2001) concludes that:

> …the gang unit's response was extremely susceptible to coercive pressures place on it by its institutional environment. In particular, the findings of the present study suggest that because the gang unit was created as a result of institutional considerations, instead of as a result of rational considerations, its organizational structure and operational activities were largely a function of ceremony more so than a reflection of the organization's need to act in a rational or effective manner. (p.66)

Although institutional theory has been applied sparingly in the context of policing, it provides a tenable framework for evaluating police organizations. This is particularly true when it comes to evaluating police innovation and diffusion.

Institutional isomorphism.

The present exegesis of institutional theory would be fundamentally flawed without discussing the interrelated (and perhaps indivisible) notion of institutional isomorphism. The concept of isomorphism comes from the natural sciences where convergence between organisms or chemical compounds can produce observable similarities. Perhaps it is not surprising then, that the concept of isomorphism was first adapted beyond natural science to the study of human ecology. Sociologist Amos Hawley (1968) defined isomorphism as "units subject to the same environmental conditions, or to environmental conditions as mediated through a given key unit, acquire a similar form of organization" (p. 334). Although this conceptual definition was sufficient for the study of humans and social groups, it took nearly a quarter century before isomorphism was further extrapolated to the realm of organizational studies.

Meyer and Rowan (1977) were the first to recognize isomorphism in institutions, but it was DiMaggio and Powell (1983) that definitively amalgamated isomorphism and institutional theory.

Under Meyer and Rowan's (1977) conception of isomorphism, "organizations are structured by phenomena in their environments and tend to become isomorphic with them" (p. 346). They reject the notion held by Hawley (1968) and others that technical and exchange interdependencies are developed by organizations in order to mirror the external environment (p . 346). Rather, structural isomorphism is viewed as a product of socially constructed reality; organizational structures are brought into conformity with rationalized myths operating in the external environment or society itself (p. 346). In this sense, structure is essentially a dramaturgical manifestation at the organizational level (Crank & Langworthy, 1992; Meyer & Rowan, 1977). Meyer & Rowan (1977) proffer that several consequences will arise as organizations become isomorphic with their institutionalized environments:

> (a) They incorporate elements which are legitimated externally, rather than in terms of efficiency; (b) they employ external or ceremonial assessment criteria to define the value of structural elements; and (c) dependence on externally fixed institutions reduces turbulence and maintains stability. As a result, it is argued here, institutional isomorphism promotes the success and survival of organizations. Incorporating externally legitimated formal structures increases the commitment of internal participants and external constituents. (p. 348-349)

The consequences which stem from isomorphism are wholly congruent with the notion of external accrediting bodies and the very concept of accreditation itself.

Institutional isomorphism was further developed by DiMaggio and Powell (1983) who identified an emerging paradox in professionalized organizations. They noted that when rational actors from a professionalized field initiated organizational change, the consequent result was for organizations become increasingly similar (p. 147). This is somewhat counterintuitive as organizational change often implies a new direction, not conformity. DiMaggio and Powel (1983) cite Webber's (1968) foundational theoretical contribution to the study of bureaucratization, but argue that the causal forces driving bureaucratization and rationalization have changed (p. 147). The competitive marketplace and its concomitant demand for efficiency have attenuated as driving forces behind organizational change. These have been supplanted by the "structuration of organizational fields" which is driven by the external environment, specifically the government and occupational professionalization (p. 147). Institutional structuration within a given field has four components:

> An increase in the extent of interaction among organizations in the field; the emergence of sharply defined interorganizational structures of domination and patterns of coalition; an increase in the information load with which organizations in a field must contend; and the development of a mutual awareness among participants in a set of organizations that they are involved in a common enterprise. (p. 148)

There is a healthy debate whether policing in the United States can be considered a true profession (Bizzack, 1993; Bumgarner, 2001; Niederhoffer, 1967; Price, 1977), yet DiMaggio and Powel's (1983) four factors intuitively fit the context of modern American policing. They posit that fields meeting these conditions will naturally gravitate towards organizational homogeneity, which they call isomorphism.

Isomorphism can be a product of competition in limited situations (e.g. early adoption of innovation), yet an institutional perspective of isomorphism is much better suited to explaining change in modern organizations, especially those in established fields like policing. DiMaggio and Powell (1983) advance a typology of sorts to help explain the various mechanisms driving isomorphic phenomena in the institutional context. They point to three identifiable mechanisms, *coercive*, *mimetic*, and *normative*, that function as catalysts for isomorphic change (p. 150).

Coercive isomorphism.

The first mechanism identified by DiMaggio and Powel (1983) is coercive isomorphism. As the name suggests, this type of organizational change is obligatory. Although coercive isomorphism can occur in any context, it is commonplace in the public sector where organizational change is often compulsory. The external environment includes powerful sovereigns like elected officials who wield considerable force. Likewise, legislative, judicial, or even regulatory mandates may compel organizations to change in ways that produce isomorphism. At least one policing study has conceptualized federal funding as a source of coercive isomorphism (Giblin & Burress, 2009). A good example of coercive isomorphism comes from comprehensive domestic violence legislation which was passed by the Connecticut Legislature in 2012. This legislation included a provision requiring every police department in the State of Connecticut to comply with a model policy and further mandated that each police department assign a supervisor to act as a domestic violence liaison (State of Connecticut, 2012). Legislative intervention (albeit noble) imposed structural change upon every police agency in the state, ostensibly triggering coercive isomorphism.

This may be part of a larger trend as federal oversight, primarily leveraged by the Department of Justice (DOJ), has become a coercive catalyst for police reform.

In recent years, the DOJ "initiated 15 investigations into troubled law enforcement agencies, almost twice the number carried out in the last four years of the Bush administration" (Goode, 2013, p. A14). Many of these investigations lead to federal consent decrees or negotiated settlements that impose myriad changes to department policies and practices. As noted by Samuel Walker, "No police department should be in a position where it can be sued by the Justice Department, because the past cases make clear what is expected of them" (Police Executive Research Forum [PERF], 2013, p.5). The federal government is obviously limited in its ability to monitor a large number of police departments in the United States. However, the mere possibility of federal oversight may coercively promote organizational change as a prophylactic measure against the high costs (both financial and political) often associated with federal compliance.

Mimetic isomorphism.

Mimetic processes at the organizational level are primarily driven by uncertainty in the external environment. Uncertainty can manifest itself in a variety of ways including ambiguous goals, symbolic uncertainty in the organizational environment, and even unfamiliar technologies (DiMaggio & Powel, 1983, p. 151). It is worth mentioning that while most organizations will encounter poorly understood technologies (Kapur, 1994) and symbolic uncertainty, few organizations will ever face the level of ambiguity and conflicting mandates attendant with the police role (Bittner, 1970; Manning, 1977). The police occupation itself is dominated by uncertainty, both in its job content (i.e. operational stressors) and job context (i.e. organizational stressors) (Shane, 2010, p. 807-808). Furthermore, police can expect to experience both role conflict and role ambiguity. Role conflict is produced when discordant perceptions or expectations intersect.

This was aptly described by Manning (1977) who juxtaposed naïve, media-driven perceptions of the police held by citizens with the banal and often unpleasant realities of actual police work (p. 100). Similarly, role ambiguity results from unclear role expectations. Much of police work is undefined, yet police organizations fail to fill in these gaps when it comes to formal role expectations (Shane, 2008, p. 54). Much of the extant literature regarding the uncertainty and ambiguity of policing has focused on individual or cultural dimensions. However, it is worth discussing how institutionalized organizations (like police agencies) respond at the organizational level when confronted with uncertainty in the external environment. One common response is for the affected organization to look for other organizations that have faced similar challenges in the past and respond in a like manner. DiMaggio & Powel (1983) call this process *modeling*.

> Modeling, as we use the term, is a response to uncertainty. The modeled organization may be unaware of the modeling or may have no desire to be copied; it merely serves as a convenient source of practices that the borrowing organization may use. Models may be diffused unintentionally, indirectly through employee transfer or turnover, or explicitly by organizations such as consulting firms or industry trade associations. Even innovation can be accounted for by organizational modeling. (p. 151)

As previously mentioned in the context of coercive isomorphism, federal consent decrees may bring about organizational change within the affected agency and beyond. The growing frequency, scope, and duration of federal consent decrees (PERF, 2013) have likely injected a high degree of uncertainty into the external environment. Arguably, the level of uncertainty in the context of policing is already elevated due to the documented impact of civil litigation against police agencies (McCoy, 1987; McCoy 2010; Nowicki, 1987; Weiss, 1997).

Organizations responding to such uncertainties are apt to engage in modeling behavior.   Case in point, when the State of Connecticut's Police Officer Standards and Training Council (POSTC) drafted a statewide model Taser policy governing the use of Electronic Control Weapons (ECWs), they reviewed the Portland Police Bureau's ECW policy which had passed external review by the DOJ in the wake of a federal pattern and practice lawsuit (D. Lovello, personal communication, August 29, 2013). It should be noted that this example of isomorphism may be interpreted as either coercive or mimetic in nature. This fact does not conflict with DiMaggio and Powell (1983) as their typology "is an analytic one: the types are not always empirically distinct" (p. 150).

Because of its relative ease and low cost, modeling can be viewed as a heuristic method of organizational problem solving. It is important to note that both good and bad policing policy could flow through these processes. Rather than engage in empirical research or look to evidence based practices, institutionalized organizations may fall back on modeling. Although no data are presented to support their claim, DiMaggio and Powel (1983) state that, "Organizations tend to model themselves after similar organizations in their field that they perceived to be more legitimate or successful" (p. 152). Weiss (1997, 1998, 2001) collected empirical data that supports this assertion, finding that organizational reputation is an important factor when it comes to the diffusion of innovation. Weiss (1997) also found evidence of peer-emulation among policing policy makers. The process of peer-emulation was facilitated through regional and other informal networks, often relying on the practice of "calling around" (p. 307). Peer-emulation was also the mechanism employed by organizations seeking to engage in risk mediation when faced with legal uncertainties.

A prime example of peer-emulating isomorphism comes from the poison pill boardroom strategy of the 1980s, which diffused as a response to the uncertainty of hostile corporate takeovers (Davis, 1991). Finally, Weiss (1997, 2001) established the idea of cosmopolitanism, conceptualized as "the participation of police executives in policy communities" (1997, p. 305). The existence of cosmopolitan policing leaders also influenced patterns of communication and diffusion; policymakers were more likely to bypass their regional and informal networks in favor of a cosmopolitan organization when it involved a substantive policy issue (Weiss, 2001).

Evidence of modeling in law enforcement can also be gleaned from archival and anecdotal sources. Salient historical examples may be found in the diffusion of police SWAT teams, beginning with the LAPD in 1967 (Del Barco, 2008; Johnson, 2010; King, 1998), and the changeover from "wheelguns" to semi-automatic pistols, which reached a tipping point among American law enforcement agencies in the late 1980s (Miller, 1989). These two examples are representative of DiMaggio & Powel's (1983) "symbolic uncertainty" and "poorly understood organizational technologies" (p. 151). In both instances, organizations seeking to establish new units or adopt new technology turned to respected or similarly situated organizations that had already adopted the innovation (Johnson, 2010; Miller, 1989). Such arguments are regularly proffered as partial justification for modeling behavior without due regard for potentially fallacious reasoning (i.e. Appeal to Authority, Appeal to Common Practice). As with other isomorphic phenomena, modeling typically occurs with little regard for organizational efficiency. Due to its relative ease and legitimacy imbuing qualities, modeling can quickly become the organization's *modus operandi*. While it may be an expedient organizational strategy, modeling may actually have two unintended consequences.

First, modeling may function like a contagion, spreading ineffective or even iatrogenic policing practices through informal networks. Unfortunately, "innovation is not inevitably good; there are at least as many bad changes as good" (Wilson, 1989, p. 227). Secondly, it may ultimately serve to stifle organizational innovation in the long run. The official motto of The National Association of Police Planning and Research Officers (now The International Association of Law Enforcement Planners) was "Don't Re-invent the Wheel" (Weiss, 1997, p. 307). This rather pedestrian motto, while arguably pragmatic, is highly antithetical to the spirit of innovation. The advancement of the policing profession itself depends upon the continual development, implementation, and evaluation of research-based innovations (Skogan & Frydl, 2004; Stone & Travis, 2011). Unfortunately, police organizations can be intransigent when it comes to implementing innovation and organizational change (Skogan, 2008); the practice of modeling may only reinforce this tendency.

Normative pressures.

The third typological model capable of explaining institutional isomorphism is that of normative pressure. This form of isomorphism results primarily from the structuration of the professions. Professions, like organizations, are also subject to coercive and mimetic pressures (DiMaggio & Powell, 1983, p. 152). As previously mentioned, there is a lack of consensus regarding whether policing may be classified as a true profession in the sociological sense of the word. There are two key aspects of professionalization related to isomorphism that may fit the American policing experience: "formal education and of legitimation in a cognitive base produced by university specialists" and "the growth and elaboration of professional networks that span organizations and across which new models diffuse rapidly" (DiMaggio & Powell, 1983, p. 152).

According to DiMaggio and Powell's (1983) model, it is presumed that structured professions only draw new members from a limited number of educational institutions or from other similar organizations in the same field. Thus, the majority of incoming organizational members have already been filtered into the profession (p. 152). The practice of filtering causes incoming employees to act upon the organization in ways that produce isomorphism. While organizations can act upon new employees (i.e. socialization), it is presumed that this will only occur if the employee had somehow managed to bypass the filtering process or lacks homogeneity with other organizational members (p. 153).

It is worth considering whether this aspect of normative isomorphism can be generalized to policing. There is extreme heterogeneity across jurisdictions and the states when it comes to police educational requirements for hiring and promotion (Skogan & Frydl, 2004). Therefore, the assertion that formal police education has expanded to the degree that it could actually trigger organizational isomorphism is likely untenable. However, the proliferation of criminal justice programs in higher education over the last forty years is a compelling consideration (Clear, 2001). This, paired with the wellspring of policing research and scholarly publishing during the same timeframe, may very well signal that policing has finally delivered a cognitive base or body of professional knowledge. This characteristic is widely held to be one of the defining characteristics of a profession (Larson, 1978; Bumgarner, 2001).

In support of the normative pressure model, police organizations are comprised almost entirely of employees who have either attended the same police academy or at the very least, attended academies governed by the same credentialing body. The diffusion of police academy graduates to multiple organizations could produce isomorphism among the receiving agencies.

Likewise, increased interorganizational movement of law enforcement personnel at the line, supervisory, and executive levels would also be expected to generate isomorphism among law enforcement organizations. A national study of police recruitment and attrition found that nearly half of officers departing small agencies and approximately a quarter leaving large agencies remain in law enforcement (Koper, Maguire, Moore, & Huffer, 1999, p. iv). This trend supports normative isomorphism; however, this type of interorganizational movement is exceedingly rare at the supervisory level. There are comparatively more opportunities for lateral or diagonal movement between police organizations at the executive level of policing (International Association of Chiefs of Police [IACP], n.d.). Public sector agency heads often have wide latitude when it comes to policymaking decisions in the bureaucratic environment (Morabito, 2010). The potential for normative isomorphism is a foreseeable outcome when a police chief is hired "from the outside", but this begs the question whether there is an underlying relationship between public sector hiring practices and organizational innovation itself. Cross-sectional data support that education and level of professional involvement are significantly correlated with the initiation of professionally fashionable innovations by police chiefs and other public sector agency heads (Teodoro, 2009, p. 185). Yet these two variables had little explanatory power when considering career path, finding that executives hired externally were more innovative than their internal hire counterparts. Thus, the diagonal model of agency hiring functions as a catalyst for cross-pollination between organizations and also serves to expose the government to a policy agenda set by the profession from which the executive hails (p. 187).

Isomorphism is typically characterized as something negative, yet some degree of coherence could benefit the policing profession.

In their clarion call for police reform, Stone and Travis (2011) describe police ambitions for continued accountability, legitimacy, and innovation as well as the need for a transferrable set of protocols to achieve what they call a *national coherence* (p. 1, p. 3). These four elements coalesce to form the conceptual framework known as the *New Professionalism* (p. 2). Although their work does not specifically mention isomorphism, Stone and Travis (2011) express that coherence is needed "in the skills, training and accreditation of police" (p. 19). This type of coherence is likened to medical protocols which would be portable across jurisdictions. They suggest several ways in which a national coherence might be advanced in policing; at least two of these concepts have relevance to this dissertation. Stone and Travis (2011) point to increased mobility at all levels of police organizations (e.g. line employees, midlevel managers, etc.). Professional mobility would serve to carry ideas and innovations between organizations, which in turn would produce isomorphism. They also laud the role of policing's professional organizations in generating national conversations, especially those involving practitioners and researchers (p. 17).

There is a rich history in the United States when it comes to police professional networks, particularly at the executive level. Professional networks can also be a source of normative isomorphism, particularly in "the definition and promulgation of normative rules about organizational and professional behavior" (DiMaggio & Powell, 1983, p. 152). Beginning in the late 1800s, American police chiefs began to correspond and network with their counterparts in other states. Chiefs of police slowly began to organize themselves professionally. In 1892, the IACP was formed (Deakin, 1988). The IACP featured annual meetings that attracted chiefs from around the country and fostered a spirit of cooperation. Beginning in 1901, the IACP addressed important police topics like crime prevention and technology.

The IACP even passed a unanimous resolution to end "third degree" interrogations in 1910 (p. 40). This resolution is emblematic of normative pressures that can bring about isomorphic change. Most police executives would be reluctant, at least publically, to support the third degree after such overwhelming opposition by their peers.

Today, professional networks in policing have expanded far beyond the IACP. Organizations like PERF, FBI National Academy Associates (NAA), and the Senior Management Institute for Police (SMIP) serve to bring policing leaders from across the country into close proximity for training and other fraternal activities. These meetings, along with professional publications, may serve to diffuse policing innovations and ideas rapidly. The formal role of professional associations and organizations in the diffusion process was recognized by Weiss (1998) as well as Skogan and Frydl (2004) who specifically mentioned the influence of PERF and the IACP in encouraging innovation.

Closely related to professional associations in this regard are accrediting and auditing bodies. Professional auditors or consultants are often retained by sovereigns from the external environment (e.g. mayor, town council) in order to study and improve organizational efficiency; this may ultimately lead to the implementation of innovation (Skogan & Frydl, 2004, p. 102). Likewise, police organizations may voluntarily self-select to pursue accreditation through The Commission on Accreditation for Law Enforcement Agencies (CALEA) or some other accrediting body. The accrediting process is presumed to bring about considerable organizational change as there are hundreds of mandatory standards that must be complied with before accreditation is awarded. The impact of law enforcement accreditation is questionable as only a "few hundred agencies" have been accredited by CALEA (p. 102).

The role of institutional and isomorphic forces in producing and diffusing organizational innovation cannot be understated. Although these theories are compelling, they are not easily measurable using traditional survey research methods (Katz et al., 2002, p. 480). Case studies abound, but it is necessary to find ways to empirically test institutional theory (Giblin & Burruss, 2009; Maguire & Uchida, 2000). A logical "next step" is to examine the role of institutional pressures through the lens of a singular policing innovation (Burruss & Giblin, 2014, p. 337). Police accreditation is an ideal conduit for this inquiry.

Chapter III

Context of Police Accreditation

Police Accreditation

As previously stated, examples of legitimating activities in the institutional environment include professional certification, conformity to governmental regulations, and accreditation (Zucker, 1987). Not only is police accreditation a potential source of institutional legitimacy, but it is a programmatic innovation that is self-selected by the organization. Coercive patterns of adoption are unlikely since accreditation is not currently mandated by any state. Therefore, accreditation can be successfully analogized to other forms of law enforcement innovation studied in the past.

The concept of accreditation, demonstrated compliance with a set of published professional standards, is a well-established model in the private sector and limited areas of the public sector. Accreditation is firmly institutionalized in fields like health care, corrections, private education, and higher education (Bizzack, 1993). Rather surprisingly, professional accreditation has largely failed to permeate the field of policing. This fact should not discourage the academic study of law enforcement accreditation. There is a tendency for those studying innovation to only focus on those that have become ubiquitous; a phenomenon Rogers (2003) calls the *pro-innovation bias*. Furthermore, researchers from multiple disciplines are increasingly recognizing the value of negative findings (Maxfield & Babbie, 2012, p. 31). Learning why accreditation has failed to diffuse may be just as valuable as learning why other innovations have flourished.

There are larger questions lurking regarding the actual efficiency and effectiveness of police accreditation that far exceed the scope of this dissertation, yet several points are worth mentioning. There is a paucity of accreditation related research and that which does exist may suffer from threats to validity in the form of selection bias (i.e. comparing self-selecting accredited agencies to non-accredited agencies). Further, many of the perceived benefits produced by accreditation (e.g. reduced civil liability, improved community relations) are supported by little more than anecdotal stories and testimonials on CALEA's website (Doerner & Doerner, 2009, p. 794). The lack of empirical evaluation regarding the efficacy of accreditation is troubling, yet this fact actually serves to advance an institutional theory perspective. Accreditation serves to imbue the organization with legitimacy, even if it is an ineffective or inefficient system of management. As noted by Carter and Sapp (1994), "accreditation can be a façade -- if the department's management does not cooperatively support the letter of the standards with the spirit of the standards, the benefits will be the product of illusion rather than real organizational change" (p. 201).

Commission on Accreditation for Law Enforcement Agencies

The history of police accreditation can be traced back to a variety of factors, including widespread criticism of the police, the development of policing guidelines by blue-ribbon commissions, and civil litigation (Johnson, 2011). Policing executives began to see the value in developing model policies and other standards encompassing the best practices of law enforcement.

Beginning in 1979, the four primary law enforcement executive associations consisting of the IACP, the National Organization of Black Law Enforcement Executives (NOBLE), the National Sheriffs' Association (NSA), PERF, embarked on a collaborative endeavor to establish a credentialing authority and develop voluntary standards for the purposes of national accreditation (Abrecht, 1987; CALEA, 2014a).

The accreditation standards developed by CALEA were sweeping in their breadth, covering almost every aspect of police management. Topical areas included agency role and responsibilities; organization and administration, personnel administration; operations and support; prisoner and court-related issues; and auxiliary and technical services (CALEA, 2014b; Daughtry, 1996). Since launching the law enforcement accreditation program over thirty years ago, CALEA has gradually expanded their accreditation requirements; the total number of accreditation standards now exceeds 400. Some CALEA standards merely require that an agency have a written directive in place governing a particular function (e.g. a policy governing the exercise of police discretion).

Other standards require a specific activity, such as an annual review of use of force incidents. CALEA openly discloses that, "seeking to establish the best professional practices, the standards prescribe 'what' agencies should be doing, but not 'how' they should be doing it. That decision is left up to the individual agency and its Chief Executive Officer" (CALEA, 2014b). This unique aspect of police accreditation generates some interesting research questions that are congruent with the broader questions posed in this dissertation. Namely, how do organizations in the accreditation process decide what policies to implement in order to comply with accreditation standards? Furthermore, are these policies developed internally or acquired from other agencies through formal or informal networks?

Expansion and diffusion of CALEA

During the initial phases of CALEA's accreditation initiative, policy standards were disseminated to 56 chief executives across the country (Abrecht, 1987). Next, a total of five law enforcement agencies representing the states of California, Maryland, Illinois, Indiana, and Florida volunteered to serve as pilot test sites. This is interesting from a diffusion perspective as the test sites were located in different geographic regions of the United States. The first agency awarded accreditation by CALEA was the Mt. Dora, Florida Police Department in 1984 (Abrecht, 1987). Since that time, CALEA has awarded accreditation to 943 other law enforcement agencies across North America (L. Phillips, personal communication, May 16, 2011), although not all agencies receiving CALEA accreditation have maintained it. According to CALEA's publicly available client database, 626 law enforcement agencies are currently accredited; 149 agencies are currently in the process to become accredited (CALEA, 2014c). Interestingly, the majority of law enforcement agencies come from city and municipal jurisdictions. Only a handful of state and county law enforcement agencies are currently accredited; although eligible, there is not a single federal agency accredited by CALEA. Some descriptive statistics regarding the composition of CALEA accredited agencies are worth noting. CALEA tailors their accreditation program by agency size, as measured by the total number of sworn personnel employed. These data provide some perspective on the degree of influence presently held by CALEA. Law enforcement census data from the Bureau of Justice Statistics indicates that 76% of American law enforcement agencies have 24 or fewer sworn officers (Reaves, 2011). Based on an estimated 17,985 state and local law enforcement agencies, CALEA's level of representation is paltry at best.

Figure 1
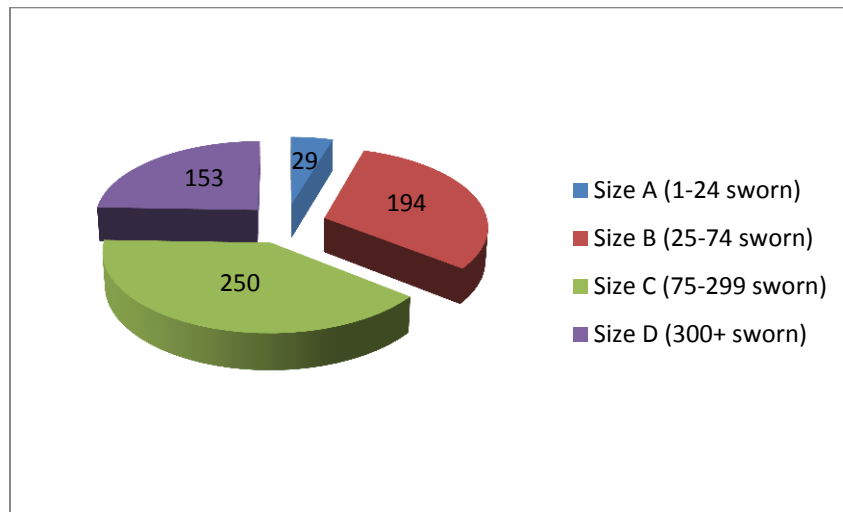
CALEA Accredited Agencies by Size (N=626)

This is especially true among small law enforcement agencies (<25 sworn employees) where

CALEA's "market penetration" is far below 1% (CALEA, 2009). Simply looking at the raw

number of law enforcement agencies may grossly distort the picture of American policing.

Several hundred local law enforcement agencies are staffed with 100 or more sworn officers.

Collectively, these agencies represent 61% of all police officers serving in the United States

(Reaves, 2011, p. 4). From this perspective, CALEA enjoys a slightly more respectable level of

influence as the organization claims to represent approximately half of all law enforcement

agencies employing over 500 people (CALEA, 2009).

Data obtained from CALEA indicate that the number of agencies receiving accreditation

for the first time fluctuated year-to-year between 1984 and 1989, and then grew steadily until

peaking in 1996 (N= 49).

Figure 2
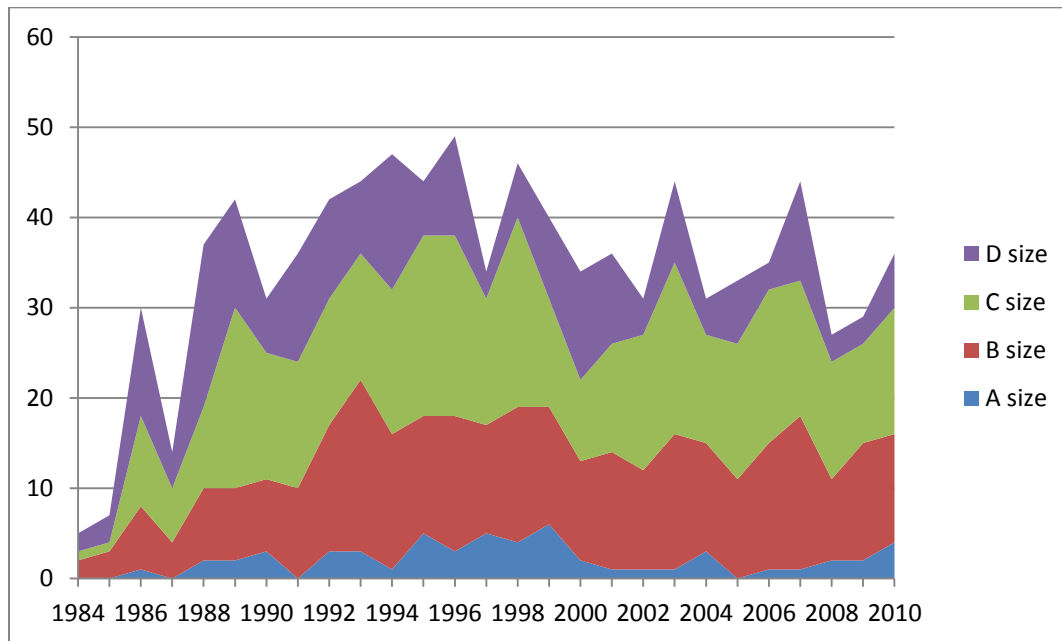
New CALEA Accreditation Awards by Year and Agency Size

The annual number of agencies receiving CALEA accreditation since this highpoint has varied

between 27 and 46 ($\bar{x}$ =35.7). Of greater interest is the overall growth trend of accreditation, as

measured by the cumulative number of agencies receiving accreditation minus the number of

agencies practicing discontinuance (i.e. dropping the program voluntarily or involuntarily).

These data would not only reflect gains and losses from year-to-year, but plotting the cumulative

number of adopters would effectively model the rate of adoption associated with law

enforcement accreditation. As previously mentioned, many innovations exhibit a sigmoid "S-

shaped" curve when it comes to the rate of adoption (Rogers, 2003; Ryan & Gross, 1943;

Weisburd, et al. 2004).

The rate of diffusion is also relevant, as research has demonstrated that more than half of

all innovations observed across a broad spectrum of industries and social contexts reach their

saturation point within 30 years (Grübler, 1991).

In 1986, Mastrofski prognosticated that accreditation would reach most police departments within 20 years. 2014 marks the 30th anniversary of the first CALEA accreditation award, but Mastrofski's prediction has yet to be realized.

After steady growth over the last two decades, the cumulative number of CALEA accredited agencies dropped for the first time in 2008. Although the cause of this drop has not been formally studied, it is conceivably a function of the Great Recession. After roughly three years of decline and stagnation, CALEA returned to its previously observed rate of growth. It is unknown if this renewed growth is sustainable; future declines or zero net gains could indicate that the CALEA accreditation has in fact reached a point of saturation.

Figure 3
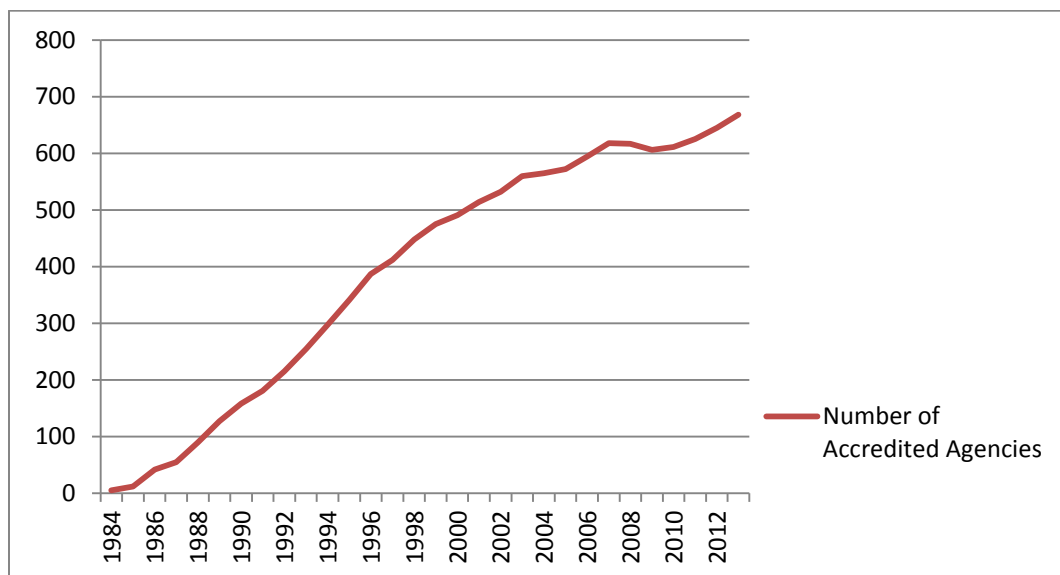
Number of CALEA Accredited Agencies (Cumulative Total)

Even if CALEA's law enforcement accreditation program is beginning to falter, the organization has expanded in other ways. CALEA now provides accreditation programs for emergency communication centers, police training academies, and campus security departments (CALEA, 2014d).

CALEA has also extended their reach beyond the United States, bestowing accreditation upon a limited number of police departments in Canada, Mexico and the Caribbean (Doerner & Doerner, 2009). Accredited police departments can now claim the mantle of international accreditation, conveying a weightier degree of legitimacy than mere national accreditation.

State Accreditation Systems

Concomitant with CALEA's ostensible expansion, the concept of law enforcement accreditation itself has diffused beyond CALEA. State governments as well as state level organizations (e.g. state Chiefs of Police Associations) have created their own voluntary accreditation programs that seek to enroll state, county, and municipal law enforcement agencies (Bizzack 1993). Doerner and Doerner (2009) cite at least 16 known state level accrediting bodies; five years later a total of 24 state accreditation systems have been implemented across the country (Mulvaney, 2014). This has generated a complex relationship of mutual cooperation and competition between CALEA and the alternative state-level credentialing bodies. While some agencies like the Connecticut State Police are accredited by both CALEA and the State of Connecticut (Department of Public Safety [DPS], 2006), numerous agencies have selected to pursue state-based programs over the CALEA model. Although state programs are not as well known as CALEA, they are low-cost alternatives. Ironically, the first agency in the country accredited by CALEA, the Mount Dora Police Department, is now solely accredited by the Commission for Florida Law Enforcement Accreditation (City of Mount Dora, 2010).

Connecticut Law Enforcement Accreditation – A Case Study

Like many state accreditation programs, Connecticut's law enforcement accreditation initiative was originally conceived by local police executives operating under the auspices of a private police chiefs association.

Oversight of the program, which began in 1995, was formally transferred to Connecticut's Police Officer Standards and Training Council (POSTC) in 2004 (T. LeMay, personal communication, January 16, 2014). One of the primary distinctions between the two accrediting programs is cost. Although CALEA is a not-for-profit organization, there are substantial startup costs associated with the accrediting process and onsite assessments (Bizzack, 1993). Connecticut's accreditation program is described as being "no cost", but realistically there are agency-level operational costs associated with the process (Police Officer Standards and Training Council [POSTC], 2014). Connecticut's accreditation program is a tiered system with three levels containing a total of 327 standards. The first tier, known as *Liability Certification* has 124 standards; the second tier, *Professional Certification*, has 83 standards; the final tier, *General Management*, has 120 standards (POSTC, 2014). The rationale behind the tiered program is to encourage police departments to climb through the tiers successively.

Data obtained from the POSTC Accreditation Division yields a variety of information regarding the proliferation of State accreditation in Connecticut. While CALEA accreditation diffused slowly in Connecticut over the course of 17 years, the growth model for the State program is markedly different.

Like other classic innovations, the State program began with a single organization in 1998 (the Connecticut State Police), which was followed by a period of slow growth. Beginning in 2006, the Connecticut State accreditation program experienced a three year period of rapid growth where the number of awards conferred by POSTC expanded exponentially.

Figure 4
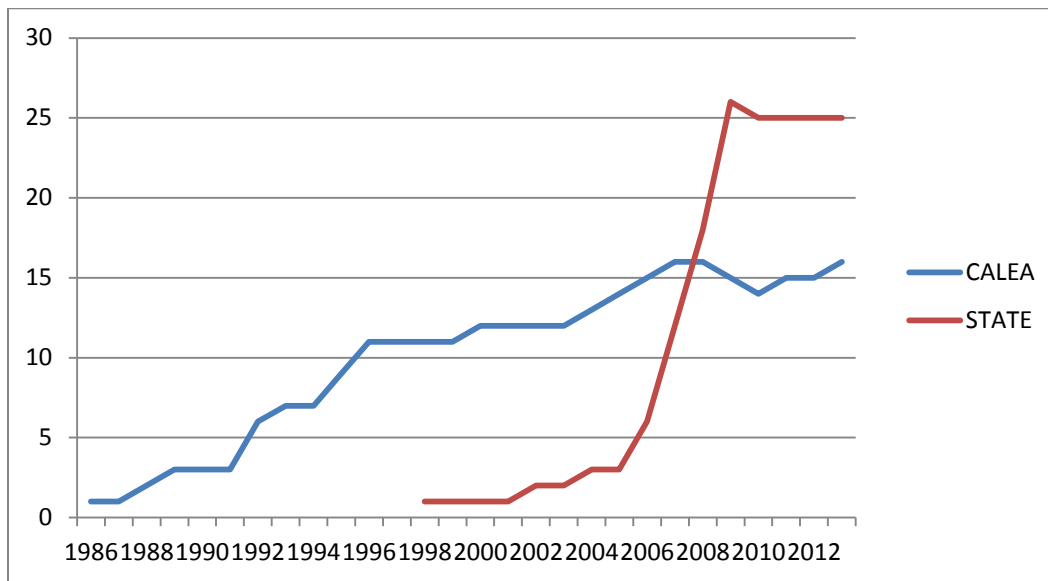
Total Number of Accredited Police Agencies in Connecticut by Year and Type

The innovation diffused so quickly that by the end of 2009, State accreditation had reached its saturation point. Between 2010 and 2013, only two new agencies had completed the program. This negligible growth was counterbalanced by the loss of three organizations during the same time period. As seen in figure 4, the trend line for the State accreditation program is an exemplar of the classic sigmoid curve.

It is important to recognize that measuring diffusion on the basis of accreditation awards is a convenient, yet slightly myopic approach. Limiting empirical focus to organizations that have successfully completed the accreditation process neglects the fact that some organizations have engaged in innovation uptake, albeit unsuccessfully. Law enforcement innovations rarely function like plug-and-play components and many good ideas fail at the implementation stage. In fact, POSTC enrollment data indicate that of the 54 policing organizations that formally enrolled in the accreditation process (i.e. uptake) between 1995 and 2013, more than half (54%) have yet to be awarded the credential.

Many of the Connecticut agencies, both accredited and non-accredited, enrolled in the State program several years before the observed award rate grew exponentially. Accreditation enrollment data indicate that the rate of innovation uptake actually exceeded that of distributed awards, with 40% of participating agencies enrolling within a single 5 month period in 2004.

The time delay between uptake and implementation is not unique to law enforcement accreditation, but may be more pronounced due to the extent of the endeavor. Enrollment in an accrediting program triggers a period of self-assessment during which time the law enforcement organization seeks to come into compliance with accreditation standards. This process may protract for several years. One study of CALEA accredited organizations indicated a mean time-to-award period of 33.3 months (Baker, 1995, p. 135). Analysis of POSTC data indicate that Connecticut agencies spent an average time of 41.4 months in self-assessment between enrollment and the time when the credential was conferred.[3] The data are somewhat skewed by extreme values; the median time-to-award period is 31.5 months. One possible explanation for the discrepancy between completion times comes from CALEA's fee structure. Not only does CALEA charge an upfront contract fee, but they will impose a considerable annual extension fee if the organization fails to hold an accreditation assessment within 36 months of enrollment (CALEA, 2014e). Connecticut's accreditation program does not charge participating agencies for the opportunity to enroll, nor do they impose any fees for failing to complete the program in a timely manner. Seen in this light, it is understandable why CALEA's average time-to-award hovers just under 36 months. POSTC data also shed light on trends within the State program. While the raw number of accreditation awards has stagnated, accredited organizations within the program have continued to advance through the three tier system. The State accreditation program's early composition was characterized by a mixed representation of tiers.

Divergence between the tiers was observed in 2006 and again in 2008. In 2006, Connecticut

police agencies began self-selecting accreditation at the Tier I and Tier III levels at a much

higher rate than Tier II. In 2008, there was a salient shift towards the State's highest

accreditation award, Tier III.

Figure 5
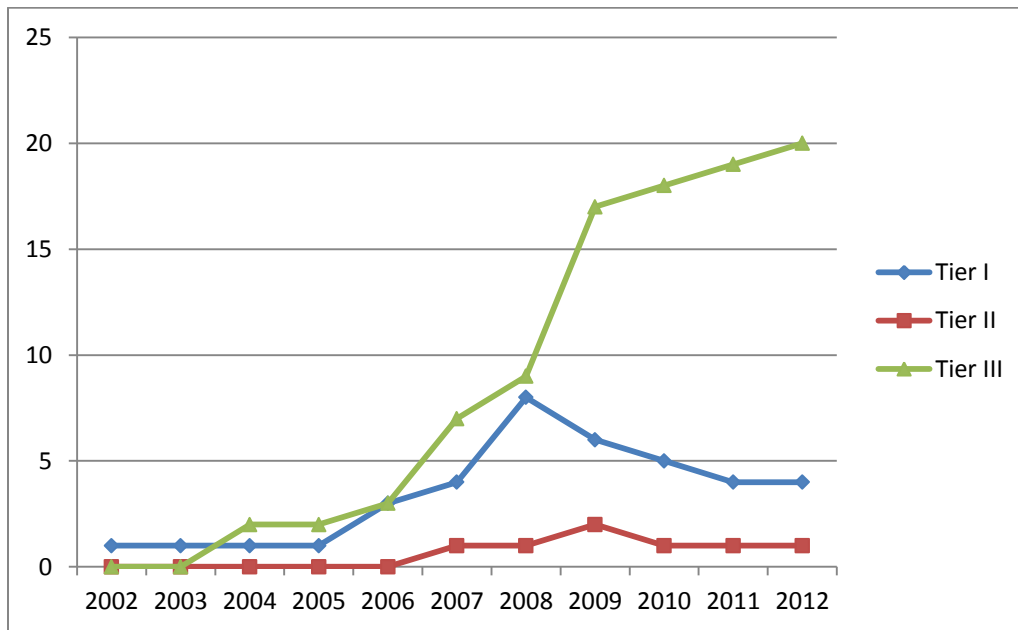
Number of State Accredited Agencies by Tier

At this point, an inverse relationship was observed in the data, whereby Tier III accreditation

made rapid gains while representation at the Tier I level declined steadily. This latter shift can

largely be ascribed to the reaccreditation cycle. Both CALEA and the State of Connecticut

require accredited organizations to be evaluated every three years for the purposes of

reaccreditation. In many instances, law enforcement organizations initially accredited by

POSTC at the Tier I level voluntarily brought themselves into conformity with additional

standards during the interim period between accreditation assessments. Upon review for

reaccreditation, many of these organizations successfully demonstrated compliance with the

additional standards necessary for credentialing at a higher tier.

The abundance of Tier III awards may further be attributed to a handful of organizations with dual accreditation status. There is considerable overlap between State and CALEA program standards and it is quite common for CALEA accredited organizations to pursue the Tier III State accreditation award.

Figure 6
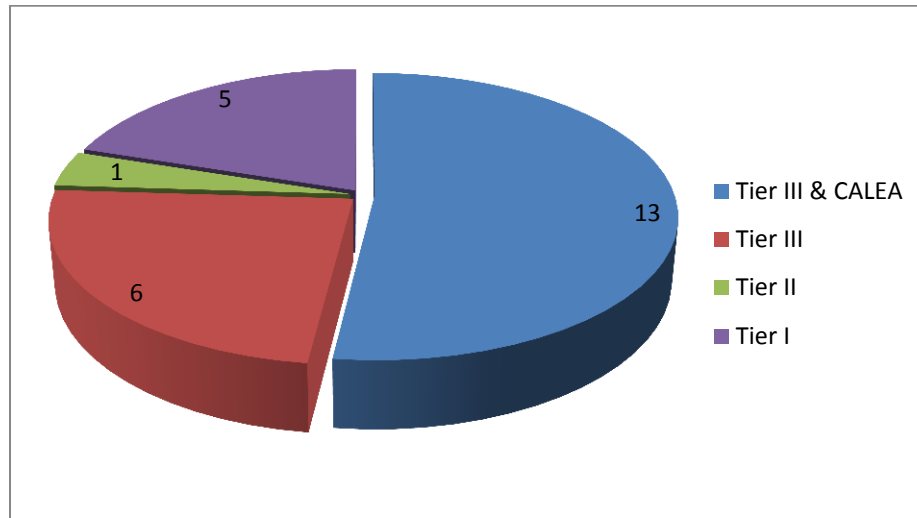
Distribution of State Accreditation Awards in Connecticut

CALEA organizations need only demonstrate compliance with 7 additional state-specific standards to receive dual accreditation at the Tier III level (T. LeMay, personal communication, January 16, 2014). The composition of Connecticut's accreditation program in 2013 is reflected in Figure 6.

The preceding case study is useful insofar as it reveals descriptive patterns of innovation and diffusion within a single state's law enforcement accreditation movement. However, these data are found to be wanting when considering this dissertation's fundamental research questions. Simply measuring the extent or rate of diffusion does little to advance scientific knowledge regarding explanatory or predictive elements of innovation uptake. This dissertation is able to move beyond mere description through the application of network science.

Chapter IV

Methodology and Research Design

Social Network Analysis

History

No singular discipline in the academe can lay a paternal claim to the progeny now known as social network analysis. Rather, the formal study of social networks is best described as an interdisciplinary or multidisciplinary method of analysis (Knoke & Yang, 2008, p. vii). Traditional approaches to social science research are often focused on personal attributes; SNA is unique in that the primary focus is on social relationships (Wellman, 1988). Scott (2008) traces the academic lineage of social network analysis back to early twentieth century researchers hailing from social anthropology as well as social and cognitive psychology. These trailblazers were among the first to recognize the importance of formal and informal social interaction between individuals and groups. Network visualizations, now fundamental components of SNA, can be traced back to psychiatrist Jacob Moreno (1934) who invented the sociogram. Mid-twentieth century social scientists like Travers and Milgram (1969) expanded the nascent field of SNA by testing *the small world problem* which they conceptualized as "the probability that any two people, selected arbitrarily from a large population such as that of the United States, will know each other" (p. 425). At the heart of the small world problem was the notion of interconnectivity; interconnectivity references the degree to which individuals are connected despite apparent social and spatial boundaries. Later research by Granovetter (1973) recognized that two individuals in a social group could be linked through ties, yet such dyads were not binary. A tie could be characterized as strong, weak, or absent based on factors such as time spent together, intimacy, etc. (p. 1361-1362).

Interconnectivity, social ties, and other findings gleaned from early network studies are perhaps taken for granted in today's society. Papachristos (2011), who has emerged as one of criminology's leading social network researchers, notes that popular literature authored by Gladwell (2002) and the proliferation of social media (e.g. Facebook) have led to a general belief that social networks are fundamental to our understanding of the world (p. 101).

In the last decade, social network research has burgeoned across multiple disciplines to the point where it may rightly be called a network science (Papachristos, 2011, p. 101). Yet several researchers suggest that criminologists have fallen short when it comes to employing SNA as a method of inquiry for explanatory research (Coles, 2001; McGloin, 2005; McGloin & Kirk, 2010; Papachristos, 2011; DeGarmo, 2012). A comparison of published SNA studies by discipline since 1980 revealed that although sociology has always dominated the field, both public health and sociology have seen considerable growth over the last twenty years; Criminology enjoyed only meager gains in publishing activity during this same time frame (Papachristos, 2011, p. 102). Criminologists' efforts have largely been directed towards the study of criminal networks. Street gangs have been studied extensively (Cole, 2001; Fleisher, 2005; McGloin, 2005; McGloin & Kirk, 2010; Papachristos, 2007). Social aspects of criminal networks and homicide have also been studied (Caspi, 2010; Papachristos, 2007); in some cases, the act of murder itself is conceptualized as a form of social interaction (Papachristos, 2007, p. 22).

As previously mentioned, despite its vast potential, policing researchers have largely failed to make use of social network analysis to study diffusion (DeGarmo, 2012). This dissertation makes use of two different SNA methodologies, affiliation network analysis and text network analysis, to empirically test network effects on diffusion and isomorphism.

The juxtaposition of SNA methodologies utilized in this dissertation is somewhat ironic. Affiliation networks represent one of the earliest forms of SNA, while text network analysis is emerging from its genesis. This mixed methodological approach serves to anchor the study while ambitiously pursuing new methods of analysis.

Affiliation Network Analysis

The first influential use of affiliation network analysis was conducted in the course of a broad study on race and class entitled *Deep South* by Davis et al. (1941). This participant-observer study involving black and white researchers collected important qualitative data about life in rural Mississippi. The researchers studied the phenomena of adult, class-based cliques which tended to fall across three different class strata (i.e. upper, middle, lower). Davis et al. (1941) incorporated a social network approach which revealed dimensions of class that were not readily identifiable through qualitative methods alone. An affiliation network matrix was constructed utilizing social artifacts, namely local newspaper reports listing guest attendance at various social events. The matrix generated two-mode data regarding 18 white women at 14 different events (p. 150). Basic network analysis methods were utilized to identify the existence of two overlapping cliques, each having core, primary, and secondary members. Additional data collected by the researchers identified over 400 individuals participating in 43 unique groups; many of these groups transcended traditional class lines (p. 151).

More recent uses of the affiliation network model have been applied in a variety of organizational contexts. The phenomenon of interlocking directorates, particularly in corporate settings, has been studied utilizing the affiliation network approach. Research has demonstrated that CEOs with higher levels of network centrality engage in more mergers but yielded poorer outcomes (Khatib, Fogel, Jandik, 2015).

Similarly, corporate boards with higher levels of centrality were more likely to adopt the poison pill strategy than their less networked competitors (Davis, 1991).

Affiliation network analysis of non-governmental relief organizations following a severe flood in Mozambique examined the relationship between network centrality and organizational effectiveness. The study found that organizations with higher centrality scores were able to serve a greater number of beneficiaries than organizations with low centrality scores (Moore, Eng, & Daniel, 2003).

A particularly fascinating study of American political interest group behavior utilized affiliation network analysis to study how political coalitions function. Organizations were clearly divided along party lines when it came to endorsing candidates and making general election contributions. However, network coalitions often dissolved when it came time for legislative debate (Grossmann & Dominguez, 2009).

The relationship between innovation and network position was also studied in the context of Italian biotech research publications (d'Amore, Iorio, & Stawinoga, 2010). The researchers created a two-mode affiliation network utilizing authorship citations paired with the authors' organizational affiliations. Using measures of centrality, Italian universities were found to be slightly more innovative from a publication standpoint than Italian biotech firms (p. 90).

The only extant policing study to utilize an affiliation network approach did so using officers present together at police incidents (Young & Ready, 2014). The network was comprised of 100 police officers randomly assigned to treatment and control groups and was designed to study perceptions of legitimacy regarding on-officer cameras.

It was hypothesized that central network actors, those officers sharing more events where cameras were in use, would be most likely to exhibit attitudinal changes (p. 6). The study found weak (non-significant) linear relationships between degree centrality and legitimacy. In order to produce a change in legitimacy by one standard deviation, an officer would need to be exposed to between 29 and 33 events where a camera was in use (p. 13-14).

Text Network Analysis

Alternative approaches to mapping social networks hold considerable potential, particularly when it comes to analyzing social artifacts produced by individuals or organizations. Social artifacts span a variety of mediums, yet textual analysis has been the dominant approach and has been pursued through several methods. These include non-computational interpretivist methods, systematic content analysis, and computational lexical or grammar-based methods (Light, 2009). Each approach to textual analysis has unique strengths and limitations. What is particularly fascinating about computational analysis is that lexical word patterns from multiple documents can be used to build a text network that effectively maps implicit social relationships. While content analysis studies are common in criminal justice research, this dissertation represents the first known use of text network analysis within the discipline. Although no scholarly contributions have been made from the field of criminal justice, computer science researchers have suggested that text network analysis has applied value for law enforcement. Unstructured textual data obtained by police (e.g. ISP numbers, phone numbers) could be subjected to text network analysis in order to identify criminal networks and learn about their social structure, thereby advancing criminal investigations (Al-Zaidy, Fung, Youssef, & Fortin, 2012).

Text network analysis is an emerging method and, as such, has yet to establish a foothold in many refereed journals. There is scant literature with any direct relevance to the present inquiry, yet it is useful to review how text network methods have been used by researchers from other disciplines. From a methodological standpoint, the most relevant study that can be analogized to this dissertation is a text network analysis of medical school mission statements. Grbic, Hafferty, and Hafferty (2013) analyzed mission statements collected from medical school websites. Their study identified a set of concepts contained within a single word or phrase (e.g. health care) that were uniform across the dataset. However, there were "appreciable differences" observed between schools with distinct attributes (i.e. public vs. private; research-based vs. social-mission orientation) (p. 852). Another relevant study by Kay (2013) examined co-occurring words and phrases gleaned from technology patent applications. Kay (2013) analyzed 262 patent applications and subsequently found 32 unique clusters; these were useful for discovering dominant themes and conceptual relationships in the data (p. 1208). Diverse examples from other fields include assessing consumer sentiment via Twitter (Mostafa, 2013), identifying common themes contained within slave narratives published over a 130 year period (Light, 2009), comparing the frequency of words used in US presidential addresses over the last 50 years (Nodus Labs, 2013), and evaluating schemas of low income parents regarding marriage and fertility (Rackin, 2013). Rackin's study utilized a multimethodological approach to evaluate whether low income women's prospective views about pregnancy shifted after having a child. Rackin argues that her use of text network analysis produced findings that "would not have been apparent using only traditional qualitative analysis" (p. 87).

It is believed that organizational language (i.e. policies and procedures) are not only a valuable data source for identifying themes, but can actually provide the means for quantifying isomorphism, an idea first proffered in a working paper by Lewis (2002). Lewis (2002) utilized mission statements, privacy statements, and annual reports to compare levels of isomorphism between universities and corporations. Based on DiMaggio & Powell's (1983) framework, Lewis (2002) hypothesized that universities would exhibit higher levels of isomorphism than corporations due to institutional pressures. Data analysis demonstrated that isomorphism scores were actually higher in the corporate documents, but that this was due to an "absence of elaboration" (p. 16).

Research Questions

R_1: Is it possible to accurately identify network relationships among policing organizations?

R_2: Are network relationships capable of explaining or predicting innovation uptake?

R_3: Do networked models of innovation and diffusion hold better explanatory value than extant models?

R_4: Can analysis of network relationships provide an empirical basis for institutional isomorphism?

Hypotheses

H_1: Innovation uptake will increase when network structures exhibit higher levels of cohesion.

H_2: Actor nodes associated with accreditation uptake at the organizational level will demonstrate higher measures of centrality than network actors having no relationship to state accreditation.

H_3: Actor nodes associated with the successful adoption of state accreditation will demonstrate higher measures of centrality than network actors representing unaccredited organizations.

H_4: Actor nodes associated with the successful adoption of state accreditation will demonstrate higher measures of centrality than network actors representing unaccredited organizations, even when controlling for spatial distance (nearest accredited neighbor).

H_5: Identifiable textual clusters will be observed in department policies authored/implemented prior to initiating the state accreditation process.

H_6: There will be a higher degree of textual clusters observed in policy language authored/implemented after beginning the accreditation process.

This dissertation is atypical in the sense that very little was known about the nature of the data in advance of its collection and analysis. Traditional quantitative studies are not usually encumbered in this regard, as study variables and measures can be articulated prospectively, often with explicit detail. Although this dissertation falls under the umbrella of quantitative analysis, the design shares common ground with qualitative studies where the research process is emergent. According to Creswell (2007), "the initial plan for (qualitative) research cannot be tightly prescribed… all phases of the process may change or shift after the researchers enter the field and begin to collect data" (p. 39). This dissertation did not involve any field work, yet the study data lie within a relational network and had to be extracted. Specific measures were identified prospectively, but were wholly dependent on the structure of the networks themselves. In this way, social network research is emergent in its design and iterative in its analysis.

Data Collection

Although quantitative in nature, social network analysis can be differentiated from most criminological and organizational studies which typically focus on observed relationships between variables. In traditional quantitative studies, the unit of analysis can take the form of individuals, groups, organizations, or artifacts (Maxfield & Babbie, 2012). Social network analysis utilizes a different approach as the unit of analysis is the relationship between nodes (McGloin, 2010, p. 170). Nodes may mirror traditional units of analysis and function as a visual representation of individuals, groups, or other social structures.

Social network analysis transcends a rather myopic view of the social world, one populated only by attributes and variables, to examine how nodes are connected and interact. This dissertation uses data collected in two different New England States to examine network relationships between individual actors and the social artifacts created by public and private organizations. Since network data could conceivably expand *ad infinitum*, it was necessary to establish a boundary limit for the data collection process.

Boundary Specification

Knoke & Yang (2008) delineate a variety of strategies that can assist social network researchers achieve boundary specification (p. 15-20). A key operational question associated with boundary specification is how to adequately define a boundary that will capture important social actors and alters while maintaining a realistic and methodologically sound data collection process. Social network researchers have successfully utilized a variety of boundary specification strategies, each with their own distinct benefits and limitations. One of the approaches classified by Knoke and Yang (2008) under the rubric of *positional strategies* seems aptly suited to the collection of social network data within formal organizations. Positional strategies examine formal social structures and the actors that occupy clearly defined positions within the social order (p. 16). It is important to note that this approach focuses primarily on the positional relationship of individual actors rather than interpersonal variables. Collecting organizational membership and positional data need not be an onerous task. This is especially true in the public sector where the notion of transparency has become increasingly valued, or at the very least tolerated under Freedom of Information Act (FOIA) legislation.

Police organizations may not always be amenable to transparency, yet law enforcement's penchant for clearly defined hierarchical rank structures can often advance data collection under the positional approach. Many law enforcement agencies in the United States publish detailed open-source tables of organization that can include positional titles, officer names, ranks and even photographs (LAPD, 2012). There are downsides to the positional approach including inaccurate or outdated information, yet even accurate data can reveal imperfect and misleading network structures (Knoke & Yang, 2008). This can occur when positional relationships are presumed to exist even when there is no direct relationship between network actors (p.16).

The positional approach was utilized to identify of all law enforcement executives in one New England State who initiated the accreditation process through that state's accrediting body. Although positional information could be gleaned through open source governmental websites, the state's official records ensure the accuracy of network data. In the state where data was collected, law enforcement agencies wishing to become accredited are required to complete an application form, signed by the chief executive officer, as a sign of commitment to the accreditation process. The application form also includes the name of the agency's accreditation manager and the date signed. A request was made for all applications submitted to the accrediting body since the program's inception. This method of data collection and boundary specification helped to identify all law enforcement executives who engaged in innovation uptake, regardless of the binary outcome (i.e. accredited, non-accredited).

Another boundary specification approach advocated by Knoke & Yang (2008) is the event-based strategy. The event-based approach captures network actors through their participation in pre-defined activities.

Event-based approaches have been used to gather network data for activities as ordinary as beach usage patterns (Freeman & Webster, 1994) and Southern ladies luncheons (Davis, Gardner & Gardner, 1941) to mapping terrorist networks (Krebs, 2002). Events that involve law enforcement executives are not only a logical source for gathering network data, but there is considerable face validity associated with the potential relationship between professional engagement with peers and organizational innovation. Klinger (2003), critiquing the limitations of Compstat diffusion research by Weisburd et al. (2004), muses about the possible role of informal social networks in the diffusion of law enforcement innovation. Network relationships generated through educational, professional, and fraternal affiliations like the FBI National Academy and IACP may very well be a conduit through which diffusion may flow (p. 463). When police executives come together at an event, the potential exists for innovation to spread both formally (e.g. speakers, publications) and informally (e.g. interaction between attendees). The diffusion of innovative ideas in this context is not unlike that of a contagion. Exposure to pathogens through contact with other carriers facilitates the spread of infection; police executives engaged in frequent contact with other members of the profession would be expected to have a higher risk of "infection" than their isolated peers.

This dissertation seeks to explain the innovation and diffusion of law enforcement accreditation at the state level. As such, state-level organizations are likely the best source of event-based data. Although national and sub-national organizations may generate important network ties, the frequency of interpersonal contact is constrained by distance and other factors. State-level organizations representing law enforcement executives (i.e. chiefs of police associations) meet on a regular basis and are often at the forefront of developing and overseeing state accreditation programs (Bizzak, 1993).

A formal research request was sent to the chiefs of police association in the same New England State where positional data were sought and obtained. The request solicited event data relevant to the group's quarterly meetings in order to further establish a defined network boundary (capturing all actor nodes attending meetings) and generate an affiliation network, effectively mapping the various relationships between law enforcement actors and group meetings.

The event-based strategy is not without its drawbacks. Threats such as inaccurate or missing data can result when participants or even events themselves are overlooked (Knoke & Yang, 2008). Fortunately, network structures can overcome these limitations through repeated observations. This research collected data from 51 events spanning an eleven year period of time. Although direct observation is preferable in some research designs, this dissertation's use of social artifacts is likely the most accurate and effective way to evaluate network structures over the course of such a lengthy period of time.

This dissertation also pursues network analysis at the organizational level by analyzing textual data gleaned from a population of 24 police organizations in a second New England State. This state recently established an in-state accreditation program, overseen by a quasi-governmental body. The availability of a new state-level accreditation program presents a fascinating opportunity to study the diffusion of innovation while simultaneously observing isomorphic forces at work.

Law enforcement agencies seeking to become accredited must first come into compliance with numerous accreditation standards, most of which are policy based. Because of this, the accreditation process typically involves extensive revision of organizational policies and procedures.

As previously mentioned in the context of isomorphic modeling, there is anecdotal evidence that institutionalized organizations eschew endogenous innovation (i.e. reinventing the wheel) in favor of exogenous appropriation from other organizations possessing high levels of perceived legitimacy. Furthermore, police innovation and diffusion research has shed light on the role of informal communication networks and cosmopolitan leaders (Weiss, 1997). Direct interviews with human subjects could reveal patterns of interorganizational communication relevant to diffusion studies. Yet, given the limitations of informant memory and issues concerning reliability (Knoke & Yang, 2008, p. 35-41), leveraging new methods of network science may actually provide a more accurate picture of network diffusion.

This dissertation sought use of force policies from police organizations that had either been awarded State accreditation or were presently working towards becoming accredited. A formal request was sent via email to 24 accreditation managers seeking two versions of the agency's use of force policy in electronic format:

1.) The use of force policy in place immediately prior to the organization's enrollment in the accreditation process.

2.) The use of force policy in place at the time when the organization became accredited; or, the most current use of force policy available at the time of the research request.

Police agencies working towards accreditation will revise or generate many policies and procedures during the self-assessment phase. The decision to analyze use force policies was made for both methodological and theoretical reasons. First, use of force policies, especially those that govern the use of deadly force, are nearly universal among police organizations (Fyfe, 1988, p. 173).

Inquiry directed towards evaluation of less common policies could lead to missing data; selecting a policy common to all police departments should increase the likelihood of obtaining a full dataset. Secondly, the documented impact of civil litigation against police agencies (McCoy, 1987; McCoy, 2010; Nowicki, 1987) paired with the proliferation of federal consent decrees (Goode, 2013) has almost certainly enhanced the level of uncertainty in the police organizational environment. These tort actions regularly have some nexus to extralegal use of force. According to institutional theory, this type of uncertainty will generate symbolic actions intended to avoid external scrutiny and ensure organizational survival. Institutional isomorphism predicts that institutionalized organizations will seek to model themselves after other organizations that they perceive to be more legitimate. Interaction between organizational actors should generate observable replications of organizational structures, processes, and formal procedures. Such structural changes would likely be manifest in the textual language utilized by the organization. It is expected that use of force policies would be particularly sensitive to isomorphic phenomena and would yield greater evidence of organizational modeling.

Human Subjects and Consent

Much of this dissertation makes use of social artifacts created by public entities. As such, analysis of secondary content poses little risk to human subjects. The one exception to this general statement is the meeting minutes and attendance records of the chiefs of police (COP) organization. The first area of concern is that the COP is a private organization rather than a public entity. The second concern, as it pertains to human subjects, is that COP membership is largely comprised of public servants currently working at high levels in law enforcement.

Network analysis is expected to identify key organizational members who possess strong measures of centrality as well as those with weak or even peripheral roles in the network structure. Revealing such information could have negative personal and professional implications for members in the latter groups. Members may feel inadequate or professionally impotent, creating psychological strain. Likewise, sovereigns in the external environment who read this study may seek to replace a policing leader identified as having a weak relational position in the professional network. To protect against such harms, all data received from the COP was recoded into a dataset stripped of personal identifying information. Each actor identified through social artifacts was assigned a unique number; this number was subsequently used to label nodes in the generated network data. It may still be possible for COP members to identify their standing in the network based on their own recollection or personal documentation of meeting attendance. This would be a laborious process given the high number of actors in the relational network, but is still a possibility. It is believed that the potential benefits of an organizational network study outweigh the remote risks of harm to human subjects. Human subjects research proposals were submitted and approved by the appropriate authorities at John Jay College and The City University of New York Graduate Center.

Chapter V

Analysis and Results

Affiliation Network Analysis of Police Chiefs

Archival research was conducted onsite at a state-level chiefs of police (COP) organization, located in the New England region. Consent to conduct this research was conditioned upon the confidentiality of the organization itself and its members/guests. It should be noted that the COP organization in this study is a private entity and is not subject to FOIA.

Research access to the COP organization was facilitated through a sympathetic sponsor who was recruited from within the researcher's own professional network. The sponsor is a current member of the COP organization and was captured within the dataset generated for this study.

Social artifacts, namely minutes of COP meetings, were systematically reviewed for attendance records and topical content. The reviewed meeting minutes span an 11 year period (2003-2013). Individual-level data were extracted from the artifacts and coded onsite. The resulting network dataset has two *modes*, consisting of 1) actors and 2) events. Actors include any identifiable individual who was listed as present at a given meeting. Most often, these actors were elected members of the COP leadership team, regular members of the COP organization, guests, and invited speakers.

A systematic review of COP meeting minutes identified 124 unique actors that attended at least 1 event between 2003 and 2013. COP meeting minutes contained a record of the attendee's last name and first initial, but lacked any personal identifiers. Actors' rank and organizational affiliation were identified through other COP source documents (e.g. membership roster), open-source internet searches, and follow-up communication with COP staff.

Not surprisingly, the vast majority (70%) of the individuals attending COP meetings were identified as active members of law enforcement.

As previously mentioned, COP meetings often included guests from outside law enforcement. Civilians (N = 26) and retired members of law enforcement (N = 3) were excised from the dataset. The rationale to exclude these actors was based upon the methodological need to isolate the network relationships between law enforcement policymakers.

Figure 7

■ Law Enforcement Organization (eligible)
■ Civilian
■ Retired Law Enforcement
■ Government Organization (non-eligible)
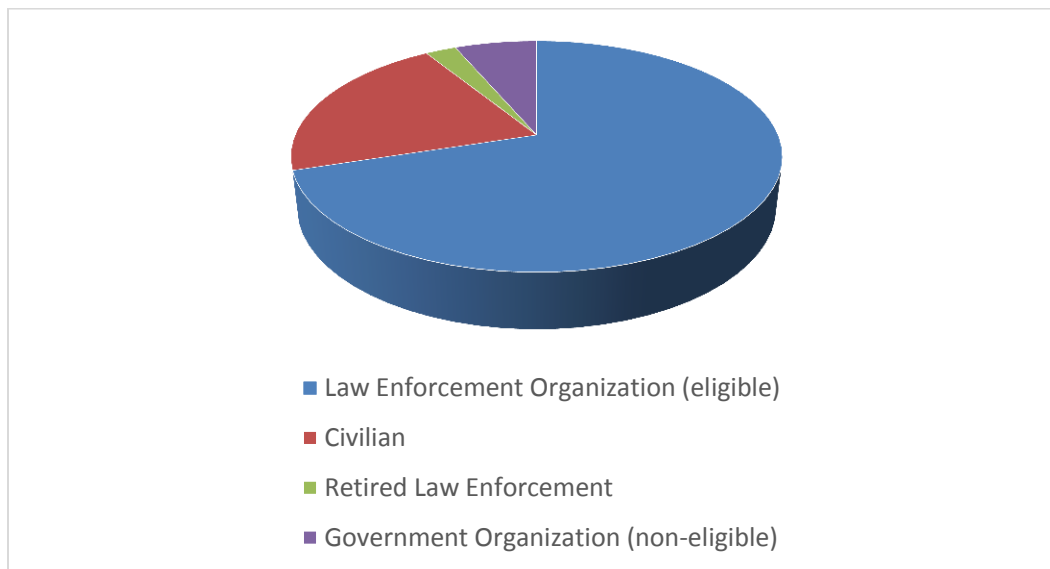
Composition of COP Meetings 2003-2013

Likewise, governmental employees (*N* = 8) that did not represent a law enforcement organization eligible for state accreditation were also eliminated from the dataset. Any actor representing a governmental organization eligible for state accreditation (i.e. state police official) was retained. These methodological decisions are not intended to diminish the value of actors hailing from outside of law enforcement.

In fact, (civilian) criminologists are becoming more involved in practitioner-based research partnerships, engaging in translational research, and even embedding themselves with police organizations for the purpose of policy guidance (Braga, 2014). A review of the civilian and non-eligible governmental organizations represented at COP events, paired with the meeting agenda and minutes, suggested that some of these actors were actively seeking to influence law enforcement policy decisions. However, none of the network actors excised from the dataset had any identifiable nexus to state accreditation, CALEA, or the risk-management industry.

Even if included, these actors would have very low measures of network centrality as most only attended a single meeting. The absence of these actors does impact network density and centrality scores, however it is important recognize that the intent of this dissertation is to capture law enforcement accreditation networks, rather than map the entire COP organizational network itself. In all, the resulting dataset generated from COP artifacts contains 87 unique actors, representing 71 accreditation-eligible law enforcement organizations. Each actor in the dataset attended at least 1 of the 51 COP meetings held within the 11 year study period.

Table 1

2003	4
2004	4
2005	4
2006	4
2007	5
2008	5
2009	5
2010	6
2011	5
2012	4
2013	5
	51

Number of COP meetings held by year

The most common events held by the COP were quarterly meetings which are required by the organization's bylaws. However, the bylaws also permit special meetings which were held in 6 out of the 11 years for which data were collected. Meeting minutes and attendance were recorded at the special meetings in the same manner as the quarterly meetings. The COP organization holds an annual golf tournament, but no records regarding tournament participation (i.e. foursomes) were maintained. Likewise, COP data regarding subcommittee or working group participation were unavailable. It was learned that meeting minutes are not regularly kept for these sessions. In total, network data were gleaned from 51 COP meetings held between 2003 and 2013. The COP organization held an average of 4.6 meetings per year during the study period. From a purely numeric perspective, average attendance at COP meetings was relatively static, ranging from a high of 26 in 2003 to a low of 19 in 2013.

Table 2

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
$\bar{X}=$ 26	$\bar{X}=$ 21	$\bar{X}=$ = 20.5	$\bar{X}=$ 22.7	$\bar{X}=$ 20.2	$\bar{X}=$ 20.8	$\bar{X}=$ 23.6	$\bar{X}=$ 23.5	$\bar{X}=$ 23	$\bar{X}=$ 20.75	$\bar{X}=$ 19	$\sum \bar{X}^{i} =$ 21.91

Police Chiefs Association - Average Monthly Meeting Attendance by Year

Frequency of actor attendance was calculated and determined to be normally distributed ($\bar{X} = 11.45$). An outlier was discovered in this distribution, node #0480, who had attended every single COP meeting on record during the study period.

Figure 8
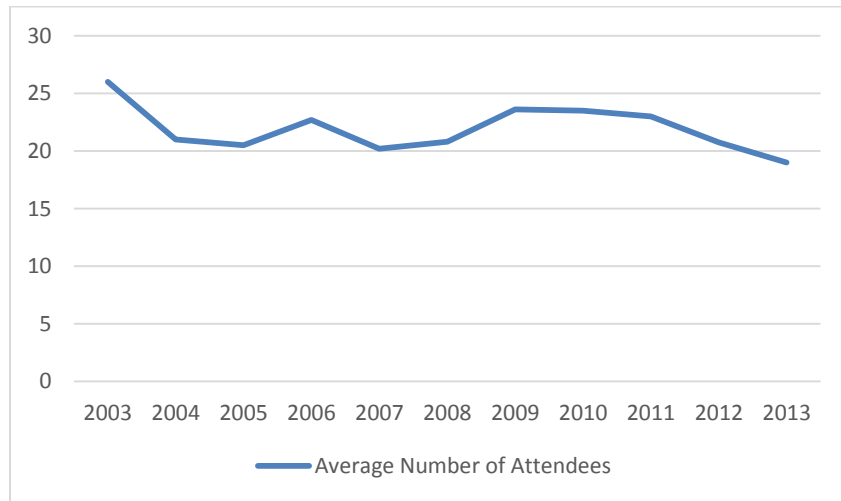
Average COP Meeting Attendance by Year

Figure 9
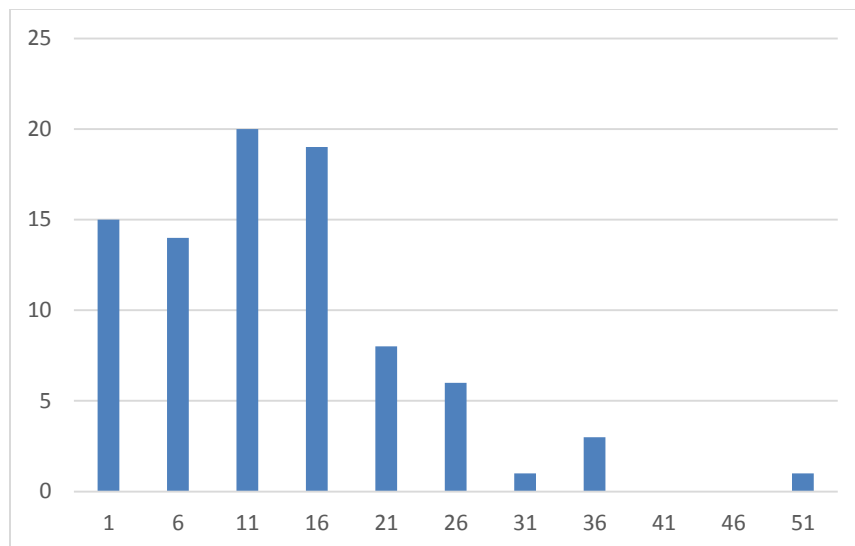
Frequency Distribution of COP Meeting Attendance

The relatively small number of actors present at these meetings fits well with the

theoretical orientation of this dissertation. A meeting with 22 attendees holds the mathematical

potential for 231 unique relationships.

The high number of possible relationships makes the network seem very complex, yet this group is intuitively much "smaller"; the size of COP meetings are not unlike that of a neighborhood cocktail party. A network event of this size would permit individual actors to meet, interact, and even exchange knowledge with many of their co-attendees. Based on average meeting size and the overall size of the network itself, it is fair to characterize COP network complexity as relatively low.

The ability for actors to engage in interpersonal communication is bounded by time, individual capacity, and a variety of other situational factors. An alternative observational approach to SNA could collect rich relational data by documenting the quantity and duration of interaction between pairs of actors in attendance. This would enhance researcher knowledge about patterns of social interaction between group members. This approach is not possible given the retrospective nature of this study; co-attendance is the best available method to map network relationships capable of transmitting innovation.

Count data and related descriptive measures of meeting size and actor attendance are informative, yet wholly incapable of identifying network relationships, structures, or other important characteristics. These descriptive data are even somewhat misleading as they conceal the dynamic and complex network relationships observed across the study period. This social reality can only brought to light through network analysis.

To facilitate network analysis, an affiliation matrix consisting of 87 rows (actors) and 51 columns (events) was constructed using the data gleaned from COP meeting minutes. Whenever an actor was listed as present at a given meeting event, the corresponding matrix cell was coded with a "1". The remaining matrix cells were coded as "0" to indicate actor absence from meeting events.

This method of organizing and coding network data falls under the category of 2-mode network data. This type of dataset, not unlike the biparte matrixes of Davis et al (1941), has two modes. The first mode is comprised of actors while the second mode is made up of events. Most SNA studies work with a single mode, capturing connections or interactions between multiple actors (Borgatti, 2009). Network actors are commonly referred to as nodes, while the connections between nodes are called ties (Knoke & Yang, 2008, p. 8). 2-mode data are handled differently because the nodes and ties are based upon co-attendance, not direct interaction. While the ties between actors (or events) can be valued based on the strength of 2-mode network relationships, 2-mode data are typically undirected. This means that the directionality of interaction between actors (e.g. node A kills node B) is often unknown. Despite this limitation, 2-mode data are very useful for mapping complete relational networks; this level of analysis is better suited to the present inquiry than egocentric or dyadic approaches.

Cohesion

Although nodes and ties are the building blocks of networks, SNA is fundamentally concerned with network structure. According to Knoke and Yang (2008) "the structural approach emphasizes the value of network analysis for uncovering deeper patterns beneath the surface of empirical interactions" (p. 3). All networks have intrinsic structural elements that can be defined both conceptually and operationally. One such conception is that of network cohesion. Cohesion suggests close, intimate relationships shared among members within a social group (Knoke & Yang, 2008, p. 72). The measure commonly used to capture levels of group cohesion is network density. When working with binary data, density scores typically range from 0 to 1 and are best understood as a proportion of all possible ties present (Hanneman, 2005).

Network density is a useful measure and may help to explain "the speed at which information diffuses among the nodes, and the extent to which actors have high levels of social capital and/or social constraint" (Hanneman, 2005, Chapter 7 para 27). A second way to measure network cohesion is to calculate the average degree, which is the average number of ties associated with each node. A network with many isolated or loosely connected actors would not be considered cohesive. The larger the average degree, the more cohesive the network.

The COP affiliation matrix was subjected to analysis utilizing UCINET v.6 software. A cohesion (density) analysis for the entire relational network identified a total of 996 possible actor ties. Slightly less than a quarter of these actor ties were observed as co-attending across the study period (D=.224). The average degree observed in the network was $\bar{d}$=11.448. The level of network cohesion may be even lower than suggested by the density score, given the existence of a previously identified outlier (Node #0480). This actor attended every meeting during the study period and is therefore connected to every other actor present in the network. Since degree is essentially a measure of the number of relational ties present, actors with a disproportionately high number of ties will inflate the density score. This can distort the picture of network cohesiveness (Prell, 2012, p. 168). COP network density is already low (D < .5), so the presence of an outlier will not change the overall characterization of network cohesiveness.

COP affiliation data were also temporally disaggregated in order to measure group cohesion on a year-to-year basis for the purpose of hypothesis testing. While cut points based on calendar year may seem arbitrary, it is worth noting that COP leadership is determined by an annual election process voted upon by COP members. Changes in group leadership could serve to fundamentally shift patterns of attendance and alter network structures.

Table 3

	2003	**2004**	**2005**	**2006**	**2007**	**2008**
Density	0.213	0.227	0.216	0.233	0.193	0.216
# of Ties	74	79	75	81	84	94
Avg Degree	0.851	0.908	0.862	0.931	0.966	1.080

	2009	**2010**	**2011**	**2012**	**2013**	**2003-2013**
Density	0.234	0.249	0.251	0.224	0.207	0.224
# of Ties	102	130	109	78	90	996
Avg Degree	1.172	1.494	1.253	0.897	1.034	11.448

COP Network Cohesion by Year, 2003-2013

Network density and average degree scores were calculated by year. Annual density scores were found to be similar to that observed in the complete network, ranging from D=0.193 in 2007 to D=.0251 in 2011. Conversely, average degree scores gradually increased between 2003 and 2010.

The large disparity observed between the small annual average degree scores and that seen in the aggregated data suggest a durable network comprised of loosely affiliated actors. Node #0911 provides an exemplary illustration of this pattern at the micro level; the actor's year-to-year involvement varies dramatically, but is durable over the course of time.

Figure 10
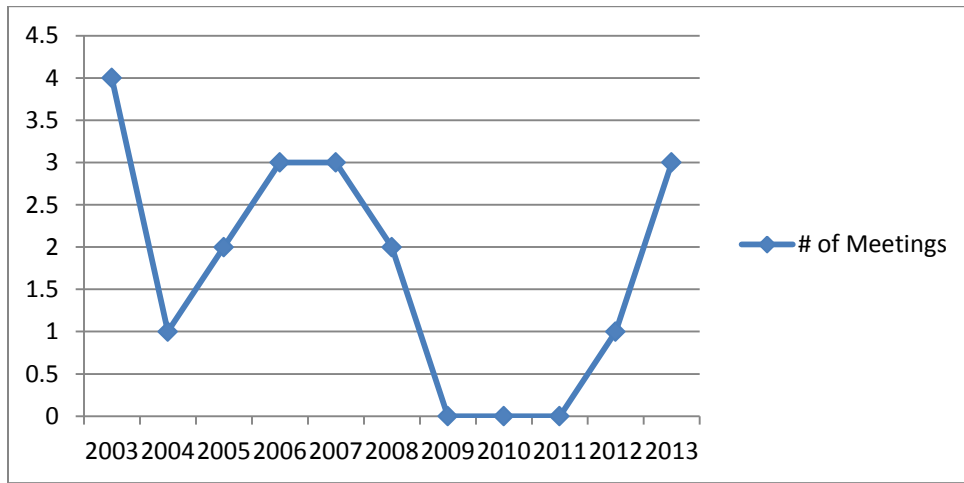
Node #0911 - COP Meeting Attendance by Year

This dissertation hypothesized that, "H_1: Innovation uptake will increase when network structures exhibit higher levels of cohesion". Exploratory analysis of linear data via scatter plots suggested no meaningful relationship between annual average degree scores and the number of accreditation applications.

Figure 11
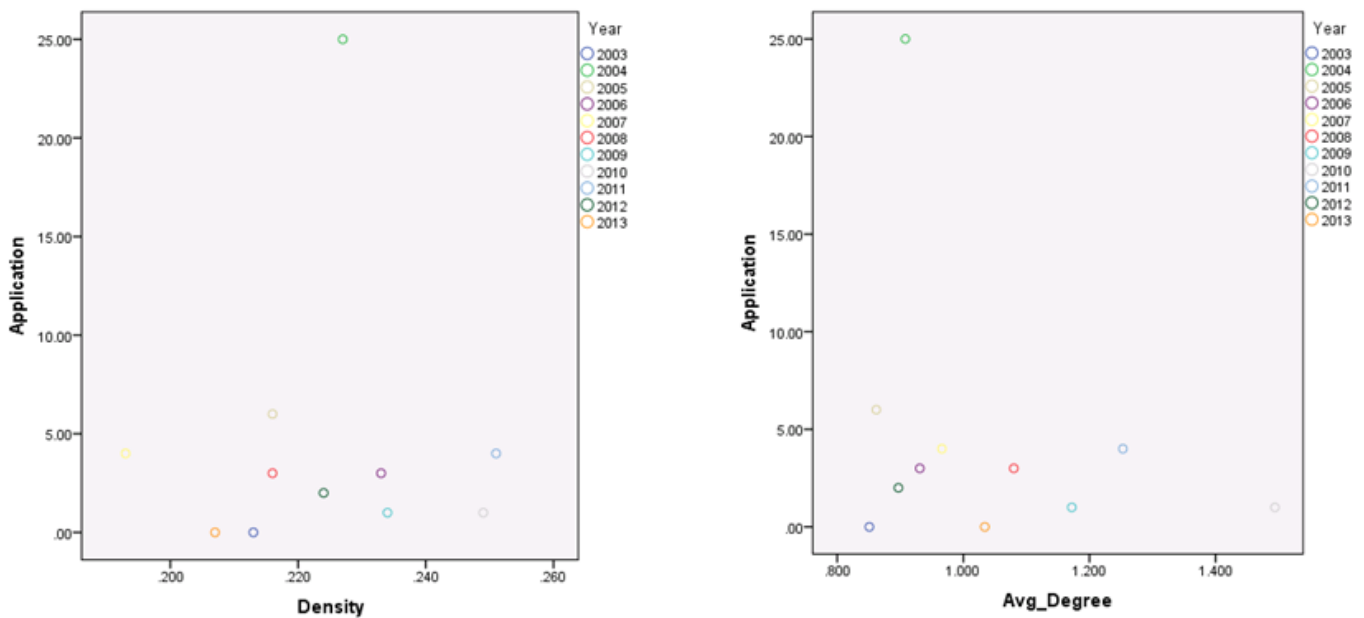
Scatterplots of Network Cohesion and Number of Applications by Year

A scatter-plot was also generated to assess the relationship between annual network density and the number of State accreditation applications. A moderate positive linear relationship was observed in the data. In order to empirically test the relationship between network cohesion and innovation uptake, the data were subjected to a univariate analysis of variance (ANOVA) test.

Table 4
Tests of Between-Subjects Effects

Dependent Variable: Application

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	77.570[a]	2	38.785	.737	.509
Intercept	6.608	1	6.608	.126	.732
Density	41.715	1	41.715	.792	.399
Avg_Degree	76.631	1	76.631	1.456	.262
Error	421.157	8	52.645		
Total	717.000	11			
Corrected Total	498.727	10			

a. R Squared = .156 (Adjusted R Squared = -.056)
Univariate Analysis of Variance for COP Network Cohesion

Means testing via one-way ANOVA demonstrated that neither density nor average degree were statistically significant. Because the null hypothesis cannot be rejected, the hypothesized relationship between cohesion and uptake (H_1) cannot be accepted. Although levels of cohesion are often positively related to phenomena like diffusion, this generalization does not hold true for accreditation uptake vis-à-vis the observed COP network.

Prominence

Measures of cohesion are useful for describing, interpreting, and even testing characteristics of network structure. However, since social networks are a collective assemblage of interconnected actors, SNA can also produce meaningful relational data at the individual actor level.

Unlike traditional social science methods, SNA is not primarily concerned with the variable-based attributes of individual actors. Rather, empirical focus centers on actors' relational position within the network. While two or more actors may occasionally manifest structural equivalence, there is typically variation across the network when it comes to actor prominence. At the individual level, prominence is best conceptualized as visibility to other network actors (Knoke & Yang, 2008, p. 62). Social networks can provide actors with unique advantages or disadvantages, which are often dependent upon individual positioning within the relational network. As previously mentioned, risk for exposure to public health problems like STDs and gun violence are heavily dependent upon network position. In business settings, network position can influence merger activity and other business deals. Prominent actors who are deeply embedded within network structures are exposed to more opportunities (good or bad) while isolated actors are constrained (Hanneman, 2005).

The two most popular measures of prominence are centralization and prestige. Prestige measures actor popularity by calculating the number of nominations or other directed elements associated with a given actor. A prestigious actor may initiate some transactions, but would be on the receiving end of many more directed interactions. Since network data collected for this dissertation are undirected, quantifying network prominence is based solely upon centrality. Measures of centrality disregard the direction of network relationships (if applicable), and operationalize prominence utilizing positional characteristics of individual actors. In many instances, centrality is a function of connectivity with large numbers of actors. When working with 2-mode data (i.e. event; actor), it might be logically assumed that actor centrality is determined exclusively by the size of the event itself. Yet relational patterns are more important than size alone.

"It is not merely the scale of the events (i.e. frequency; size) that produces high levels of centrality. Rather, centrality is a function of patterning among actors and events" (Faust, 1997, p. 164). Analyzing patterns of attendance can provide unique information about individual actors, particularly where they stand in relation to other actors in the network. There are different ways to operationalize centrality, but four measures have achieved prominence (pun intended) in network science. As expressed by Faust (1997):

- "actors are central if they are active in the network (degree centrality);

- actors are central if they can contact others through efficient (short) paths (closeness centrality);

- actors are central if they have the potential to mediate flows of resources or information between other actors (betweenness centrality); and

- actors are central if they have ties to other actors that are themselves central (eigenvector centrality)" (p. 160).

These measures are commonly used to analyze one-mode dyadic networks, but can also be applied to two-mode affiliation networks (p. 178). According to Faust (1997), most SNA studies of affiliation networks operationalize centrality using either degree centrality or eigenvector centrality. This dissertation makes use of two measures, degree centrality and betweenness centrality. These measures were primarily selected because of their conceptual fit with the stated research questions and hypotheses put forth at the outset of this study. For example, eigenvector centrality considers not only the prominence of a given actor, but the prominence of that actor's relations. While this operationalization of prominence clearly has value for a wide range of empirical endeavors, it holds little import for the study of diffusion. Pure activity with actors and events (i.e. degree centrality) is more germane. Similarly, betweenness centrality was selected because an actor's ability to connect two or more network actors who do not share a direct network relationship could be an important factor in the diffusion of innovations.

Degree centrality and betweenness centrality scores were calculated for the 87 network actors identified in the COP affiliation network utilizing UCINET's 2-mode network function. H_2 predicts that actor nodes associated with accreditation uptake at the organizational level will demonstrate higher measures of centrality than network actors having no relationship to state accreditation. In order to test this hypothesis, the data were subjected to an independent samples t-test. Accreditation uptake was coded as a dichotomous categorical variable (0 ; 1) for each actor in the network. The two groups were then tested on the basis of degree centrality and betweenness centrality scores.

Table 5

	AccApp	N	Mean	Std. Deviation	Std. Error Mean
DegCent	.00	25	.166275	.1372689	.0274538
	1.00	62	.247944	.1993648	.0253194
BetwCent	.00	25	.003583	.0056126	.0011225
	1.00	62	.009962	.0196036	.0024897

Group Statistics for Independent Samples T-test (uptake)

Table 6

		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
		F	Sig.	T	Df				Lower	Upper
DegCent	Equal variances assumed	1.149	.287	-1.874	85	.064	-.0816698	.0435849	-.1683282	.0049885
	Equal variances not assumed			-2.187	63.979	.032	-.0816698	.0373468	-.1562790	-.0070606
BetwCent	Equal variances assumed	5.360	.023	-1.596	85	.114	-.0063788	.0039974	-.0143267	.0015690
	Equal variances not assumed			-2.336	79.927	.022	-.0063788	.0027310	-.0118138	-.0009439

Independent Samples T-test (uptake)

Analysis revealed a significant relationship for betweenness centrality ($p= .022$). A marginal (but not significant) relationship in the theoretical direction of the study was observed for degree centrality ($p= .064$). These results are based upon a relatively small number of observations, but can be relied upon as the data reflect a population rather than a sample ($N= 87$).

Effect sizes for the groups were small for degree centrality (eta squared= .040), but moderate for betweenness centrality (eta squared= .06). These results demonstrate that police chiefs and other network actors who were more embedded in the COP network during the study period had a greater chance of self-selecting accreditation than their less prominent network counterparts. Based on these results, the null hypothesis for H_2 is rejected.

This same statistical process was used to test the relationship between prominence and successful completion of the state accreditation process. H_3 predicts that actor nodes associated with the successful adoption of state accreditation will demonstrate higher measures of centrality than network actors representing unaccredited organizations. For this T-test, accreditation status (dv) was coded as the dichotomous categorical variable (0 ; 1).

Table 7

	AccStatus	N	Mean	Std. Deviation	Std. Error Mean
DegCent	.00	53	.239364	.2068446	.0284123
	1.00	34	.201269	.1498203	.0256940
BetwCent	.00	53	.010028	.0208531	.0028644
	1.00	34	.005169	.0074298	.0012742

Group Statistics for Independent Samples T-test (Implementation)

Interestingly, means testing revealed that although degree and betweenness centrality were predictive for accreditation uptake, they had no statistically significant effect ($p= .323$; $p= .126$) on whether or not accreditation was successfully implemented.

Table 8

		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Sig.	Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	T	Df	(2-tailed)	Difference	Difference	Lower	Upper
DegCent	Equal variances assumed	.703	.404	.928	85	.356	.0380949	.0410415	-.0435067	.1196965
	Equal variances not assumed			.994	83.661	.323	.0380949	.0383072	-.0380876	.1142774
BetwCent	Equal variances assumed	5.613	.020	1.304	85	.196	.0048597	.0037254	-.0025473	.0122668
	Equal variances not assumed			1.550	70.280	.126	.0048597	.0031350	-.0013924	.0111119

Independent Samples T-test (Implementation)

The magnitude of the difference in the means was small for both accredited and non-accredited groups (eta squared= .011; eta squared= .027). The finding that network prominence has no significant bearing on accreditation outcomes means that the null hypothesis for H3 cannot be rejected.

Inconsistencies regarding the predictive value of network prominence may seem paradoxical at first blush. Network actors who self-select accreditation uptake do so in part because of their position in a relational network. It would be reasonable to expect that network centrality would also imbue the actor with the necessary resources to successfully implement the innovation, yet this seems not to be the case with these data.

Implementation of policing reforms face myriad obstacles[4] and several explanatory frameworks could be pursued to this end. It is not necessary, however, to abandon a network approach when seeking a viable explanation for implementation failure. This dissertation is largely focused on the relational position of police executives, yet these individuals are not the only organizational actors who possess network ties or social capital.

Police chiefs have considerable authority when it comes to high-level decision-making. That being said, implementation and oversight are regularly delegated to other personnel within the organization. Accreditation compliance is typically overseen by a sworn or civilian accreditation manager. Like the chiefs that appoint them, accreditation managers possess varying levels of prominence within their own relational networks that will either help or hinder program implementation. Many accreditation managers participate in formal networks known as accreditation coalitions, whose membership share written policies and facilitate mock assessment exercises. The CALEA website even lists contact information for 29 regional or state-specific accreditation coalitions (CALEA, 2015). Although no data are presently available, centrality in accreditation coalition networks may predict successful implementation in the same way that executive centrality was a predictive variable for uptake.

Event Centrality

It is important to remember that affiliation networks are fundamentally comprised of two modes. In this study, the modes include actors and events. While network relationships between actors and various organizational outcomes were hypothesized and explored extensively, it is important not to neglect the role of specific network events. "Since affiliation networks are two-mode networks, a complete analysis should give centrality indices for both actors and events" (Faust, 1997, p. 161).

Network analysis of two-mode data can generate quantitative measures for events in the same way that scores are derived for individual actors. Just as a particular actor may manifest high levels of centrality, a single event can also be central to the network based on patterns of attendance. It is worth considering whether specific COP meetings manifested higher levels of centrality and if this could have influenced accreditation uptake. While the topical content of a meeting could influence decision making for those actors who were physically present, the composition of the meetings could be even more important from a diffusion perspective. If a contingent of prominent actors attended meetings where accreditation was discussed, this could influence patterns of diffusion. Creating an event-based centrality index would "quantify the importance of the collection of actors belonging to that event" (p. 162-163). Using this approach, the unit of analysis is shifted from actors to events.

As previously mentioned, 11 years of COP attendance records were used as the basis for the affiliation network that is central to this dissertation. These social artifacts included detailed meeting minutes which were subjected to content analysis. An electronic textual search for the terms "accreditation" and "CALEA" identified 7 COP meetings held between 2003 and 2005 that involved agenda items or topical discussion relevant to law enforcement accreditation. Degree centrality scores were generated utilizing UCINET's 2-mode network function for all of the 51 meetings held during the study period. The statistical approach used to test the significance of actor centrality can also provide meaningful data about the importance of key events. An independent samples T-test was run in SPSS. For this analysis, event centrality (iv) was compared to meeting content. Meeting content was treated as a dichotomous categorical variable (accreditation content absent = 0 ; accreditation content present = 1).

Table 9

	AccContent	N	Mean	Std. Deviation	Std. Error Mean
DegreeCent	0	44	.2262156	.03487962	.00525830
	1	7	.2308970	.03179374	.01201691

Group Statistics for Independent Samples T-test (Meeting Content)

Table 10

		Levene's Test for Equality of Variances		t-test for Equality of Means						
						Sig.	Mean	Std. Error	95% Confidence Interval of the Difference	
		F	Sig.	t	Df	(2-tailed)	Difference	Difference	Lower	Upper
DegreeCent	Equal variances assumed	.104	.748	-.333	49	.740	-.00468136	.01404551	-.03290688	.02354415
	Equal variances not assumed			-.357	8.474	.730	-.00468136	.01311700	-.03463707	.02527435

Independent Samples T-test (Meeting Content)

As can be seen in Table 9, the 7 meetings that featured accreditation related topics or discussion had a mean centrality score of .2308. This was marginally higher than the average degree centrality score observed across the remaining 44 meetings which contained no accreditation related content ($\bar{X} = .2262$). Any inferences drawn from such a small number of observations should be done so cautiously. Still, these data represent a population of events rather than a sample, so any comparison is meaningful. Despite the observed difference in centrality scores between the two groups, means testing demonstrated a non-significant statistical relationship ($p= .740$) with a very small effect size (eta squared= .002).

This analysis suggests that the assemblage of network actors attending accreditation meetings was slightly more prominent than the contingents present at other COP meetings, yet event centrality did not play a significant role in diffusing State accreditation.

Although event centrality cannot explain diffusion, it is worth considering whether other event characteristics could have influenced patterns of accreditation uptake. Programmatic content at COP meetings and individual interaction with accreditation affiliated actors could spread the innovation. The operative source of the contagion (e.g. information, interaction) cannot be teased out in these data. However, SNA can illuminate such phenomena through network visualizations. Based upon Moreno's (1934) sociograms, network graphs can convey salient information that might be otherwise unobservable in a churning sea of quantitative data.

A secondary affiliation matrix was constructed to reflect COP attendance at the 7 accreditation related meetings. This dataset was then transformed into a two dimensional graph using UCINET's NetDraw feature (for a comprehensive set of COP network graphs by year, see Appendix B). In the graph, circular nodes representing actors are connected by ties to one or more squares which represent events. Isolates (i.e. network actors with no connection to any of the 7 meetings) were excised from the graph. NetDraw plots actors and events based upon prominence, with more central actors and events clustered towards the middle of the graph. Less central actors and events are plotted along the graph's periphery. The network graph initially generated by NetDraw is rather nondescript. Nearly a dozen nodes are clustered in the center of the graph, while two distinct factions of less central actors are plotted to the left and right based upon meeting year. It is only when additional detail is added to the graph that the contagion-like effects of diffusion are observable.

Figure 12
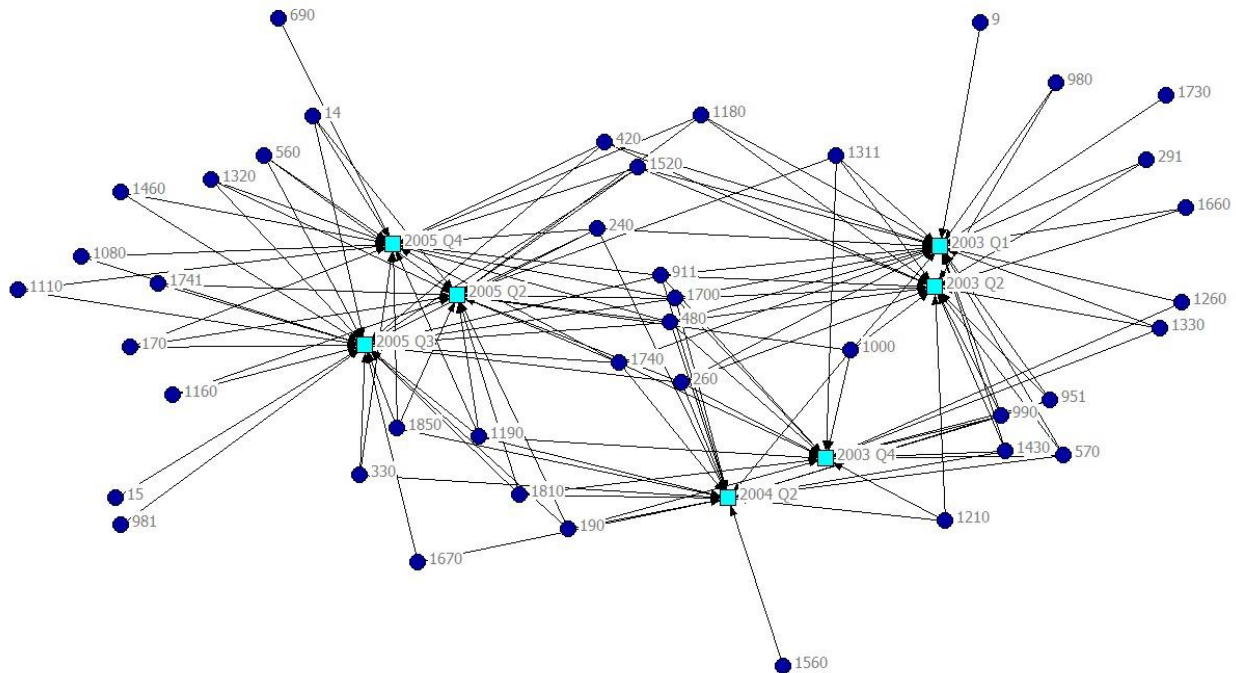
2-Mode Network Graph of COP Accreditation Meetings

Using COP data paired with accreditation records from the study state, nodes in the graph were color coded based on the time of uptake or award. Actor nodes representing agencies that had either been awarded CALEA Accreditation or had adopted State accreditation prior to 2003 were coded red. Actor nodes that initiated accreditation uptake during the period spanning the seven COP meetings where accreditation was discussed (March, 2003 to November, 2005) were coded orange. Late adopters of State accreditation who attended one of the 7 meetings, but did not apply until after November of 2005 were coded yellow. Actor nodes that attended but never engaged in uptake were coded blue.

Figure 13
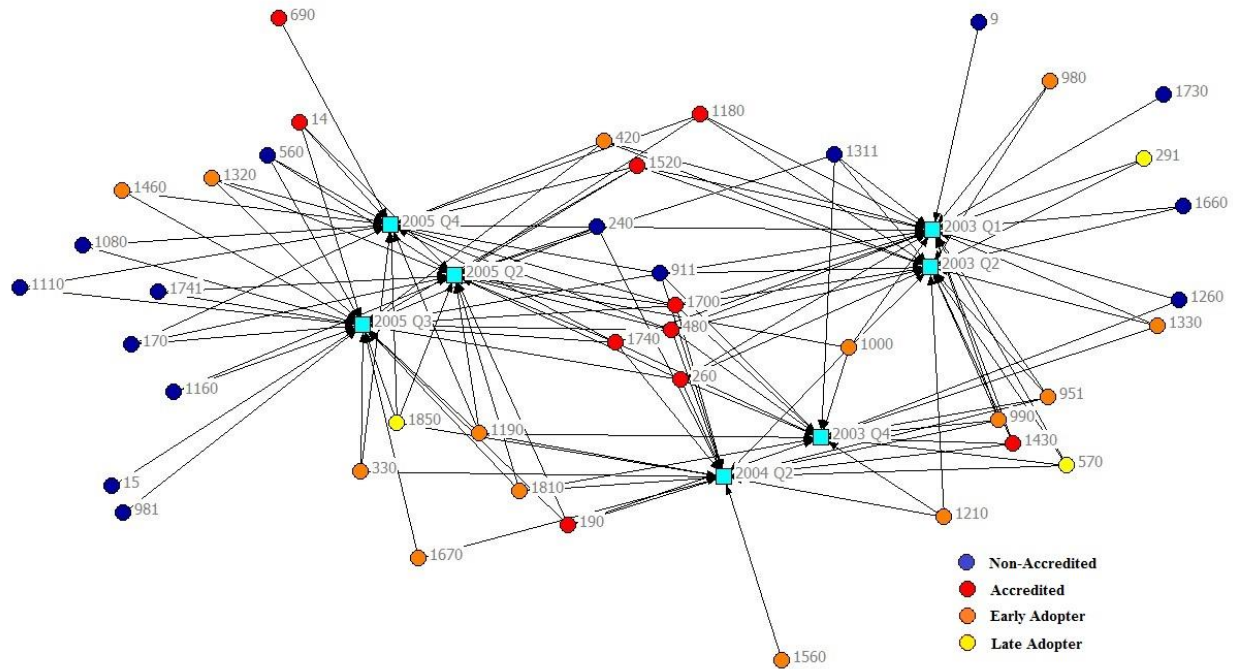
Enhanced 2-Mode Network Graph of COP Accreditation Meetings

The most striking feature of the enhanced graph (Figure 13) is that 6 of the 11 most central actors represent organizations that had already engaged in uptake, or been awarded accreditation. Although 2 more prominent actors adopted State accreditation between 2003 and 2005, most of the uptake occurs along the periphery of the network. At least one recent study has found that peripheral network actors are more likely to adopt certain innovations (Shakya, Christakis, & Fowler, 2015), but this evidence comes from outside the organizational context. The graph also suggests that certain COP meetings within this subset were associated with higher levels of uptake. Despite the presence of several actor nodes hailing from accredited agencies, COP meetings held in late 2005 (Q4; Q5) were patently less effective in diffusing accreditation than similar meetings held in 2003 and 2004. It is unknown whether this outcome is due to meeting composition, the quality or quantity of accreditation related discussion, some other confounding factor, or a confluence of these elements.

Spatial Distance

Other literatures have found that geographic proximity plays an important role in the diffusion of innovations within and between states (Graziano & Gillingham, 2014; Berry & Berry, 1990). It is logical to expect that most innovations will manifest a negative statistical relationship with spatial data, the likelihood of uptake rising as geographic distance decreases. Somewhat counterintuitively, Doerner and Doerner's (2009) study on state accreditation in Florida discovered a positive relationship between distance and uptake; as distance between from accredited organizations increased, so did the likelihood of being accredited (p. 790).

Although many spatial studies rely on Euclidian distance, Doerner and Doerner's analysis utilized Google maps to calculate the driving distance between physical agency addresses. Spatial analysis based on driving distance holds considerable face validity and is supported by research demonstrating high correlation between driving distances derived from geocoded addresses and Euclidian distance based on zip code (Jones, Ashby, Momin & Naidoo, 2010). One undisclosed limitation of Doerner and Doerner's (2009) study is that their spatial data are essentially atemporal. This means that measures were calculated as they existed at the time of the study. While cross-sectional data are more than adequate for a wide range of empirical endeavors, the failure to consider the role of time, particularly in a diffusion study, is a gross oversight. The present spatial relationship between two accredited agencies is largely irrelevant if agency *A* was non-accredited at the time agency *B* made the decision to adopt accreditation. Historical context is usually important for research, but in this instance history must drive the measurement process.

Historical data regarding accreditation awards were obtained from both the study state and CALEA. Put together, these data provided a chronological record of every law enforcement credential awarded in the study state. State records were also used to identify specific uptake dates for each agency that had enrolled in the state accreditation process. These organizations were then cross checked against the chronological list in order to determine the nearest accredited neighbor (NAN) at the time of uptake. Spatial distance was calculated utilizing MapQuest driving directions. MapQuest was selected over Google Maps and other open access mapping applications because MapQuest automatically calculates mileage for 3 different routes. This aids in the identification of the shortest possible route between the adopting agency and other accredited organizations. A NAN was identified for each agency that adopted state accreditation during the study period (N=63) along with the corresponding driving distance, measured in miles. Centrality scores, degree and betweenness, were assigned to each organization based upon identifiable COP network actors. Organizations that did not have an identifiable representative within the COP network at the time of uptake were assigned centrality scores of zero. For the purposes of this dissertation, state and CALEA accredited organizations (often one in the same) were presumed to have the same effect when it came to influencing organizational uptake of state accreditation. Therefore, the process of identifying NAN agencies was based upon credential status (yes; no) rather than credential type (e.g. State, CALEA).

In limited instances, agencies were found to have more than one geocoded address associated with the organization (e.g. police substations). In these cases, the address associated with the agency's headquarters was selected for analysis. Usually these competing addresses were confined to a single city and any spatial variation between the addresses was minimal.

One notable exception was the State Police, an accredited agency, which has troop barracks scattered across the study state. Individual troops could potentially influence surrounding agencies in matters of policy and innovation, yet executive leadership for the State Police is overwhelmingly assigned to their headquarters location near the center of the study state. The highest ranking State Police official assigned to each troop is a lieutenant. Jurisdictional exclusivity paired with the rank disparity between municipal chiefs and troop lieutenants likely has a limiting effect on the regional influence of State Police barracks. Thus, State Police headquarters was designated as the sole location for geocoding and subsequent NAN selection.

Like most innovations, accreditation in the study state spread slowly. Early adopters were clustered around the state's capitol region, yet spatial distances varied greatly. As the accreditation movement gained momentum, the state quickly became saturated with accredited agencies. This had the effect of diminishing the average NAN distance over the course of time. For agencies that adopted accreditation in 2004, the average NAN distance was 19.79 miles. By 2008, the average NAN distance had shrunk to 5.35 miles.

A logistic regression analysis was utilized via SPSS to test the relationship between accreditation status and a variety of other continuous variables including spatial distance, degree centrality, and year of uptake (control). The other measure of prominence, betweenness centrality, was not included in the model over concerns of multicolliniarity. First, the relationship between accreditation status and NAN was examined. 54% of cases ($N= 63$) were correctly classified without the benefit of predictor variables.

Table 11

			Predicted		
			Accred_Stat		Percentage
	Observed		.00	1.00	Correct
Step 0	Accred_Stat	.00	34	0	100.0
		1.00	29	0	.0
	Overall Percentage				54.0

a. Constant is included in the model.   b. The cut value is .500

Classification Table (Block 0)

Goodness of fit for the model was highly significant (p= .002) with a chi-square value of 14.894

(df= 4). The model achieved pseudo R squared values of .211 and .281 for Cox & Snell and

Nagelkerke, respectively.

Table 12

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	14.894	3	.002
	Block	14.894	3	.002
	Model	14.894	3	.002

Goodness of Fit (Block 1)

Table 13

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	72.045[a]	.211	.281

a. Estimation terminated at iteration number 6 because parameter
estimates changed by less than .001.

Pseudo R Square Values - Logistic Regression

Percentage accuracy in classification improved greatly from 54% to 63.5% with the inclusion of

the additional variables. A previous analysis of NAN mileage had identified a positive (B =

.018), non-significant relationship (p= .392) with accreditation status.

This mirrored the findings in Florida by Doerner and Doerner (2009) where distant agencies were more likely to be accredited. The present logistic regression model added year of agency application as a control variable. In some instances only the award date was known for the agency (*N*= 14). Rather than exclude these cases, the missing data were replaced with dates calculated by subtracting 41 months from the award date. This number reflects the mean time-to-award period previously calculated for the state accreditation program.

Table 14

Classification Table^a

			Predicted		
			Accred_Stat		Percentage
	Observed		.00	1.00	Correct
Step 1	Accred_Stat	.00	21	13	61.8
		1.00	10	19	65.5
	Overall Percentage				63.5

a. The cut value is .500

Classification Table (Block 1)

The direction of the relationship between distance and accreditation status changed with the introduction of time (i.e. month and year of uptake). A slight (non-significant) negative slope (B= -.014) was observed, meaning that the likelihood of state accreditation increased when smaller NAN values were present. Mirroring the findings from the t-test, degree centrality had a positive, non-significant relationship with accreditation status. The odds ratios for year of application (Exp(B)= .637) and NAN mileage (Exp(B)= .986) both had values less than 1, meaning that a single unit increase in either predictor variable decreases the likelihood of becoming accredited by a factor of .637 or .986, respectively. This demonstrates that early adopters experienced better outcomes than agencies that engaged in uptake during later years. Results of the logistic regression model should be accepted with some reservation given the small size of the population represented in the model (N = 63).

Table 15
Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	DegCent	.879	1.472	.357	1	.550	2.409	.135	43.105
	NAN_Mile	-.014	.024	.354	1	.552	.986	.940	1.033
	AppYr	-.451	.158	8.131	1	.004	.637	.467	.868
	Constant	904.602	317.358	8.125	1	.004	.		

a. Variable(s) entered on step 1: DegCent, NAN_Mile, AppYr.

Logistic Regression (Degree Centrality, NAN, Year of Application)

This dissertation incorrectly hypothesized that successful adoption of state accreditation would be predicted by actor centrality (H_3). The subsequent hypotheses, H_4, stated that the predicted empirical relationship articulated in H_3 would remain statistically significant when controlling for spatial distance. H_4 necessarily hinges on H_3 and therefore cannot prevail. Despite discovery of a negative relationship between NAN mileage and accreditation status (when controlling for temporal dimensions), the null hypothesis cannot be rejected.

Text Network Analysis of Police Policy Documents

Whereas the affiliation matrix captured patterns of interaction between actors and events, a text network analysis of policy documents can capture evidence of interaction through the identification of shared textual clusters in organizational policy documents. Content analysis describes "any methodical measurement applied to text (or other symbolic material) for social science purposes" (Shapiro & Markoff, 1998, p. 14). Traditional analysis of social artifacts seeks to quantify or interpret content that is manifest or latent in nature (Maxfield & Babbie, 2012). Text network analysis differs in that artifacts are not studied in isolation.

Rather, textual content is compared across a series of artifacts to map networks of co-occurring language, concepts, themes, or sentiments. This dissertation is fundamentally oriented towards computational aspects of linguistic network structure rather than interpretive methods.

In order to map textual accreditation network structures, data were collected from a population of police organizations that had formally enrolled the State accreditation process. A list of 24 police organizations was obtained from the state accreditation program's executive director, however 1 of these agencies later reported that they were not currently pursuing State accreditation. By the end of 2014, only one organization in the study population had been awarded State accreditation. This is not particularly surprising given established patterns of innovation uptake paired with the time commitment required to bring an organization into compliance with accreditation standards.

The research request solicited respondents' current use of force policy along with whatever policy was in place at the time the organization enrolled in the State accreditation process. Requests for department policy documents were initially sent by email and followed up via telephone when necessary. Organizations contacted for this study were provided with a brief description of the research project, the researcher's background, and a statement of confidentiality (See Appendix A). Despite these assurances, a handful of police departments were initially unresponsive to formal research requests. Ironically, cooperation was obtained in several instances by leveraging the author's own personal social network which extends into law enforcement circles. 22 of the 23 police agencies within the population provided policy documents for this study. Each responding organization was assigned a numeric code to promote confidentiality. Despite a high response rate, there were some instances of missing data.

Agencies #312 and #410 provided a copy of their current use of force policy, but relayed that no previous versions of the policy could be located. Similarly, 4 agencies (#307, #1609, #2103, #2308) reported that no changes had been made to their use of force policy since enrolling in the State accreditation process. It is worth noting that each of the accreditation managers representing these 4 agencies either stated that a new use of force policy was either being drafted or expressed their intent to revise the policy in the near future. All current policy documents included an effective date, as did most of the older use of force policies. This allowed for some descriptive analysis regarding trends in the promulgation of organizational policy.

Table 16

Organization #	Date of Previous UOF Policy	Date of Current UOF Policy
212	Nov-05	Jan-13
312	NA	Mar-13
311	Dec-12	Mar-14
307	May-11	Mar-13
410	NA	May-13
514	Jun-09	Jan-14
606	Aug-13	Jul-14
709	Apr-12	Apr-13
809	Mar-13	Jan-14
109	Sep-10	Jan-12
108	Aug-11	May-14
1213	ND	Mar-12
1310	Sep-11	Apr-14
1609	Jan-13	NA
1610	Feb-09	Sep-14
1808	ND	Oct-14
1908	Sep-06	Dec-12
1914	Jan-11	Apr-13
2008	Jan-99	Oct-13
2103	Mar-09	NA
2308	Mar-06	NA
2310	Sep-97	Mar-12

Use of Force Policy Dates (Previous/Current)

Although some agencies updated their use of force policy within 1 calendar year, this was not the norm. The median time elapsed between revisions was 31 months ($\bar{x} = 54$). It appears that entering the State accreditation process was a catalyst for reform; at least 8 agencies had not revisited their policies in five or more years, 2 of which had not updated their standing use of force policy since the late 1990s. It was learned during the data collection process that many organizations in the accreditation process had adopted (in part or in full) a model use of force policy that was promulgated by a state risk management organization in 2012.

Adoption of model policy language was not obligatory in the study state, nor was it an explicit condition of accreditation. Rather importantly, the model policy language did conform to state accreditation standards and presented an attractive "canned policy". Perfunctory adoption of the model policy was observed in at least one agency (#1908). This department's use of force policy bears the electronic signature of the police chief, yet multiple sections of the document were conspicuously incomplete. Fill-in-the-blank lines intended to document the name of the department, a division, or relay other key policy information were empty. This suggests a careless, uncritical acceptance of the model policy without due regard for the actual contents.

All policy documents from participating agencies were received in electronic format (e.g. .PDF, Word, .JPG). To ensure uniformity for data analysis, all text was copied and pasted into new word processing files that were saved in plain text (.TXT) format. In several instances, policy language had to be retyped by hand due to the file format received. All document headings, page numbers, signature lines, and appendixes were excised to limit textual noise that could potentially interfere with the content analysis. The files were then grouped into two corpora (Old; New), each representing a distinct textual network.

Old policy documents that were missing or policies that had not yet been revised following accreditation enrollment could not be included in both networks. This produced a slight numeric asymmetry between the two networks (Old, $n= 20$; New $n=19$).

Analysis of textual data was performed utilizing ConText, an open-source program that facilitates "a) the construction of different types of network data based on unstructured, semi–structured and structured natural language text data (Diesner, Aleyasen, Mishra, Schecter, & Contractor, 2014) and b) the joint consideration of any such text data and network data" (Diesner, Kim, & Pak, 2014).

Exploratory analyses of corpus data were run via ConText using the corpus statistics function. Roman and Indo-Arabic numbers were excised, along with single letters (excluding "a") and all abbreviations that did not spell a recognizable word (e.g. CPR). The only exception to this last criterion was the acronym for Thomas A. Swift's Electric Rifle (TASER) which is commonly used in police parlance. Corpus statistics of old policy documents revealed 2,189 unique linguistic items, 788 of which were utilized in a single instance. The mean ratio of texts that any identified term appeared in was 0.26.

Corpus statistics generated for the new set of policy documents identified only 1,298 unique items, a 41.7% decrease. The number of items used a single time also dropped precipitously to 416, a 52.8% change. Diminished term frequencies were contrasted by a positive change in the mean ratio of texts per lexical item, which increased to 0.46. The raw number of policy documents varied slightly between the two networks, but this alone cannot account for the drastic shift observed across the two analyses. Differences between the sets could potentially be caused by a decrease in the file lengths (i.e. word count).

This was not the case with these corpora; the old set of texts had an average word count of 2,153 contrasted with a mean of 2,254 words in the new set. The contraction of natural language paired with the increased ratio value suggests greater linguistic homogeneity within the new set of policy documents.

Although corpus statistics and average file word length are useful descriptive measures, they do not convey meaningful information regarding any co-occurring, structured natural language present in the networks. The bigram detection function in ConText captures pairs of sequential words within the texts and produces a mutual information statistic representing the joint probability of co-occurrence (ConText, 2015). The use of MI as an objective measure for word associations was first proposed by Church and Hanks (1990).

> "Informally, mutual information compares the probability of observing x and y *together* (the joint probability) with the probabilities of observing x and y *independently* (chance). If there is a genuine association between x and y, then the joint probability $P(x,y)$ will be much larger than chance $P(x) P(y)$, and consequently $I(x,y) \gg 0$. If there is no interesting relationship between x and y, then $P(x,y) P(x) P(y)$, and thus, $I(x,y) \sim 0$. If x and y are in complementary distribution, then $P(x,y)$ will be much less than $P(x) P(y)$, forcing $I(x,y) \ll 0$" (p.23).

ConText calculates MI using Shannon & Weaver's (1949) formula:

$$I(X;Y) = \sum_{x,y} P_{XY}(x,y) \log \frac{P_{XY}(x,y)}{P_X(x)P_Y(y)} = E_{P_{XY}} \log \frac{P_{XY}}{P_X P_Y}.$$

ConText's unit of analysis for MI is the bit, which uses base 2 for the logarithm function (M. Jaing, personal communication, February 23, 2015).

Mutual information values demonstrate that co-occurring terms are not a product of random ordering. Rather, they are small units of structured natural language. Clusters of policy language in the corpora, if present, are indicative of isomorphism. Bigram frequencies and mutual information values represent a unique approach to empirically measuring isomorphic phenomena among organizations.

In order to isolate meaningful pairs of language, the decision was made to remove articles (e.g. "a", "the") and other common parts of speech known as stop words. Although there is no standardized list of stop words, natural language processing tools commonly filter out these data (ConText, 2015). The corpora were preprocessed using the remove stop words function in ConText. For a complete catalog of stop words eligible for removal see Appendix C.

The resulting data were then subjected to bigram detection utilizing ConText. After manually removing all numbers, this analysis identified 6,388 unique pairs of case-sensitive sequential terms in the older set of policy documents. By contrast, the new set of policy documents contained only 3,090 unique pairs of sequential terms. Like the simple word count, this ratio provides some indication of variation between the corpora. The bigram analysis not only identifies unique pairs of language, but also quantifies their frequency within each network. An identified word pair might appear multiple times across the network of documents or usage could be limited to a single instance. In fact, the older group of polices had a total of 4,480 identified pairs that only appeared a single time; newer policies had 1,853 unique pairs that were never repeated.

These pair terms only exist within a single document and are therefore not shared between

organizations. This dissertation is primarily concerned with the identification of textual clusters

shared among policy documents and not those that stand alone.

Content analysis often attempts to identify dominant themes or sentiments (Grbic, 2013),

yet for the purposes of the present inquiry the most prominent terms or bigrams within the

corpora may not be the most important. There are numerous terms or phrases that might be

expected to appear within text networks comprised exclusively of policy documents regulating

the use of force by police officers. Simply reporting the most common words in each network

(see Table 17) does little to advance the research questions put forth in this dissertation.

Table 17

Old Policy Documents			New Policy Documents		
Word A	**Word B**	**Frequency**	**Word A**	**Word B**	**Frequency**
Lethal	Force	149	Lethal	Force	276
Deadly	Force	136	▇ *	▇ *	143
Police	Officer	118	Police	Officer	140
Bodily	Injury	94	Force	Option	118
Police	Officers	94	Police	Officers	104
Police	Officers	93	Bodily	Injury	95
Death	Bodily	85	Death	Bodily	89
Chief	Police	82	Police	Officers	87
Force	Option	61	Reportable	Force	85
▇ *	▇ *	60	Imminent	Threat	71
*Name of Study State Redacted					

Ten Most Frequent Word Pairs in Text Networks (Old/New)

Count data were collected from the bigram analysis output in order to quantify the total

number of pairs that had appeared x_i times in each network. Frequency distributions were then

generated for comparison purposes (Figures 14 & 15).

Figure 14
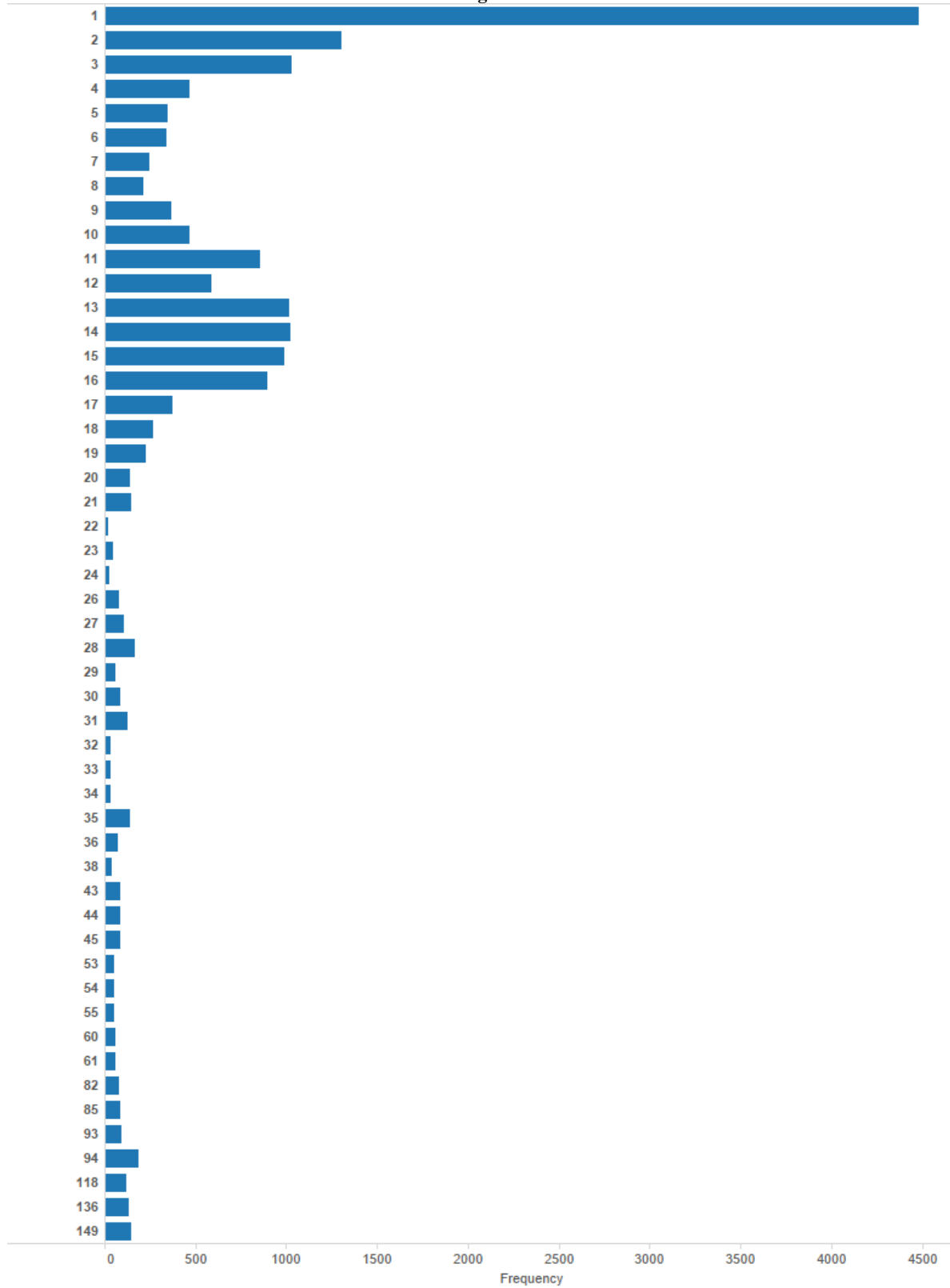
Distribution of Sequential Pair Terms (Old Policies)

Figure 15
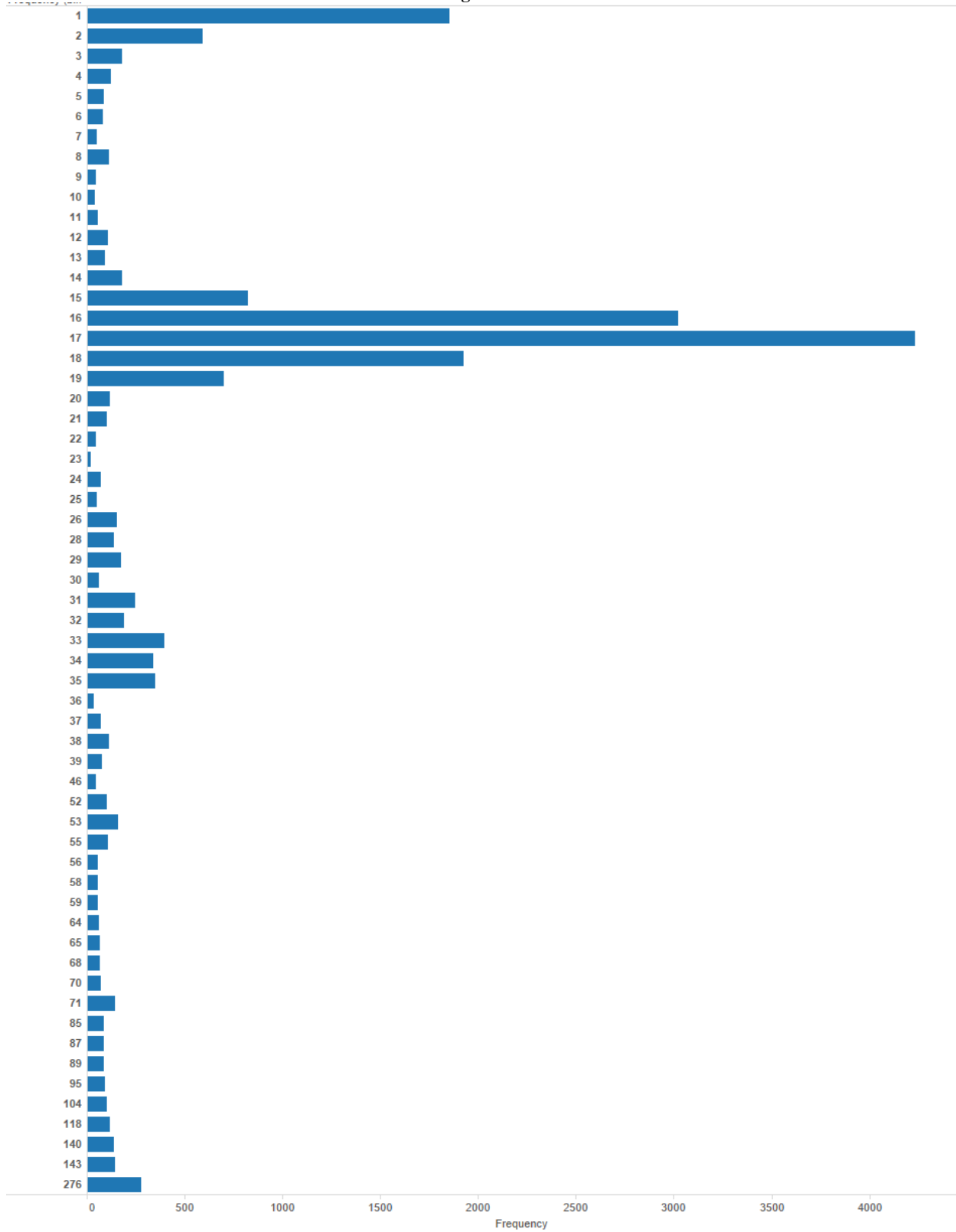
Distribution of Sequential Pair Terms (New Policies)

The lion's share of pair terms are found to have occurred three or less times in both sets of documents (old = 85%; new = 73%). 15% of identifiable textual clusters (i.e. bigrams) appeared between 4 and 149 times within the old policy text network. This statistic supports the hypothesis H_5 that, "Identifiable textual clusters will be observed in department policies authored/implemented prior to initiating the state accreditation process". Side-by-side comparison of the two frequency distributions revealed disproportionate patterning of the data.

Dense clustering of pair terms was observed in the text network comprised of newer policies. Specifically, 20% of all pair terms identified in the network co-occurred between 15 and 19 times. A full 8% of pair terms co-occurred 17 times. This stands in stark contrast to the text network of older policy documents where pair terms that co-occurred between 15 and 19 times represented a meager 0.28% of all observations. This particular swath of data in the distribution is meaningful, since the text network of newer documents is roughly the same size ($n = 19$). This particular analysis is incapable of distinguishing whether the observed textual clusters appear a single time in $n \leq 19$ documents or are present two or more times in some policies while altogether absent in others.

In order to test structural differences between the two networks, an independent samples t-test was run in SPSS. Identified word pairs from the bigram analysis were coded as a dichotomous categorical variable based on network affiliation (old policy text network = 0 ; new policy text network = 1). The MI statistic generated for each identified word pair was used for means testing. MI scores are statements of probability expressed in decimal form. The mean MI score for all bigrams identified in the old text network was .00104021. Although higher MI values were expected in the new text network, the average MI score was more than twice as high ($\bar{x} = .00215535$).

Table 18

Group Statistics

	Network	N	Mean	Std. Deviation	Std. Error Mean
MI	Old	6388	.00104021	.001941022	.000024286
	New	3090	.00215535	.003572973	.000064276

Group Statistics for Independent Samples T-test (Text Networks)

Unlike other analyses in this dissertation, this t-test was based on a large number of observations

(old *n*= 6,388; new *n*=3090) which increased statistical power. Differences in means were

highly significant (*p*<.001) yet the effect size was found to be small (eta squared= .0270).

Table 19

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
MI	Equal variances assumed	1139.592	.000	-19.659	9476	.000	-.001115143	.000056724	-.001226333	-.001003952
	Equal variances not assumed			-16.229	3994.529	.000	-.001115143	.000068711	-.001249855	-.000980431

Table 18 - Independent Samples T-test (Text Networks)

Based on the results of the t-test, the equal means hypothesis cannot be sustained. The null

hypothesis is rejected in favor of H_6 which proffered that, "There will be a higher degree of

textual clusters observed in policy language authored/implemented after beginning the

accreditation process.

The forgoing analyses provide unambiguous empirical evidence of isomorphism among

police organizations enrolled in the state accreditation process.

Establishing that isomorphism actually occurred is paramount; still, there is value in exploring what type(s) of isomorphism the observed phenomena reflect. The hypotheses proffered in this dissertation did not specify which of DiMaggio and Powell's (1983) mechanisms of isomorphism (i.e. coercive, memetic, normative) would be manifest. Research by Giblin and Burress (2009) has demonstrated that this typology is conceptually and empirically distinct. Given the topic of police use of force and the attendant uncertainties within the institutional environment, the most germane mechanism is memetic isomorphism. Police agencies would be expected to model themselves after organizations with high levels of perceived legitimacy. The presence of textual clustering in the old policy network gives credence to this perspective. Through data collection and analysis, it was evident that model policy language promulgated by the risk management organization had spawned pronounced isomorphism. It is true that some agencies adopted the model policy in a perfunctory manner (e.g. presence of empty fill-in-the-blank spaces) suggestive of mimicry. Still, this phenomenon smacks of something other than memetic modeling. Within the professions, normative isomorphism occurs through "the definition and promulgation of normative rules about organizational and professional behavior" (DiMaggio & Powell, 1983, p. 152). It is worth reiterating that the model policy was produced in concert with policing leaders from across the study state. It may be that certain ideas in policing have reached a tipping point indicative of normative consensus. One example taken from the model policy is that of police-involved shootings and in-custody deaths. Although hardly a standard practice across American policing, the dominant rule codified in the sample of new policy documents requires the use of multi-agency investigative teams (comprised of state and local police) whenever a fatality occurs.

Although this dissertation interprets the observed isomorphism largely as a function of normative pressures, a compelling case can be made for mimetic isomorphism or even a confluence of the two.

Chapter VI

Discussion and Conclusions

Summary of Findings

This dissertation sought to answer several research questions regarding the role of social networks in diffusing of policing innovations. Given the paucity of network-based studies in policing, it was unknown at the outset whether it would even be possible to identify relational networks among police organizations. Meeting minutes taken from a state level chiefs of police organization provided the necessary data to construct an affiliation matrix based on actor attendance. Network measures of cohesion and prominence were generated and subsequently subjected to a variety of descriptive and inferential analyses. Although network cohesion did not play a role in the rapid uptake of state accreditation, individual measures of actor prominence were predictive. As hypothesized, actors with higher levels of centrality (degree and betweenness) were more likely to adopt the innovation of state accreditation. Efforts to tease apart the relationship between meeting centrality and actor centrality demonstrated that the composition of meetings where accreditation was discussed, although more prominent than the mean, were not statistically significant. Traditional diffusion models have given considerable attention to the role of geographic proximity, in some instances using it as a proxy measure for "unobservable" network relationships (Doerner & Doerner, 2009). Spatial distance between adopting agencies and their nearest accredited neighbor were calculated using historical records of state and CALEA accreditation awards. Although a slight negative relationship between spatial distance and uptake was observed (i.e. as mileage decreases, the likelihood of accreditation uptake increases), it was not statistically significant.

While actor centrality is predictive of innovation uptake, this study did not find that such measures influenced whether or not the agency was successful in implementing the accreditation program. This finding was contrary to the hypothesis proffered, but it does not necessarily undermine the explanatory value of network science since the centrality of actors actually responsible for implementation (i.e. accreditation managers) may play a role in determining organizational outcomes.

This dissertation moved beyond the study of innovation and diffusion at the actor level in order to assess how and why organizations change within the institutional environment. Text network analysis was utilized to generate empirical measures of isomorphism within two networks comprised of organizational policy documents regulating police use of force. The text networks were bifurcated based on when the policy language went into effect (i.e. before and subsequent to enrollment in state accreditation). Analysis identified numerous textual clusters within the network that predated the accreditation movement. This is indicative of memetic isomorphism. However, once enrolled in state accreditation, organizational policy language converged rapidly. Analysis of mutual information scores associated with identified bigrams demonstrated that the level of textual clustering in the new network was statistically significant relative to that which was observed in the old network. Structural change among organizations within the network were attributable to normative isomorphic mechanisms.

Study Implications

Theoretical and Methodological Implications

From an academic perspective, this dissertation firmly establishes the utility of social network analysis as a methodological approach for studying police organizations.

Although SNA is particularly useful for examining innovation and diffusion, the study of relational networks holds considerable potential for a variety of empirical endeavors in policing. Young and Ready (2014) were the first policing researchers to apply SNA in their randomized field trial of body cameras. This dissertation demonstrates that longitudinal network data can be captured through analysis of social artifacts. Agency records, already a boon for traditional quantitative criminal justice researchers, contain a veritable treasure-trove of network data suitable for analysis. The present study could inspire further network scholarship in criminal justice and organizational literatures, a step towards fulfilling Papachristos' (2011) vision of a networked criminology.

The use of text network analysis is uncommon in academe, yet this dissertation has demonstrated its value as a methodological approach. The ability to analyze network structures via organizational language could spawn a new body of scholarship. Similar implications exist for institutional theorists seeking to study isomorphic phenomena. To date, application of institutional isomorphism has largely been a theoretical endeavor as researchers have struggled to empirically measure isomorphism. This limitation has prevented theory testing and ostensibly stunted growth of the institutional theoretic tradition. The ability to extract and quantify measures of isomorphism through text network analysis is an important finding that could reinvigorate this area of scholarship.

Although not a stated research question, this dissertation's application of institutional theory necessarily calls into question the efficacy of the police and other public entities which are most susceptible to institutional forces (Frumkin & Galaskiewicz, 2004). Recognition that organizational structures and strategies are products of myth and ceremony rather than rational, efficient adaptations could further undermine public confidence in government.

This implication is particularly worrisome for the field of policing which is already under intense public scrutiny following the police-involved homicides of Michael Brown and Eric Garner in 2014. Not only could institutions face backlash, but the very mechanisms that serve to engender organizational legitimacy might also be called into question. Accreditation is one such mechanism that is an unambiguous byproduct of institutional forces (Crank & Langworthy, 1992; Zucker, 1987). While the effectiveness of accreditation is a separate research question, it is ironic that a program designed to confer status and public confidence could itself experience a deficit of legitimacy. If accreditation is merely legitimating window dressing, then this dissertation represents an initial step towards unmasking the validity of accreditation. This implication extends beyond law enforcement accreditation and could potentially impact credentialing programs in other fields like higher education and medicine.

Applied Implications

From an applied perspective, this dissertation holds weighty policy implications for the field of policing. Policymakers, particularly those at the state and federal level, should pay heed to the potential role of social networks in the diffusion of programmatic innovations. As stated by Skogan and Frydl (2004), there is a knowledge gap when it comes to facilitating police innovations. The present study has demonstrated that professional networks engender innovation uptake independent of geographic proximity. Policymakers and police reformers can capitalize on this contagion-like effect by encouraging interorganizational contact between law enforcement executives. The social architecture required to facilitate effective (i.e. contagious) interaction may already exist in the form of police professional associations. These groups have a storied history when it comes to the advancement of policing reforms, although many associations are admittedly now more fraternal than transformational.

Professional association meetings or conferences provide an ideal forum for communicating information relevant to policing innovations. However, this dissertation suggests (in line with the body of innovation and diffusion literature) that interpersonal influence trumps information alone. Instead of indiscriminately spreading information to large numbers of police executives, relational networks should be targeted strategically. Existing networks can be seeded with actors that have already engaged in favorable forms of uptake. Once embedded, these actors will pollinate the network thereby accelerating patterns of diffusion.

An alternative approach to diffusing innovations involves the formation of new relational networks through grant funded initiatives sponsored by public policy groups or academic institutions. Instead of trying to seed fallow ground, this strategy would identify and recruit a core group of progressive policing leaders to become central network actors. The goal would be to draw other police executives into the network where they would be formally and informally exposed to a variety of innovations. Just as ingenuous mothers of yesteryear arranged play-date gatherings to help spread chicken pox amongst their children (Brown, 2011), policymakers should actively seek to facilitate the spread of policing innovations through contagion.

One such contagion-inducing program is the Harvard Executive Session on Policing and Public Safety, an NIJ sponsored working group that first convened in 1983 and was reconstituted in 2008 (Harvard Kennedy School, 2014). A core group of approximately two dozen urban law enforcement executives, policing researchers, and policy experts from across the country come together in Cambridge, MA several times a year. Over the course of a long weekend, the group discusses current challenges in policing through a series of semi-structured forums. Group members return home, but continue to collaborate on topical papers designed to reach an executive-practitioner audience.

The Executive Session meetings are closed, but a handful of invited observers (many of whom are police chiefs) attend each session. The meetings include group meals and long breaks that encourage conversation and networking among members and observers. By facilitating extensive interaction, the Executive Session functions as a highly conducive relational network. The model presented by the Executive Session could be scaled down to a regional or state level for the purposes of facilitating innovation and diffusion. An invitation to participate in such a group would likely confer a reasonable degree of legitimacy to the actor and, by proxy, his or her organization. This would appeal to prevailing institutional forces and encourage participation in the network.

It is counterintuitive, yet wholly encouraging from a policy perspective, that actors positioned on the periphery of relational networks are still susceptible to the forces of social influence. Contagion can be transmitted through a single contact and although centrality is predictive, it is not requisite. Mere connectivity (within the right type of network) provides the opportunity for exposure and subsequent infection. The first order of business for policymakers is to draw suitable law enforcement officials into networks where innovations can take root. The strategy of leveraging social networks can serve to accelerate the rate of diffusion and saturate the environment more quickly. American policing has been critiqued for its lack of uniformity (Stone & Travis, 2007) and the ability to diffuse innovations via social networks could be a key component for achieving some semblance of a national coherence. This prospect is compelling, yet a note of caution is warranted due to the potential for backfire. Even interventions with the best of intentions can sometimes produce iatrogenic results (Lum, Koper, & Telep, 2011).

It is important to recognize that intentionally altering social network structures in ways that facilitate contagion may inadvertently spread ineffective or even harmful innovations. This sobering consideration highlights the need for careful program oversight and evaluation.

One of the unanticipated findings of this dissertation, the efficacy of external organizations, opens the door to some encouraging implications for public policy groups and police reform advocates. It was hypothesized that the accreditation process would beget isomorphism through interorganizational interaction. However, the sheer number of police agencies that fully adopted or incorporated model policy language originally promulgated by a risk management organization indicates that outside groups can play a direct role in police reform.

Traditional methods of achieving police reform leveraged by the legislature, judiciary, and the U.S. Justice Department are often coercive or at least adversarial. The same can be said for civil lawsuits which McCoy (2010) identified as one of the most effective sources of police reform. The fact that the changes in departmental policy observed in this dissertation were voluntary, not compulsory, speaks to the virility of third party organizations.[6] The model policy language endorsed by the risk management organization was developed with considerable input from policing practitioners presently working in the study state. It would likely behoove policy groups with a police reform agenda to seek direct involvement with law enforcement practitioners. It is unknown if reform-minded organizations will take such steps, and the impetus for action may fall upon law enforcement organizations themselves. This is not a foreign concept as police officers routinely seek to ingratiate themselves with members of the community. The coproduction of policing reform could be a potent strategy for law enforcement organizations and activists alike.

While admittedly bordering on the fantastic, one additional applied implication is worth exploring. If network position is in fact predictive of positive organizational behaviors, it begs the question whether such attributes should be considered for executive recruitment and selection. It is common for policing executives on the job market to tout their various professional affiliations (e.g. IACP, PERF). While participation in professional associations has been linked to innovation (Skogan & Hartnett, 2005), mere membership is virtually meaningless when it comes to network position. Almost any police executive can join a professional association by filling out an online application and paying the requisite membership dues. Network interaction does not take place unless the member physically attends a meeting or participates in some type of online interaction with their peers. Network position fundamentally serves to constrain actors or imbue them with social capital (Hanneman, 2005). If reliable network measures could be generated for police executives, such scores could be considered as an element of the hiring process. This is not dissimilar to the notion of an impact factor commonly used to rate academic journals. Impact factors are fundamentally network measures based upon the average number of citations per article that are published in other refereed journals. This dissertation has found that prominent police executives are associated with higher levels of innovation uptake. Although this is just one aspect of executive performance, it is an important one. Conventional wisdom, supported empirically by Teodoro (2009), dictates that police agencies in need of reform should hire externally. The insider vs. outsider debate may actually be a false dichotomy. Perhaps the best candidate is an actor (internal or external) who is deeply embedded in multiple networks. While much is yet unknown about network effects, quantitative measures based on prominence may prove to be a better predictor of executive performance than traditional variables.

A final applied consideration is the function of isomorphism and whether such phenomena can be effectively channeled. The findings of this dissertation suggest that the accreditation program was indeed a catalyst for organizational change through the revision of departmental policy. However, textual convergence of plagiaristic proportions was not a planned component of the state accreditation program. Conditions favorable to isomorphism were already present by virtue of the institutional operating environment, yet the isomorphism itself was unplanned and uncontrolled. Isomorphism and other products of the institutional environment are often portrayed negatively in the literature; after all, these are the fruits of myth and ceremony. What if this bias is barring a potential avenue for reform? It is presently unknown if the powerful forces of the institutional environment can be harnessed in a strategic manner to generate patterns of isomorphism that actually produce organizational efficiency. The model policy produced by the risk-management organization may exemplify this pattern. Diffusion occurred because of institutional pressures, yet the policies and procedures ostensibly embody efficiency criteria since the risk management organization has a direct financial stake in the performance of the municipalities it insures. This example is anomalous, but it demonstrates how institutional forces can be subverted to advance *strategic isomorphism*.

Limitations

There is widespread agreement that the system of American policing is highly fragmented and parochial in nature (Cordner, 2011; McCoy, 2010; Reaves, 2007; Shane, 2010, Walker, 1977). This premise has overshadowed the existence of regional and state specific variations in law enforcement that could hold important implications for policing research.

There are vast differences across the states when it comes to the number of sworn police officers employed and the number of law enforcement agencies having jurisdiction in a given state (Cordner, 2011). These data, when compared to the overall state population, create measures concerning the level of police employment and degree of fragmentation (p. 114). The degree of police fragmentation is particularly relevant when it comes to the study of organizational innovation and diffusion. It is presently unknown whether structural variation in police jurisdictions can facilitate or inhibit the spread of innovation. This dissertation is limited in that data were collected in two New England states. New England states represent some of the lowest levels of police fragmentation in the country and therefore may not be representative of most states (p. 114). Fragmentation in New England is likely a function of population density (i.e. few rural police departments) and the diminution of county government. Governance in New England is largely a localized phenomenon. Law enforcement jurisdiction is similarly Balkanized at the local level, a fact which may shape social network structures and alter patterns of interaction between organizational actors. Hence, this study's findings may have limited generalizability beyond New England. Still, the value of this research is not compromised as very little is presently known about public sector diffusion. This dissertation makes an important contribution to filling this knowledge gap.

Moving from external validity to the subject of internal validity, it is important to recognize that any methodological approach in social science research comes with inherent advantages and disadvantages (Maxfield & Babbie, 2012, p. 14). This statement holds true for social network analysis. Because our world is so interconnected, perhaps increasingly so, mapping social networks could potentially expand *ad infinitum*. Boundary specification presents an imperfect solution to this problem.

Consequently, there are limitations associated with the boundary specification approach utilized in this dissertation. The affiliation matrix was constructed based upon records from a singular organization over a fixed period of time. Despite the breadth of data collected, it is impossible to capture network relationships external to the COP organization. It is important to highlight this limitation as other professional or fraternal organizations could also influence patterns of uptake. For example, one of the study states has several active county-level COP organizations. These networks are admittedly smaller than the state COP organization, yet this fact could actually produce higher measures of cohesion and prominence. It is entirely possible that a police chief who adopted state accreditation was not directly influenced by virtue of the state COP network, but was instead persuaded through network forces at the local level. Likewise, paths of social contagion are not restricted to executive-level actors. This dissertation has demonstrated that interorganizational contact between police chiefs is quite common. However, lower ranking police officials also interact with counterparts from other agencies (Weis, 1997). The diffusion process between two organizations could actually begin near the bottom of the organizational table, with proposed innovations being run up the chain of command. The affiliation network approach utilized in this dissertation is incapable of capturing such interactions and is also ignorant when it comes to directed characteristics of network relationships.

This dissertation demonstrates that network position is associated with specific organizational behaviors, namely innovation uptake. This contagion approach enjoys strong empirical support in network science as "the members of a social network often exhibit correlated behavior" (Shalizi & Thomas, 2011, p. 214).

Yet just under the surface of this seemingly firm ground lurks the threat of endogeneity, thanks to the confounding phenomenon of *homophily*. Homophily, the idea that "similarity breeds connection" (McPherson, Smith-Lovin, & Cook, 2001, p. 415), limits causal inference. The debate regarding the causal order of peer relationships and behavioral outcomes enjoys a spirited tradition in criminology that is best encapsulated by the theoretical question regarding whether birds of a feather actually flock together. Rogers (2003) asserts that homophilous networks serve to accelerate the diffusion process, but simultaneously function as an "invisible barrier", constraining diffusion within the boundaries of elite networks (p. 288). Neither COP membership nor state accreditation are compulsory, thus both variables are subject to selection bias. While it may be possible to identify manifest aspects of homophily (e.g. education, race), latent qualities may be difficult to operationalize. Endogeneity creeps in as it is nearly impossible to discern whether behaviors are the product of latent homophily or contagion; these effects are confounding (Shalizi & Thomas, 2011). Factors that determine self-selecting participation in the COP network may also be independently correlated with accreditation uptake. While homophily may influence network membership and participation, it is theorized that mere contact facilitates contagion. Akers' (1999) succinct rebuttal to the birds of a feather critique of Social Learning Theory is fitting here: "if you lie down with dogs you get up with fleas" (p. 480). Data analysis has demonstrated that network position is predictive of innovation uptake, yet endogeneity cannot be ruled out, thus limiting causal inference.

This dissertation's methodological approach to quantifying isomorphism also comes with unique limitations. Unfortunately, the text network analysis cannot discern whether a given agency's adoption of model policy language was sourced directly from the risk management organization or if it was transmitted through an intermediary police organization.

The unique identities of organizational actors engaged in diffusion are also unknown, as is the directionality of the network relationships (i.e. sender; receiver). The effective date specified on many use of force policy documents, if reliable, may provide some clues as to the sequence of diffusion, yet these data leave much to be desired.

Limitations associated with the text network analysis software are also worthy of mention. ConText's bigram detection feature aggregates textual data, but does not map word pairs according to their source location(s). It is therefore impossible to tell whether identified textual clusters are present in all of the network documents or are found multiple times in some documents while altogether absent in others.

The computational approach to content analysis undertaken in this dissertation provides a value neutral perspective on the actual language of the use-of-force policies. There was no attempt to evaluate whether the procedures represented in the new group of policies had more merit than those in place before beginning the state accreditation process. While the data support significant convergence of policy language demonstrative of institutional isomorphism, it is beyond the scope of the study to try and discern whether the actual policy changes are ultimately favorable or deleterious to the organization (e.g. operational effectiveness, civil liability, or public legitimacy).

Areas for Future Research

This dissertation approached the study of innovation and diffusion through the lens of a single programmatic innovation, state accreditation. Although replication with other state accreditation programs is wholly appropriate, the approach is rather myopic. A preferable agenda would seek to apply SNA to a variety of police innovations.

There is no shortage of innovations, programmatic or technological, for researchers to plumb. Affiliation networks are a sound approach for these future studies, but alternative SNA methods can illuminate other important network characteristics.

Several of the limitations articulated in this dissertation can be overcome through alternative approaches to data collection. Relational strategies involving interviews with network actors (i.e. expanding selection) offer the most promising avenue for future organizational research. Although prone to flaws in human memory, the expanding selection approach may reveal why some organizations are successful with innovation beyond the uptake phase. As previously discussed, while executive actors can take credit for innovation uptake, they ostensibly have little control over implementation. It is believed that individuals who are directly involved with or responsible for implementation within the uptake agency may actually be actors in other important networks. Likewise, it is important to recognize that relational networks can transcend organizational structure and may include familial or social ties. These informal social networks may be less visible than the networks analyzed in this dissertation, but that does not make them any less powerful. Informal social relationships could potentially exceed levels of influence exerted by formal or professional ties. Tie strength, directionality, and other aspects of network structure can only be mapped with data obtained through qualitative interviews with organizational actors, or perhaps analysis of electronic correspondence. Future research should make use of such methods to advance knowledge regarding relational networks that are less visible, but potentially more influential than those analyzed in this dissertation.

The method of text network analysis also presents fertile ground for future study. Marked shifts in policy language were detected in the preceding analyses, yet interestingly only one of the organizations in the population had actually earned state accreditation at the time data were collected. Based on accreditation trends observed in Connecticut's state program[5], it is likely that only half of the agencies represented in the text network will be awarded state accreditation. This rather disheartening statistic is not without a silver lining. Social artifacts generated by two distinct groups, accredited and non-accredited police departments, would provide another opportunity for text network analysis.

In addition to studying different innovations and leveraging alternative methods of SNA, future research should be scaled beyond municipal diffusion. This dissertation is based upon data collected from single states. Learning how innovations spread, or fail to spread, between municipalities is crucial if policing reforms like Stone and Travis' (2011) New Professionalism are to take root. Future network diffusion studies must look beyond single states. Theoretical models for interstate diffusion are common in public policy literature, but have yet to be applied to policing innovations. The rapid spread of state law enforcement accreditation programs is just one example of low hanging fruit waiting to be plucked. A comparative research agenda should also be pursued in the area of police diffusion. Despite levels of violent crime that exceed most industrialized countries, American policing has become a touchstone for the world. Anecdotal evidence of interaction between foreign police officials and American academics and practitioners are manifold. Still, little is known about how American policing programs and technology are adopted, modified, and implemented by foreign police organizations.

This dissertation focuses almost exclusively on state law enforcement accreditation, a programmatic innovation commonly associated with institutional theory.

This presumed relationship begs the question whether credentialing programs like accreditation are transformational or merely ceremonial. Longitudinal research or even a quasi-experimental approach to test the efficacy of accreditation is long overdue. In an ideal world, all policing innovations would be subjected to rigorous scientific evaluation. Sadly, this is not the case; organizations operating under the influence of institutional forces may actually eschew evaluation (e.g. cost benefit analysis).

Finally, the role of municipal insurance pools warrants further examination. There is scant academic literature on the topic of risk pools (Winter, 1988; Young, 1989) and the extent of their influence is unknown. Risk management organizations not only hold a financial stake in police reform, they also wield a big stick. By declining to cover certain types of claims (e.g. officer injuries sustained while performing extra-duty work), the insurer may trigger sweeping isomorphic reforms. Although the isomorphic mechanism observed in the present study was normative in nature, it is expected that most reforms triggered by insurance groups are best classified as a form of coercive isomorphism.

In sum, further research is needed to understand the relationship(s) between social networks, institutional forces, and innovation. Ironically, much is known about how to isolate contagions; further study is needed on how to best spread them.

Notes

1.   See Sparrow (2011) for a compelling apology of practitioner methods regarding scientific inquiry and evaluation.

2.   For a good synopsis of early quantitative literature on this topic, see Maguire & Uchida (2000).

3.   This figure does not include CALEA agencies holding dual credentials or account for variation in Tier status.

4.   See Skogan (2008) for a compelling framework for why policing reforms fail.

5.   The creation of intergovernmental risk-sharing pools was directly related to the liability insurance crisis of the 1980s. The nexus between civil liability and the ongoing police reforms observed in this study is noted.

6.   See the Connecticut case study on state accreditation, located in Chapter III of this dissertation.

Appendix A

JOHN JAY COLLEGE OF CRIMINAL JUSTICE
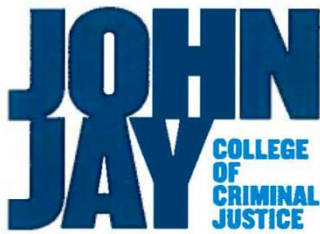
Jeremiah P. Johnson
Doctoral Student
Doctoral Program in Criminal Justi

524 West 59th Street
New York City, NY 10019
T. 203-278-1835
jjohnson@jjay.cuny.edu

█████████████████████

Dear Ms. ████,

My name is Jeremiah Johnson; I am a graduate student in the Criminal Justice Doctoral Program at John Jay College and currently serve as a patrol sergeant with the Darien Police Department. The purpose of my correspondence is to seek your organization's cooperation in support of my doctoral research.

My dissertation is focused on the role of professional networks in diffusing police innovations. I believe that professional organizations, like the ████████ Police Chiefs Association, are instrumental in facilitating the exchange of ideas between police executives.

I do not need to interview your members or administer any surveys. I am simply seeking access to ██████ meeting minutes and attendance rolls from 2004 to 2013. I can assure your membership that all personal identifying information will be kept confidential and *no names or agency affiliations* will be listed in my dissertation or any other scholarly literature produced from this research.

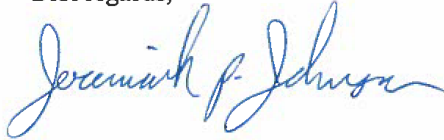**CU NY** The City University of New York

I imagine that your leadership will want to discuss this request and I welcome any questions that they might have. My Chief, Duane Lovello, can certainly field any questions regarding my professional credibility.

As a researcher, I am very conscientious about matters of confidentiality and consent. Should you grant my request, the Institutional Review Board (IRB) at John Jay College has directed me to obtain a letter from your organization documenting that I have received appropriate permission.

I sincerely thank you for considering this request and welcome your support in advancing police research.

Best regards,

Jeremiah P. Johnson

Dear Accreditation Manager/Administrator,

My name is Sgt. Jeremiah Johnson; I am a doctoral candidate in the Criminal Justice program at John Jay College and currently serve as an acting lieutenant with the Darien Police Department in Connecticut. I am conducting research in order to complete my dissertation on the topic of law enforcement accreditation. ████████ accreditation program is relatively new, which presents a great opportunity to study changes taking place at the organizational level.

I am seeking copies of "use of force" policies & procedures from any agency that has begun the ██████ accreditation process. In order to examine policy changes made in response to accreditation standards, I am requesting the following documents:

1.) The use of force policy in place at the time your organization enrolled in the ██████ accreditation process.

2.) The use of force policy in place at the time when your organization received ██████ accreditation; or, if not yet accredited, your most current use of force policy available.

It would greatly facilitate my research if these documents could be provided to me in electronic format (i.e. Word). These files may be sent to my school and/or work email accounts:

jjohnson@jjay.cuny.edu

jjohnson@darienct.gov

I will be analyzing the content of these documents using what is known as *text network analysis*. All law enforcement agency names will be kept confidential and will not be named in my dissertation. Likewise, the dissertation will not specifically mention ██████ or the State of ██████.

As a former accreditation manager, I know firsthand how helpful the law enforcement accreditation community can be. I thank you in advance for supporting my research. Please feel free to call or email me with any questions or concerns. My personal cell phone number is 203-278-1835.
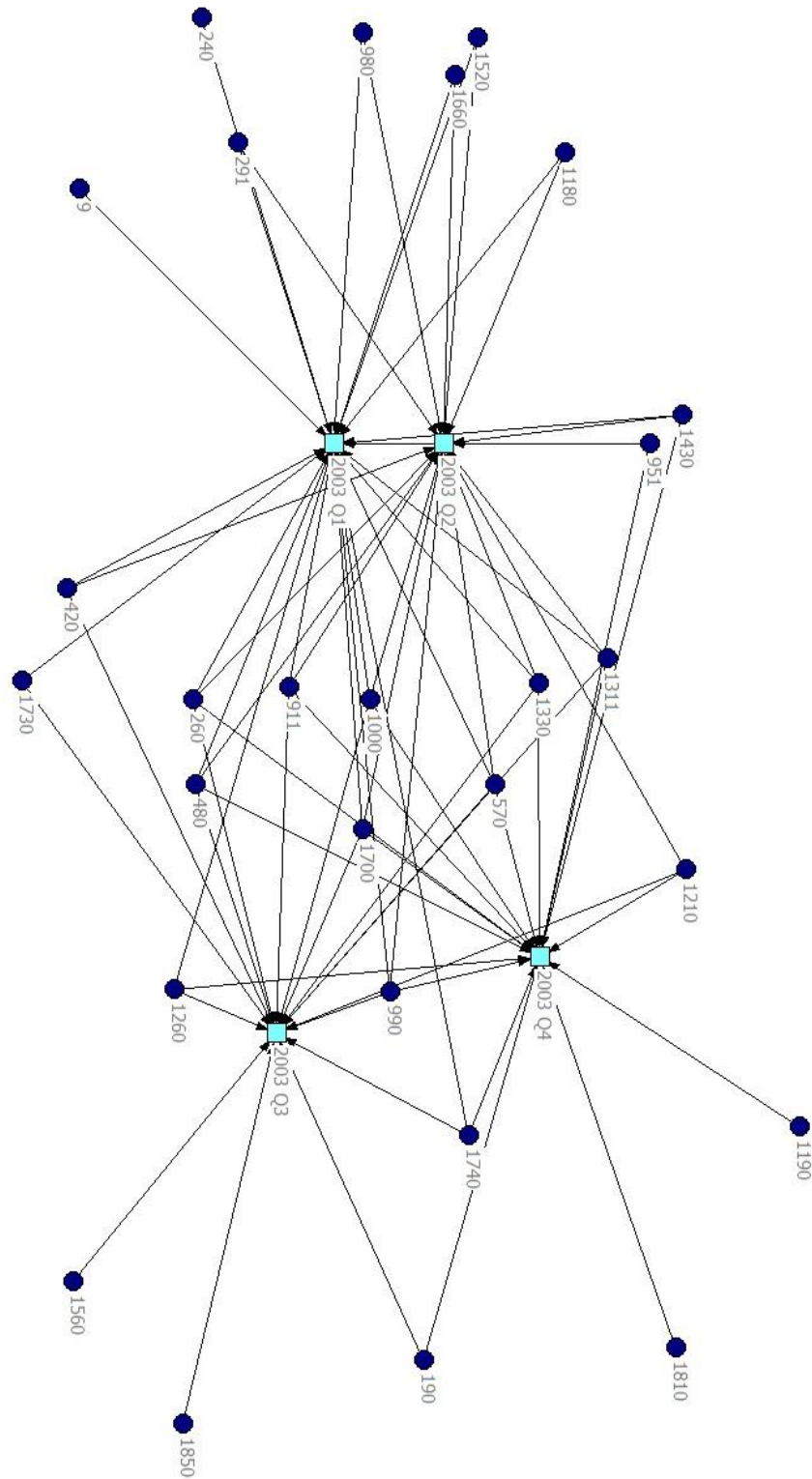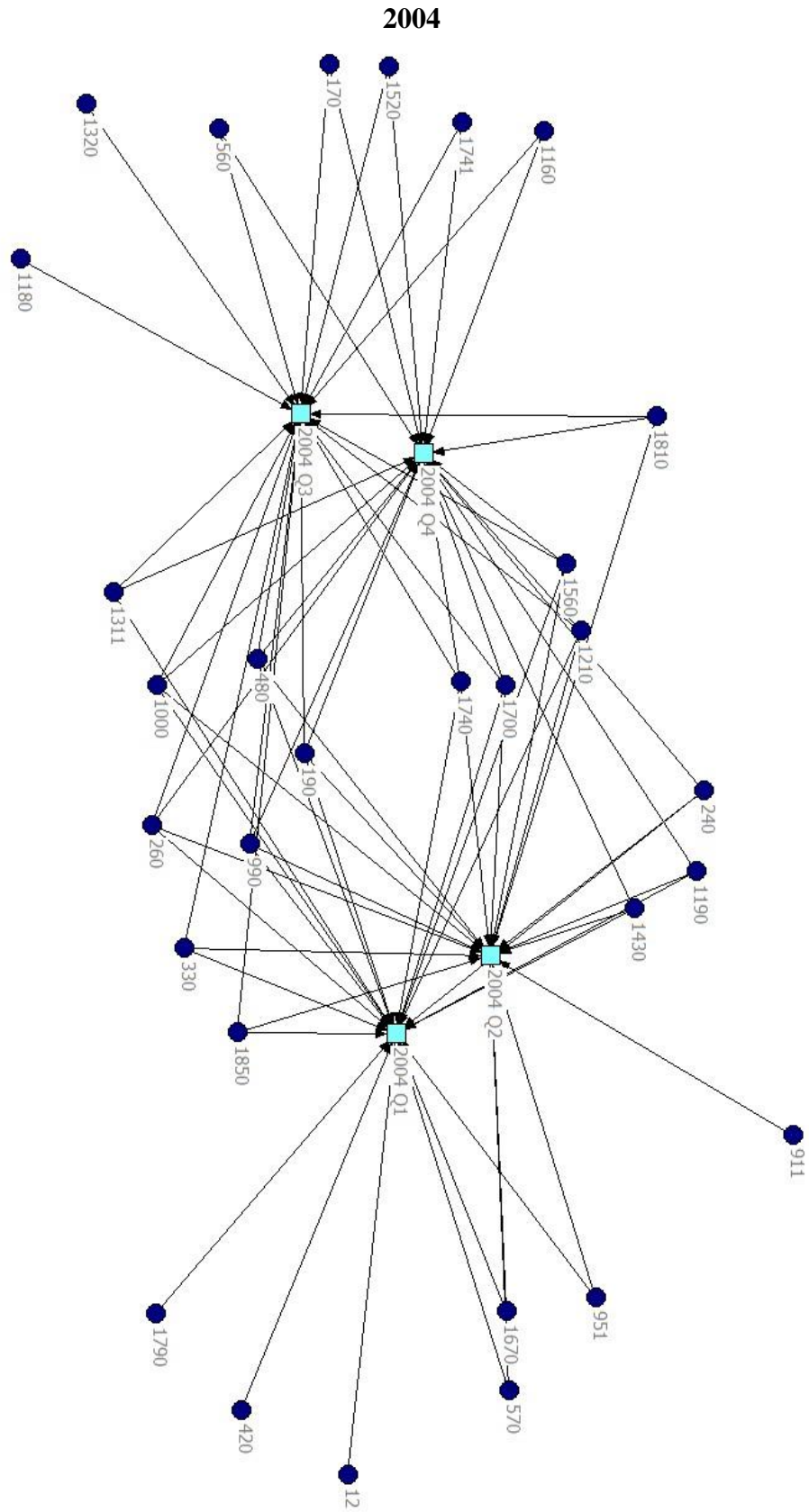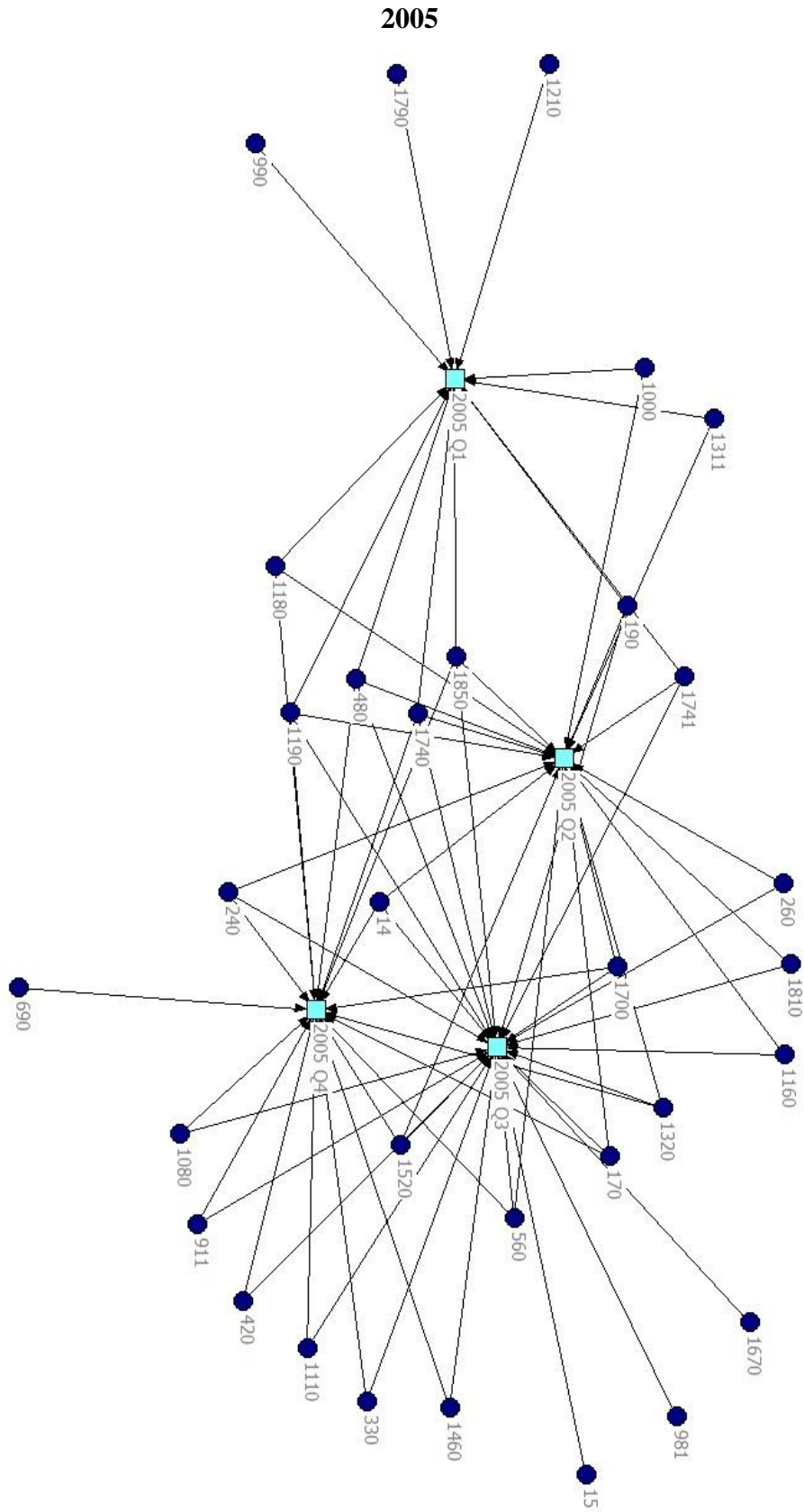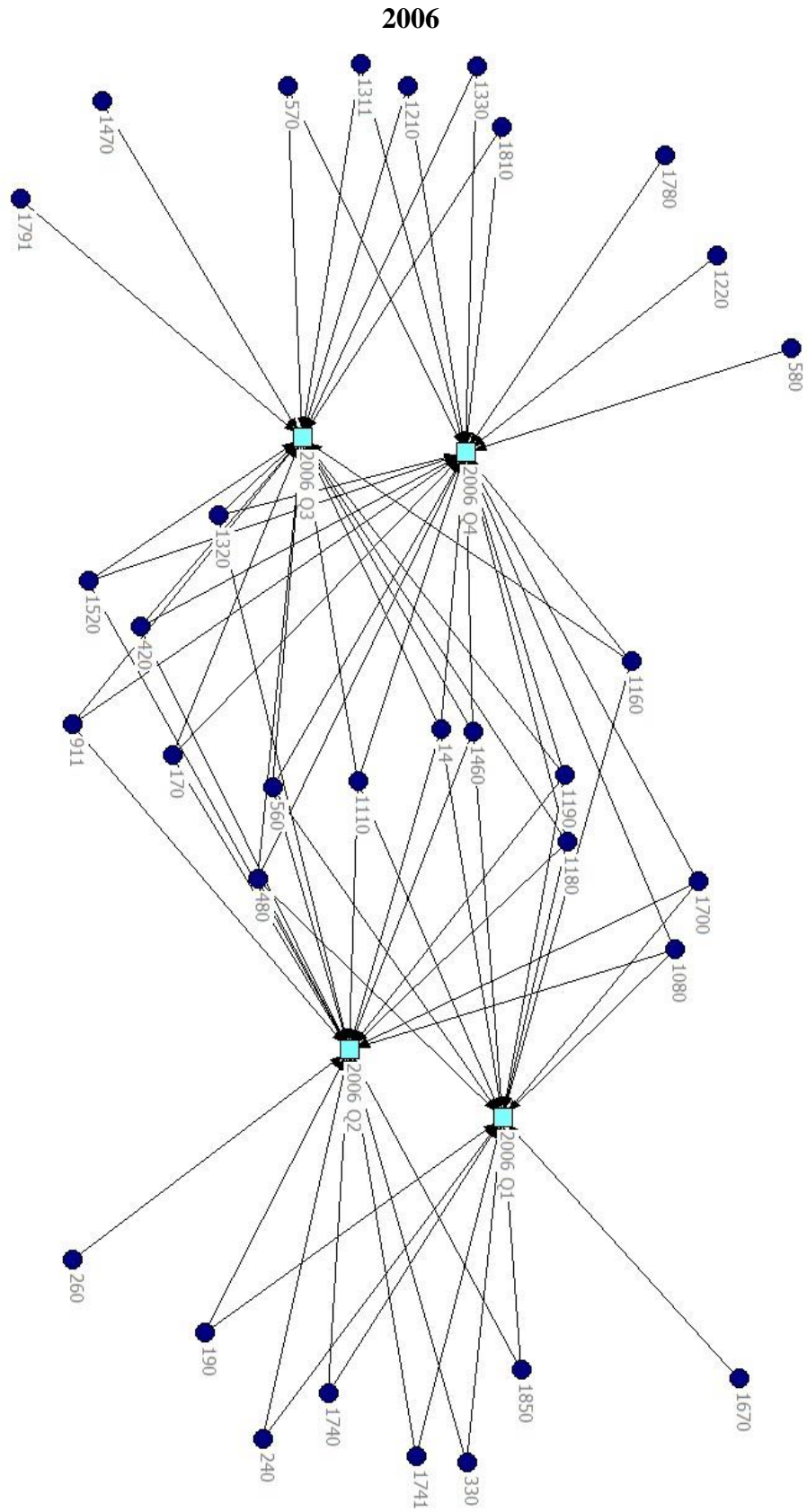
Best regards,

Sgt. Jeremiah P. Johnson

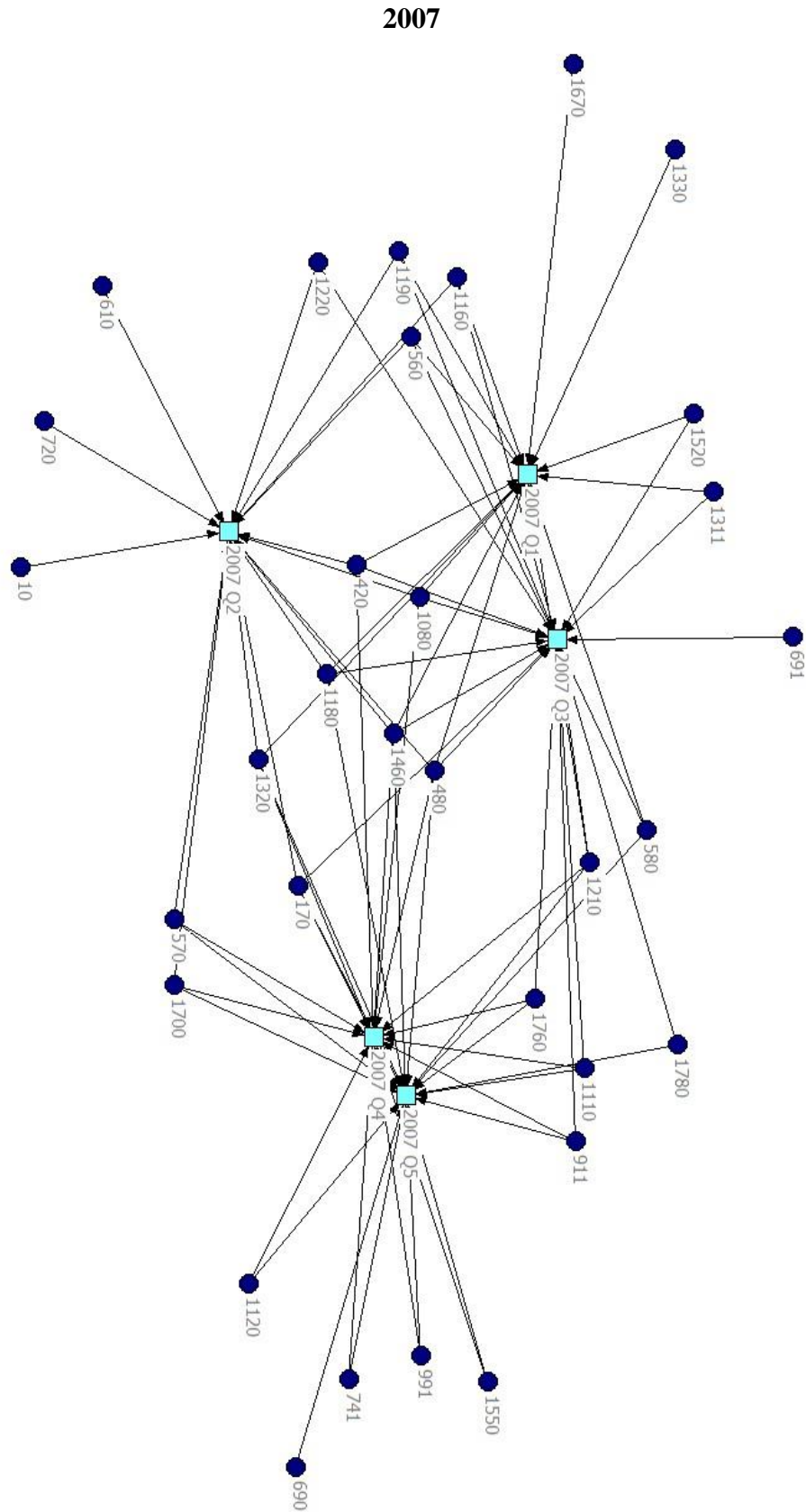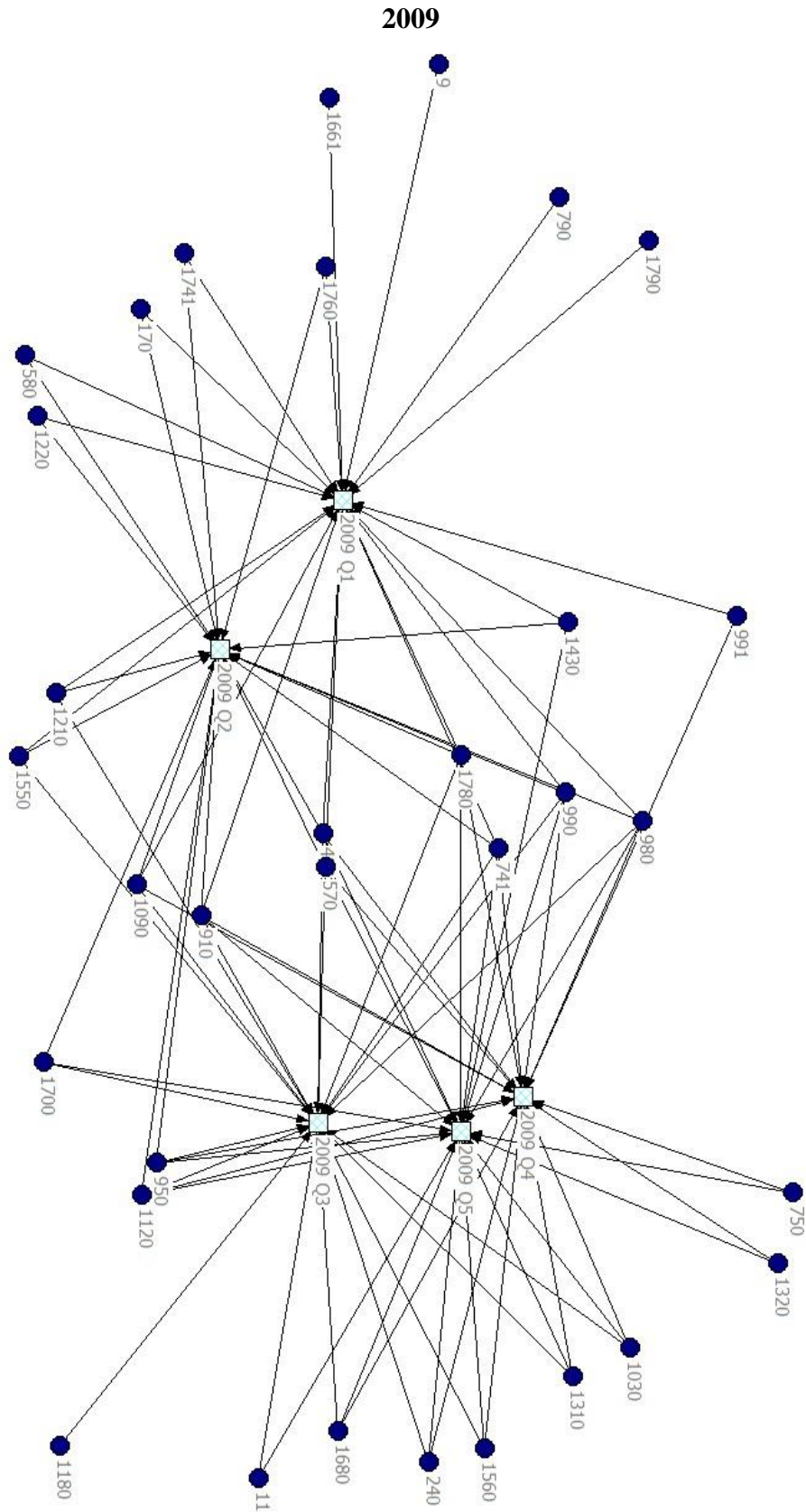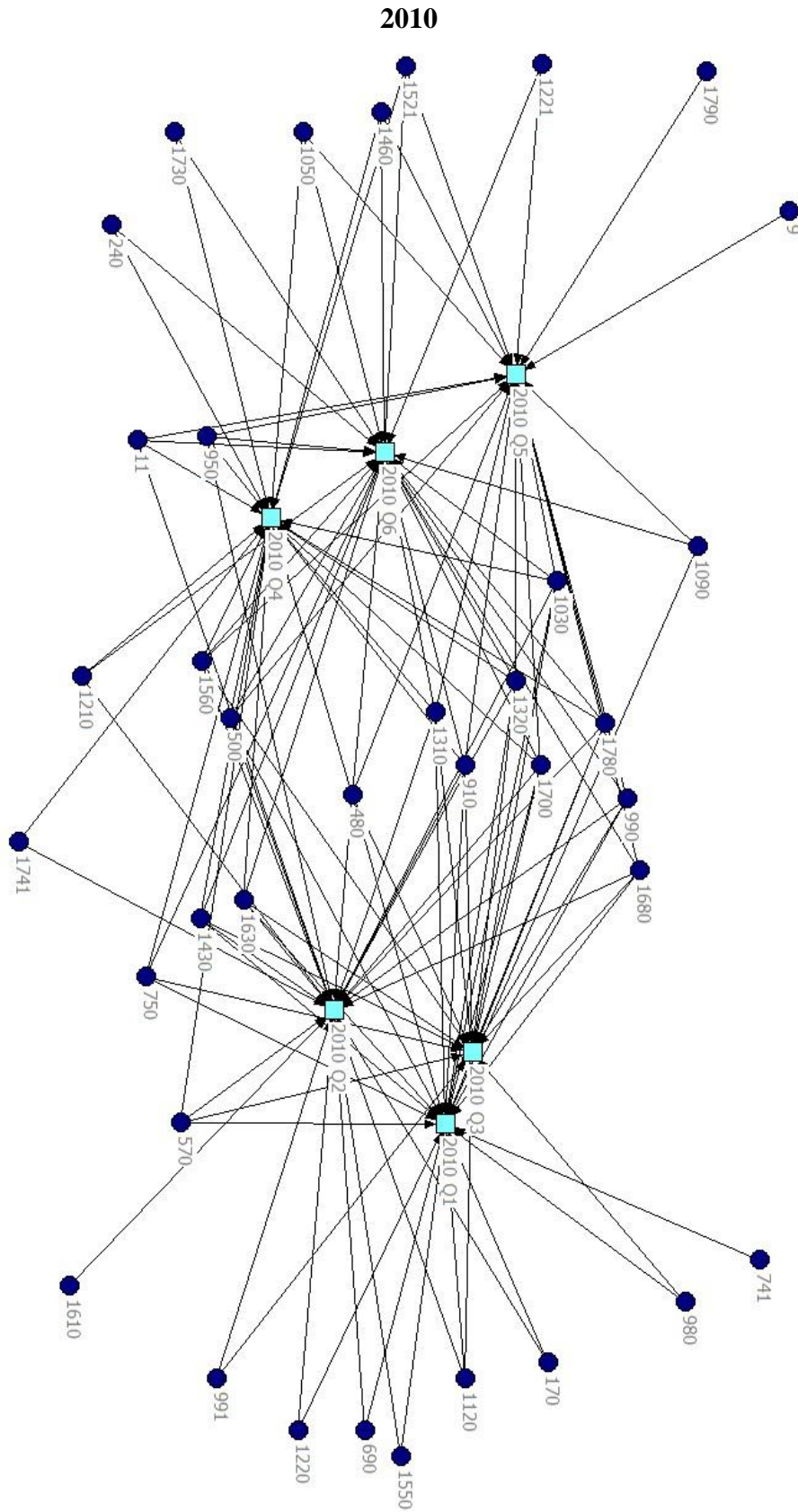**Appendix B**
COP Meeting Graphs, by Year (2003-2013)

2003

2004

2005

2006

2007

2008

2009

2010

2011
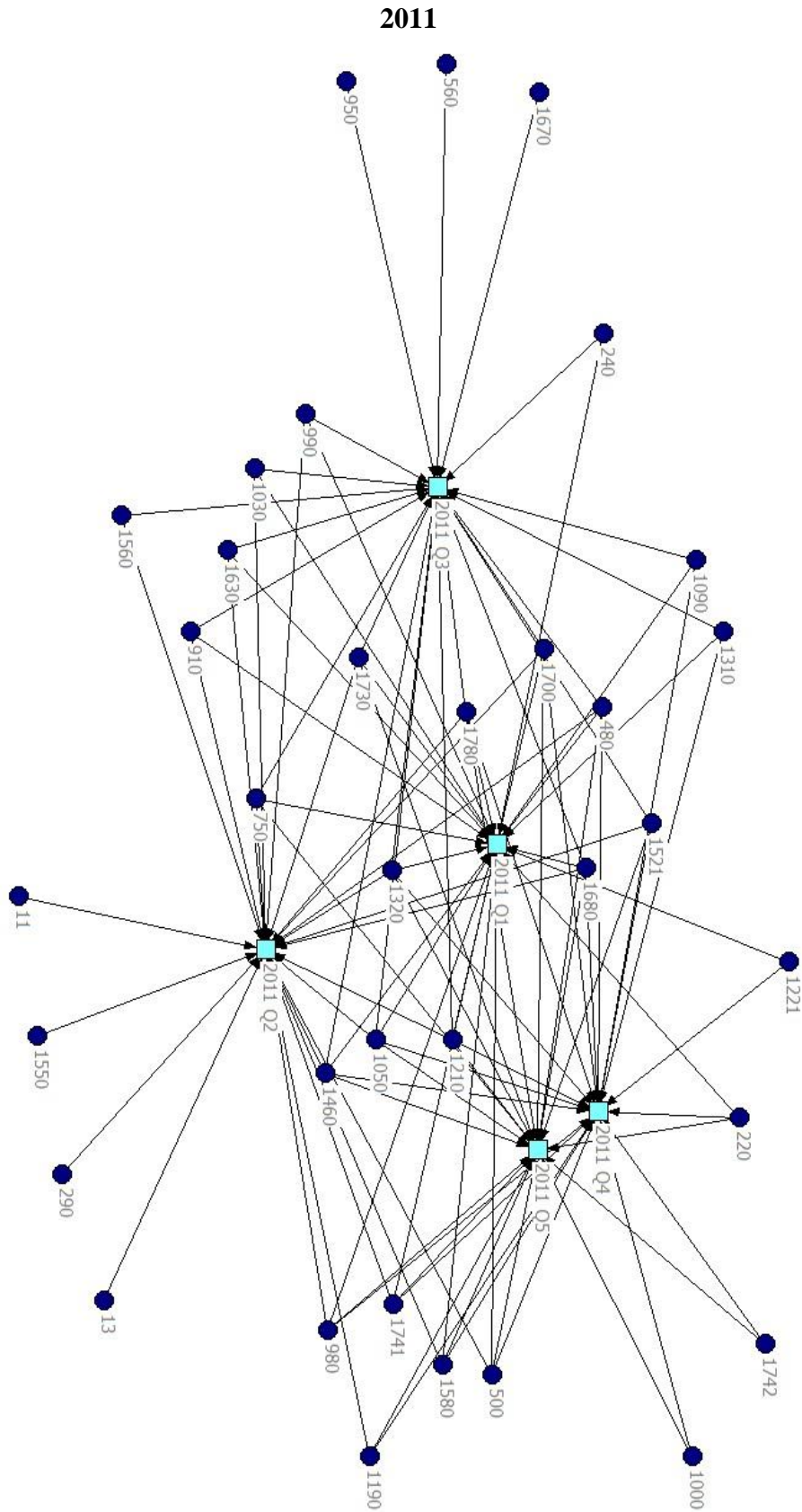
2012
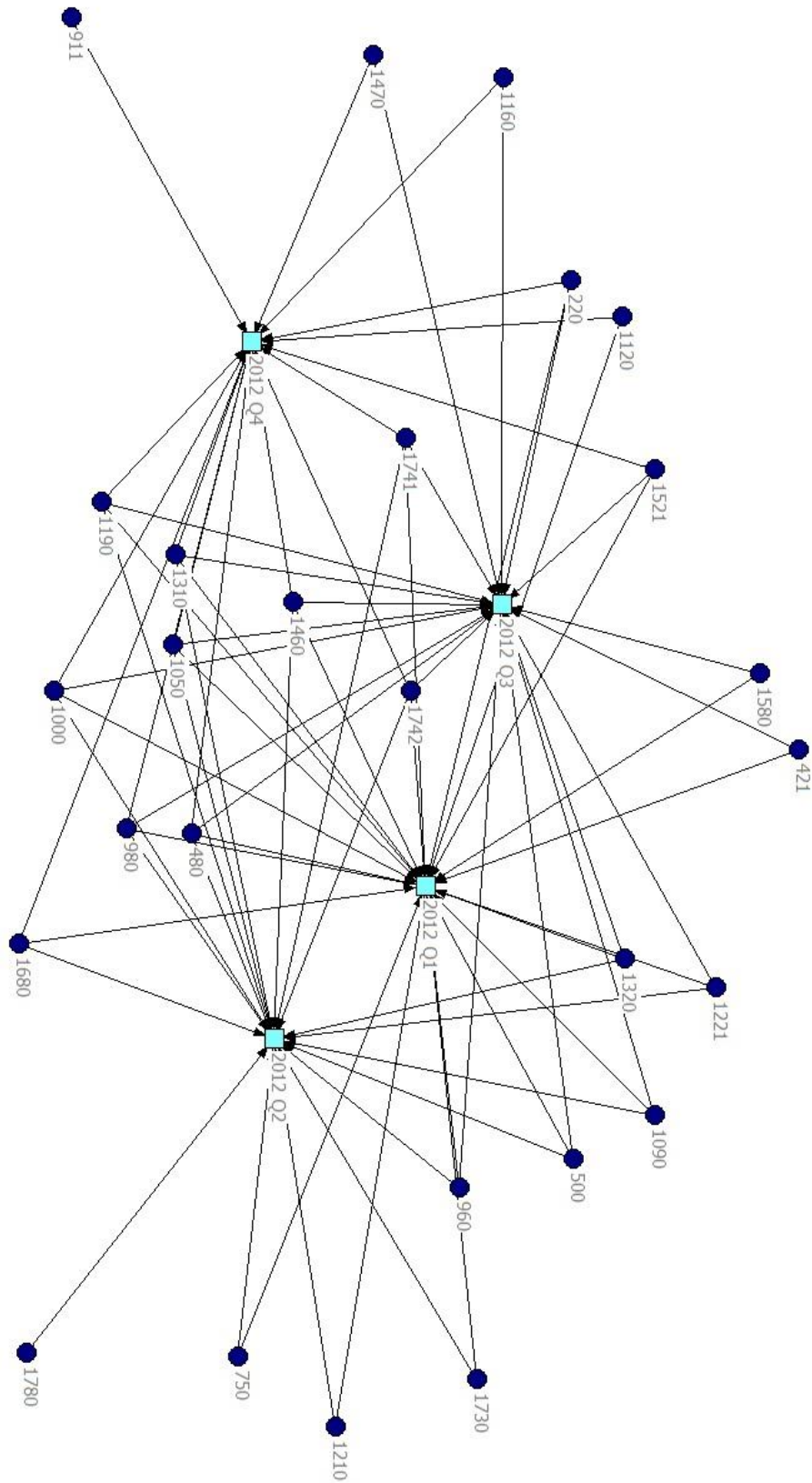
2013
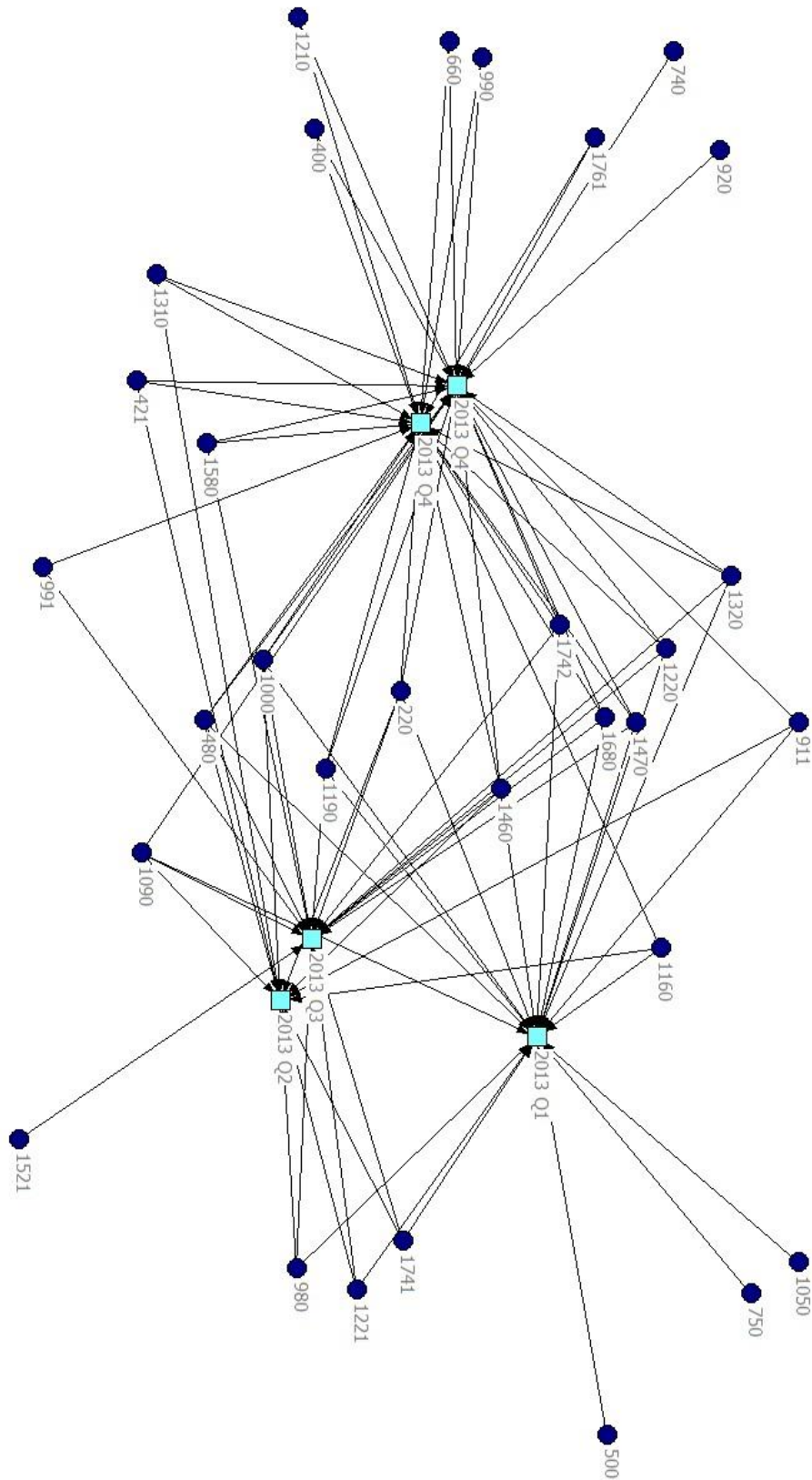
Appendix C

Stop Words Removed by ConText Prior to Bigram Analysis:

a	are	cannot
a's	aren't	cant
able	around	cause
about	as	causes
above	aside	certain
according	ask	certainly
accordingly	asking	changes
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References

Abrecht, D. J. (1987). *What is the future of accreditation for California law enforcement agencies*? CA: California Commission on Peace Officer Standards and Training.

Akers, R. L. (1999). Social learning and social structure: Reply to Sampson, Morash, and Krohn. *Theoretical Criminology, 3*(4), 477-493.

Al-Saidy, R., Fung, B. C., Youssef, A. M., & Fortin, F. (2012). Mining criminal networks from unstructured text documents. *Digital Investigation, 8*, 147-160.

Baker, S. A. (1995). *Effects of law enforcement accreditation: Officer selection, promotion, and education*. Westport, CT: Praeger.

Barley, S. R. & Tolbert, P. S. (1997). Institutionalization and structuration: Studying the links between action and institution. *Organization Studies, 18,* 93-117.

Barton, A. H. (1968). Bringing society back in. *American Behavioral Scientist*, *12*(2), 1-9.

Baxter, V. (1989). The process of change in public organizations. *The Sociological Quarterly, 30*(2), 283-304.

Berry, F. S. & Berry, W. D. (1990). State lottery adoptions as policy innovations: An event history analysis. *American Political Science Review, 84*, 395-415.

Berry, F. S., & Berry, W. D. (2007). Innovation and diffusion models in policy research. In P. A. Sabatier (Ed.), *Theories of the policy process* (pp. 223-260). Boulder, CO: Westview Press.

Bittner, E. (1970). *The functions of the police in modern society*. Rockville, MD: National Institute of Mental Health, Center for Studies of Crime and Delinquency.

Bizzack, J. W. (1993). *Professionalism and law enforcement accreditation: The first 10 years*. Lexington, KY: Autumn House.

Boissevain, J. (1974). *Friends of friends: Networks, manipulators and coalitions*. Oxford: Blackwell.

Borgatti, S. P. (2009). 2-mode concepts in social network analysis. In R. A. Meyers (Ed.), *Encyclopedia of Complexity and System Science,* (pp. 8279-8291). New York, NY: Springer-Verlag.

Bowers, R. (1937). The direction of intra-societal diffusion. *American Sociological Review, 2*, 826-836.

Braga, A. A. (2014). Embedded criminologists in police departments. *Ideas in American Policing, 17*. Retrieved from http://www.policefoundation.org /content/embedded -criminologists-police-departments#overlay-context=ideas-american-policing

Bratton, W., & Knobler, P. (2009). *The turnaround: How America's top cop reversed the crime epidemic*. New York, NY: Random House.

Brown, E. (2011, November 4). 'Pox parties': Coming to a mailbox near you? *Los Angeles Times*. Retrieved from http://articles.latimes.com/2011/nov/04/news/la-heb-chicken-pox-party-mail-20111104

Brown, M. K. (1988). *Working the street: Police discretion and the dilemmas of reform* (2nd ed.). New York, NY: Russell Sage Foundation.

Bumgarner, J. (2001). Police professionalism: An occupational misnomer? *The Great Plains Sociologist, 13(*1), 63-87.

Burruss, G. W., & Giblin, M. J. (2014). Modeling isomorphism on policing innovation: The role of institutional pressures in adopting community-oriented policing. *Crime and Delinquency, 60*(3) 331-355.

CALEA (2009). Accreditation for small law enforcement agencies. *CALEA Update Magazine, 101*. Retrieved from http://www.calea.org/calea-update-magazine/issue-101/accreditation -forsmall-law-enforcement-agencies

CALEA (2014a). *The commission*. Retrieved from http://www.calea.org/content/commission

CALEA (2014b). *CALEA® standards for law enforcement agencies*. Retrieved from http://www.calea.org/content/law-enforcement-program-standards

CALEA (2014c). *CALEA client database*. Retrieved from http://www.calea.org/content/calea-client-database

CALEA (2014d). *Programs for accreditation*. Retrieved from http://www.calea.org/

CALEA (2014e). *Law enforcement accreditation: The cost*. Retrieved from http://www.calea.org /content/law-enforcement-accreditation-cost

CALEA (2015). *Public safety accreditation support networks*. Retrieved from http://www.calea.org/PACs/list-of-pacs

Carter, D. L., & Sapp, A. D. (1994). Issues and perspectives of law enforcement accreditation: A national study of police chiefs. *Journal of Criminal Justice, 22*, 195-204.

Caspi, D. J. (2010). *Extremist networks and lethality: A mapping of violent white supremacist group networks and an investigation of the relationship between network location and ideologically motivated murder*. (Doctoral dissertation). Retrieved from ProQuest. (UMI 3409142).

Church, K. W., & Hanks, P. (1990). Word association norms, mutual information, and lexicography. *Journal of Computational Linguistics, 16*(1), 22-29.

City of Mount Dora (2010). Retrieved from http://ci.mount-dora.fl.us/index.asp?Type=B_ BASIC&SEC={ED6C26D1-3D9C-41F6-979E-E64DE70696F0}&DE={E671894B-C286-4DCC-864E-20C76BCB1FD8}.

Clear, T. R. (2001). Has academic criminal justice come of age? *Justice Quarterly, 18*(4), 709-726.

Clear, T. R. (2009). Policy and evidence: The challenge to the American Society of Criminology: 2009 presidential address to the American Society of Criminology. *Criminology, 48*(1), 1-25.

Coles, N. (2001). It's not what you know – it's who you know that counts: Analysing serious crime groups as social networks. *British Journal of Criminology, 41,* 580-594.

ConText (2013). Welcome to ConText. Retrieved from http://context.lis.illinois.edu/

ConText (2015). ConText Help Guide. Retrieved from https://docs.google.com/document/d/ 1yL92WmD_dZ0svc_o9ujp0kN6fF2MA8zEIfEHE4YvYlE/pub#h.jumsbxfgfy60

Cordner, G. (2011). The architecture of US policing: Variations among the 50 states. *Police Practice and Research, 12*(2), 107-119.

Crank, J. P. (1994). Watchman and community: Myth and institutionalization in policing, *Law and Society Review, 28*, 325-351.

Crank, J. P. (2003). Institutional theory of police: A review of the state of the art. *Policing: an International Journal of Police Strategies & Management*, *26*(2), 186-207.

Crank, J. P., & Langworthy, R. H. (1992). An institutional perspective of policing. *Journal of Criminal Law and Criminology, 83*(2), 338–363.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.

d'Amore, R., Iorio, R., & Stawinoga, A. (2010). The role of institutions and firm characteristics in the networks of firm publications. An analysis of the Italian biotech sector through the social network analysis. *World Journal of Management, 2*(3), 81-100.

Daughtry, S. J., (1996, November) Time to take another look at law enforcement accreditation. *The Police Chief Magazine*.

Davis, A., Gardner, B. B., & Gardner, M. R. (1941). *Deep South*. Chicago, IL: The University of Chicago Press.

Davis, G. F. (1991). Agents without principles? The spread of the poison pill through the intercorporate network. *Administrative Science Quarterly,* 36(4), 583-613.

Deakin, T. J. (1988). *Police professionalism: The renaissance of American law enforcement*. Springfield, IL: Charles C. Thomas.

DeGarmo, M. J. (2012). The diffusion of innovation among United States policing jurisdictions: A cautionary tale for theorists and researchers. *International Journal of Criminal Justice Sciences, 7*(1), 450–465.

Del Barco, M. (2008). L.A. SWAT unit on verge of accepting first woman. *NPR*. Retrieved from http://www.npr.org/templates/story/story.php?storyId=90015810

DPS (2006). Law Enforcement Accreditation. Retrieved from http://www.ct.gov/dps/cwp/view.asp?a=2139&q=294104.

Diesner, J., Kim, J., Pak, S. (2014). Computational impact assessment of social justice documentaries. *The Journal of Electronic Publishing, 17*(3), 2.

Diesner J. A., Mishra, S., Schecter, A., & Contractor, N. (2014). Comparison of communication networks built from explicit and implicit data. *Paper presented at the Computational Approaches to Social Modeling (CHASM 2014), ACM WebScience Conference,* Bloomington, IN.

DiMaggio, P. J. & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*, 147-160.

Donaldson, L. (1995). *American anti-management theories of organization: A critique of paradigm proliferation*. Cambridge, UK: Cambridge University Press.

Doerner, W. G., & Doerner, W. M. (2009). The diffusion of accreditation among Florida police agencies. *Policing: An International Journal of Police Strategies & Management*, *32*, 781-798.

El-Khatib, R., Fogel, K., & Jandik, T. (2015). Ceo network centrality and merger performance. *Journal of Financial Economics.* Retrieved from: http://www.sciencedirect.com/science/article/pii/S0304405X15000021

Fleisher, M. S. (2005). Fieldwork research and social network analysis: Different methods creating complementary perspectives. *Journal of Contemporary Criminal Justice, 21*(2) 120-134.

Freedom of Information Act of 1966. 5 U.S.C. § 552(b)(7)(E) (1996).

Freeman, L. C. & Webster, C. (1994). Interpersonal proximity in social and cognitive space. *Social Cognition, 12*(3), 223-247.

Frumkin, P., & Galaskiewicz, J. (2004). Institutional isomorphism and public sector organizations. Journal of Public Administrative Research and Theory, 14(3). 283-307.

Fyfe, J. J. (1988). Police use of deadly force: Research and reform. *Police Quarterly, 5*(2), 165-205.

Giblin, M. J. (2006). Structural elaboration and institutional isomorphism: The case of crime analysis units. *Policing: An International Journal of Police Strategies and Management, 29*(4), 643-664.

Giblin, M. J., & Burruss, G. W. (2009). Developing a measurement model of institutional processes in policing. *Policing: An International Journal of Police Strategies & Management, 32*(2), 351-376.

Gladwell, M. (2002). *The tipping point: How little things can make a big difference*. Boston, MA: Back Bay Books.

Goltz, J. W. (2006). *Police organizational performance in the state of Florida: Confirmatory analysis of the relationship of the environment and design structure to performance*. (Doctoral dissertation). Retrieved from ProQuest. (3242438)

Goode, E. (2013, July 27). Some chiefs chafing as Justice Department keeps closer eye on policing. *New York Times*. Retrieved from http://www.nytimes.com/2013/07/28/us/some-chiefs-chafing-as-justice-department-keeps-closer-eye-on-policing.html?ref=us&_r=0

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology, 78*(6) 1360-1380.

Graziano, M., & Gillingham, K. (2014). Spatial patterns of solar photovoltaic system adoption: The influence of neighbors and the build environment. *Journal of Economic Geography,* doi: 10.1093/jeg/lbu036

Grbic, D., Hafferty, F. W., & Hafferty, P. K. (2013). Medical school mission statements as reflections of institutional identity and educational purpose: A network text analysis. *Academic Medicine, 88*(6), 852-860.

Green, J. R., & Klockars, C. B. (1991). What police do. In C. B. Klockars & S. D. Mastrofski (Eds.), *Thinking about police: Contemporary readings* (2nd ed.) (pp. 273-284). New York, NY: McGraw Hill.

Grossmann, M., & Dominguez, C. B. K. (2009). Party coalitions and interest group networks. *American Politics Research, 37*(5), 767-800.

Grubler, A. (1991). Diffusion and long-term patterns and discontinuities. *Technological Forecasting and Social Change,* 39, p. 159-180.

Hanneman, R. A. & Riddle, M. (2005). *Introduction to social network methods.* Riverside, CA: University of California, Riverside. Retrieved from http://faculty.ucr.edu/~hanneman/

Harvard Kennedy School (2008). Executive Session on Policing and Public Safety (2008-2014). Retrieved from http://www.hks.harvard.edu/programs/criminaljustice/research-publications/executive-sessions/executive-session-on-policing-and-public-safety-2008-2014

Hawley, A. H. (1968). Human ecology. In *International Encyclopedia of the Social Sciences.* (Vol. 4), (pp. 328-337). New York, NY: Macmillan.

Hodge, B. J. & Anthony, W. P. (1991). *Organization theory: A strategic approach.* MA: Allyn and Bacon.

IACP (n.d.). *Discover policing career center.* Retrieved from: http://careercenter.discover policing.org/jobseeker/search/

Johnson, J. P. (2010). *Sanitized violence: A theoretical analysis of police militarism.* (Unpublished manuscript). CUNY Graduate Center, New York.

Johnson, J. P. (2011). *Police professionalism: A historical perspective of police reform.* (Unpublished manuscript). CUNY Graduate Center, New York.

Katz, C. M. (2001). The establishment of a police gang unit: An examination of organizational and environmental factors. *Criminology, 39*(1), 37-73.

Kapur, S. (1994). Technological diffusion with social learning. *The Journal of Industrial Economics, 43*(2), 173-195.

Katz, C. M., Maguire, E. R., & Roncek, D. W. (2002). The creation of specialized police gang units: A macro-level analysis of contingency, social threat, and resource dependency explanations. *Policing: An International Journal of Police Strategies and Management, 25*(3), 472-506.

Kay, L. (2013). A method for text network analysis: Testing, development and application to the investigation of patent portfolios. Retrieved from http://www.cns.ucsb.edu/method-text-network-analysis-testing-development-and-application-investigation-patent-portfolios

Kelling, G. L. (Autumn, 1991). Crime and metaphor: Toward a new concept of policing. *City Journal.* Retrieved from http://www.city-journal.org/article01.php?aid=1577

King, W. R. (1998). *Innovativeness in American municipal police organizations*. (Unpublished doctoral dissertation). University of Cincinnati, OH. Retrieved from http://cech.uc.edu/content/dam/cech/programs/criminaljustice/docs/phd_dissertations/1998/King.pdf

King, W. R. (2000). Measuring police innovation: Issues and measurement. *Policing: An International Journal of Police Strategies and Management*, *23*(3), 303-317.

King, W. R. (2009). Toward a life-course perspective of police organizations. *Journal of Research in Crime and Delinquency, 46*, 213-244.

Klinger, D. A. (2003). Spreading diffusion in criminology. *Police Quarterly, 2*(3), p. 461-468.

Knoke, D., & Yang, S. (2008). *Social Network Analysis* (2nd ed.) (Vol. 154). Los Angeles, CA: Sage Publications.

\Koper, C. S., Maguire, E. R., Moore, G. E., & Huffer, D. E. (1999). Hiring and retention issues in police agencies: Readings on the determinants of police strength, hiring and retention of officers, and the Federal COPS Program. Urban Institute. Retrieved from http://www.urban.org/Uploadedpdf/410380_Hiring-and-Retention.pdf

Kraska, P. B., Cubellis, L. J. (1997). Militarizing Mayberry and beyond: Making sense of American paramilitary policing. *Justice Quarterly, 14*(4), 607-629.

Kraska, P. B., Kappeler, V. E. (1997). Militarizing American police: The rise and normalization of paramilitary units. *Social Problems*, 44, 1-18.

Krebs, V. E. (2002). Mapping networks or terrorist cells. *Connections, 24*(3), 43-52.

Kwoh, L. (2012, May 23). You call that innovation? Companies love to say they innovate, but the term has begun to lose meaning. *The Wall Street Journal*. Retrieved from http://online.wsj.com/news/articles/SB10001424052702304791704577418250902309914

Langworthy, R. (1986). *The Structure of Police Organizations*, New York, NY: Praeger.

LAPD. (2013). Los Angeles Police Department organization chart. Retrieved from http://www.lapdonline.org/inside_the_lapd/pdf_view/5056

Larker, D. F., So, E. C., & Wang, C. Y. (2013). Boardroom centrality and firm performance. *Journal of Accounting and Economics, 55,* (2), 225-250.

Larson, M. S. (1978). *The rise of professionalism: A sociological analysis*. Berkeley, CA: University of California Press.

Levine, J. H., & Roy, W. S. (1979). A study of interlocking directorates: Vital concepts of organization. In P. W. Holland & S. Leinhardt (eds.), *Perspectives on Social Network Research* (pp. 349-378). New York: Academic Press.

Levitt, B. & March, J. G. (1988). Organizational Learning. *Annual Review of Sociology, 14,* 319-340.

Lewis, E. T. (2002). *When organizations speak: Isomorphism and organizational language*. Unpublished manuscript, Center for Computational Analysis of Social and Organizational Systems, Carnegie Mellon University, Pittsburgh, PA. Retrieved from http://casos.cs.cmu.edu/publications/papers/Lewis.pdf

Light, R. (2009). *Power, inequality, and resistance: Responses to subordination in the American slave narrative, 1800-1930*. (Unpublished doctoral dissertation). Graduate School of The Ohio State University, OH.

Lum, C., Koper, C., & Telep, C. (2011). The evidence-based policing matrix. *Journal of Experimental* Criminology, *7*(1), 3-26.

Maguire, E. R. (2003). *Organizational structure in American police agencies: Context, complexity, and control*. Albany, NY: SUNY Press.

Maguire, E. R. & Uchida, C. D. (2000). Measurement and explanation in the comparative study of American police organizations. In D. E. Duffee (Ed.), *Measurement and analysis of crime and justice* (pp. 491-558). Washington DC: US Department of Justice, National Institute of Justice.

Manning, P. K. (1977). *Police work: The social organization of policing*. Cambridge, MA: MIT Press.

Martinson, R. (1974). What works? Questions and answers about prison reform. *The Public Interest, 35,* 22–54.

Mastrofski, S.D. (1986). Police agency accreditation: The prospects of reform. *American Journal of Police, 5*(2), 45-81.

Mastrofski, S. & Uchida, C. (1996). Transforming the police, in B. Hancock & P. Sharp (Eds.), Public policy: Crime and criminal justice (pp. 196-219). Upper Saddle River, NJ: Prentice-Hall.

Maxfield, M. G. & Babbie, E. R. (2012). *Basics of research methods for criminal justice and Criminology* (3rd ed.). Belmont, CA: Wadsworth.

Manzi, J. (Summer, 2010). What social science does—and doesn't—know. *City Journal*. Retrieved from http://www.city-journal.org/2010/20_3_social-science.html

McCoy, C. (1987). Constitutional tort litigation: Controlling the police? *Paper presented at the Annual Meeting of the American Political Science Association,* Chicago, IL.

McCoy, C. (2010). How civil rights lawsuits improve American policing. In C. McCoy (ed.) *Holding Police Accountable* (pp. 111-160). Washington, DC: The Urban Institute Press.

McGloin, J. M. (2005). Policy intervention considerations of a network analysis of street gangs. *Criminology and Public Policy, 4*(3) 607-635.

McGloin, J. M., & Kirk, D. S. (2010). Social network analysis. In D. Weisburd & A.R Piquero (eds.), *Handbook of quantitative criminology*, (pp. 209-224). New York, NY: Springer.

McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, *27*, 415-444.

Menzel, H. & Katz, E. (1955). Social relations and innovation in the medical profession: The epidemiology of a new drug. *Public Opinion Quarterly, 19*, 337–52.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology, 83*(2), 340-363.

Miller, B. (1989, April 16) Phila. police weigh switch to semiautomatics. Retrieved from http://articles.philly.com/1989-04-16/news/26144460_1_semiautomatic-pistols -revolvers-semiautomatic-weapons

Mizruchi, M. S. (1996). What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates. *Annual Review of Sociology, 22*, p. 271-298.

Moore, M. H. & Braga, A. (2003). The bottom line of policing: What citizens should value (and measure) in police performance. In *Police Performance*. Washington, DC: Police Executive Research Forum.

Moore, S., Eng, E., & Daniel, M. (2003). International NGOs and the role of network centrality in humanitarian aid operations: A case study of coordination during the 2000 Mozambique floods. *Disasters, 27*(4), 305-318.

Morabito, M. S. (2010). Understanding community policing as an innovation: Patterns of adoption. *Crime and Delinquency, 56*(4), 564-587.

Moreno, J. L. (1934). *Who shall survive? Foundations of sociometry, group psychotherapy and sociodrama*. New York, NY: Beacon House.

Mostafa, M. M. (2013). More than words: Social networks' text mining for consumer brand sentiments. *Expert Systems With Applications, 40,* 4241-4251.

Mulvaney, K. (2014, Feb 15). R.I. law enforcement pursues uniform code of standards. *Providence Journal*. Retrieved from http://www.providencejournal.com/breaking-news/content/20140215-r.i.-law-enforcement-pursues-uniform-code-of-standards.ece

NACCJSG. (1973). Criminal justice system – Report of the national advisory commission on criminal justice standards & goals.

Niederhoffer, A. (1967). *Behind the shield*. Garden City, NY: Doubleday.

Nodus Labs. (2013, February 2). *US presidents' inaugural speeches 1969-2013 text network analysis*. Retrieved from: http://noduslabs.com/cases/presidents-inaugural-speeches-text-network-analysis/

Nowicki, D. (1987). The impact of concern for liability on police agency self-improvement. Paper presented at the annual meeting of the Police Executive Research Forum

Papachristos, A. V. (2007). Murder by structure: A network theory of gang homicide. (Doctoral dissertation). Retrieved from Proquest. (3262279).

Papachristos, A. V. (2011). The coming of a networked criminology? Using social network analysis in the study of crime and deviance. In J. MacDonald (ed.), *Measuring crime and criminality: Advances in criminological theory*, Vol 13 (pp. 101-140). New Brunswick, NJ: Transaction.

Partnership for Civil Justice v. District of Columbia No. CAB-748-09 (D.C. Super. Ct. 2012).

PERF (2013). *Civil rights investigations of local police: Lessons learned*. Police Executive Research Forum. Retrieved from http://policeforum.org/library/critical-issues-in-policing-series/CivilRightsInvestigationsofLocalPolice.pdf

Perrow, C. (1991). A society of organizations. *Theory and Society, 20*(6), 725-762.

POSTC. (2014). *The accreditation process*. State of Connecticut. Retrieved from http://www.ct.gov/post/lib/post/accreditation/process.doc

Prell, C. (2012). *Social network analysis: History, theory and methodology*. Thousand Oaks, CA: Sage Publications.

Price, B. R. (1977). *Police professionalism: Rhetoric and action*. Lexington, MA: Lexington Books.

Rackin, H. M. (2013). *Where should babies come from? Measuring schemas of fertility and family formation using novel theory and methods*. (Doctoral dissertation). Retrieved from ProQuest. (3567906).

Reaves, B. A. (2007). *Census of state and local law enforcement agencies, 2004*. Bureau of Justice Statistics. Retrieved from http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=539

Reaves, B. A. (2011) *Census of state and local law enforcement agencies, 2008*. Bureau of Justice Statistics. Retrieved from http://www.bjs.gov/index.cfm?ty=pbdetail&iid=2216

RIPC. (2013). Accreditation. Retrieved from http://ripolicechiefs.org/accreditation

Rodan, S. A., & Galunic, D. C., (2004). More than network structure: How knowledge heterogeneity influences managerial performance and innovativeness. *Strategic Management Journal, 25*, 541–556.

Rogers, E. M. (2003). *The diffusion of innovations* (5th ed.). New York, NY: Free Press.

Ryan, B., & Goss, N. (1943). The diffusion of hybrid seed corn in two Iowa communities. *Rural Sociology, 8*(1), 15-24.

Scott, J. (2000). *Social network analysis: A handbook* (2nd ed.). London: Sage.

Scott, R. W. (1987). The adolescence of institutional theory. *Administrative Science Quarterly*, *32*, 493-511.

Scott, R. W., & Meyer, J. W. (1983). The organization of societal sectors. In J. W. Meyer & R. W. Scott (eds.), *Organizational Environments: Ritual and Rationality*, (pp. 129-153). Beverly Hills, CA: Sage.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.

Shakya, H. B., Christakis, N. A., & Fowler, J. H. (2015). Social network predictors of latrine ownership. *Social Science and Medicine, 125,* 129-138.

Shane, J. M. (2007). *What every chief executive should know: Using data to measure police performance*. Flushing, NY: Looseleaf Law Publications.

Shane, J. M. (2008). *Developing a performance management model*. Flushing, NY: Looseleaf Law Publications.

Shane, J. M. (2010). Organizational stressors and police performance. *Journal of Criminal Justice, 38*(4), 807-818.

Shane, J. M. (2010). Key administrative and operational differences in the police quasi-military model. *Law Enforcement Executive Forum Journal, 10*(2), 75-106.

Shapiro, G., & Markoff, J. (1997). A matter of definition. In C. W. Roberts (ed.), Text Analysis for the Social Sciences, (pp. 9-34). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Shalizi, C. R., & Thomas, A. C. (2011) Homophily and contagion are generically confounded in observational social network studies. *Sociological Methods and Research*, *40*(2). 211-239.

Shannon, C.E. & Weaver, W. (1949). *The mathematical theory of communication*. Urbana, IL: University of Illinois Press.

Skogan, W. G. (2008). Why reforms fail. *Policing and Society, 18*(1), 23-34.

Skogan, W. G., & Frydl, K. (Eds.). (2004). *Fairness and effectiveness in policing: the evidence*. Washington, DC: National Academies Press.

Skogan, W., & Hartnett, S. (2005). The diffusion of information technology in policing. *Police Practice and Research, 6*, 401–417.

Skolnick, J. H. & Bayley, D. H. (1986). *The new blue line: Police innovation in six American cities*. New York, NY: The Free Press.

Sparrow, M. (January, 2011). *Governing science*. New Perspectives in Policing. National Institute of Justice. Retrieved from http://www.hks.harvard.edu/var/ezp_site/storage /fckeditor/file/pdfs/centers-programs/programs/criminal-justice/NPIPGoverning Science.pdf

Sparrow, M. K., Moore, M. H., & Kennedy, D. M. (1990). *Beyond 911: A new era for policing*. Basic Books

State of Connecticut (2012). *Police response to crimes of family violence: Model policies, procedures and guidelines*. Retrieved from http://www.housedems.ct.gov/DV/pubs /022712/Model_Policy_Final.pdf

Stone, C., & Travis, J. (March, 2011). *Toward a new professionalism in policing*. New Perspectives in Policing. National Institute of Justice. Retrieved from http://www.hks.harvard.edu/var/ezp_site/storage/fckeditor/file/pdfs/centers-programs/programs/criminal-justice/ExecSessionPolicing/NPIP -TowardsaNewProfessionalisminPolicing-03-11.pdf

Teodoro, M. P. (2008). Bureaucratic job mobility and the diffusion of innovations. *American Journal of Political Science, 53*(1), 175-189.

Travers, J., & Milgram, S. (1969). An experimental study of the small world problem. *Sociometry, 32*(4), 425-443.

Walker, J. L. (1969). The diffusion of innovations among the American states. *American Political Science Review, 63*, 880-899.

Walker, S. (1977). *A critical history of police reform: The emergence of professionalism*. Lexington, MA: D.C. Heath and Company.

Walker, S. (1992). *The police in America: An introduction*. New York, NY: McGraw-Hill.

Weber, M. (1968). *Economy and society*. Vol. 3. G. Roth & C. Wittich (eds.). New York, NY: Bedminister.

Weisburd, D., & Lum, C. (2005). The diffusion of computerized crime mapping policing: Linking research and practice. *Police Practice and Research, 6*, 433–448.

Weisburd, D., Mastrofski, S., McNally, A. M., Greenspan, R., & Willis, J. (2004). *The growth of Compstat in American policing*. The Police Foundation. Retrieved from http://www.policefoundation.org/content/growth-compstat-american-policing

Weisburd, D., Mastrofski, S., Willis, J., & Greenspan, R. (2006). Changing everything so that everything can remain the same: Compstat and American policing. In D. Weisburd and A. Braga (eds.), *Prospects and problems in an era of police innovation: Contrasting perspectives*, (pp. 284-301). Cambridge, MA: Cambridge University Press.

Weisburd, D. & Neyroud, P. (January, 2011). *Police science: Toward a new paradigm*. New Perspectives in Policing. Harvard Kennedy School. Retrieved from http://www.hks.harvard.edu/var/ezp_site/storage/fckeditor/file/pdfs/centers programs/programs/criminal-justice/NPIP-Police%20Science-TowardaNewParadigm.pdf

Weiss, A. (December, 1998). *Informational sharing among police agencies*. National Institute of Justice. Retrieved from http://www.ncjrs.gov/App/publications/abstract.aspx?ID=184393

Weiss, A. (1997). The communication of innovation in American policing. *Policing: An international journal of police strategies & management, 20*(2), 292-310.

Weiss, A. (July, 2001). *Police innovation and communication networks*. Paper prepared for the National Research Council Committee to Review Research on Police Policy and Practice, Washington, DC.

Wellman, B. (1988). Thinking structurally, in B. Wellman and S.D. Berkowitz (eds.), *Social structures: A network approach*, (pp. 15-18) Cambridge, MA: Cambridge University Press.

Willis, J. J., Mastrofski, S. D., & Weisburd, D. (2007). Making sense of COMPSTAT: A theory-based analysis of organizational change in three police departments. *Law and Society Review, 41*, 147–88.

Willis, J. J. (2013). *Improving police: What's craft got to do with it?* The Police Foundation. Retrieved from: http://www.scribd.com/doc/147408086/Improving-Police-What-s-Craft -Got-to-Do-with-It

Wilson, J. Q. (1968). *Varieties of police behavior: The management of law and order in eight communities*. Cambridge, MA: Harvard University Press.

Wilson, J. Q. (1989). *Bureaucracy: What government agencies do and why they do it*. New York, NY: Basic Books.

Wilson, O.W. (1942) *Police records: Their installation and use*. Chicago, IL: The Public Administration Service.

Wilson, O. W. (1943). *Police administration* (2nd ed.). New York, NY: John Wiley & Sons.

Winter, R. A. (1988). The liability crisis and the dynamics of competitive insurance markets. *Yale Journal on Regulation,* 5, 455-499.

Wolf, B. (1994). Organization innovation: Review, critique and suggested research directions. *Journal of Management Studies, 31*(3), 405-431.

Wolonick, J. (May 16, 2014). *Finance and trading terms explained: What is a poison pill?* Retrieved from http://www.minyanville.com/trading-and-investing/how-to-invest/articles/What-Is-a-Poison-Pill-Finance/5/16/2014/id/54944

Young, J. (2011). *The criminological imagination*. Cambridge, MA: Polity.

Young, P. C. (1989). Local government risk financing and risk control pools: Understanding their forms, functions, and purposes. *Public Budgeting and Finance, 9*(4), 40-55.

Young, T. N., & Ready, J. T. (2014). Diffusion of ideas and technology: The role of networks in influencing the endorsement and use of on-officer video cameras. *Journal of Contemporary Criminal Justice*, *3,* 1-19.

Zhao, J., Ren, L., & Lovrich, N. (2010). Police organizational structures during the 1990s: An application of contingency theory. *Police Quarterly, 13*, 209-232.

Zucker, L. G. (1987). Institutional theories of organization. *Annual Review of Sociology, 13*, 443-464.

Vita

March, 2015

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EDUCATION

John Jay College of Criminal Justice, City University of New York, New York, NY
Ph.D. Criminal Justice (ABD)   **2008 to Present**

John Jay College of Criminal Justice, New York, NY
M.A. Criminal Justice   **2012**

Western Connecticut State University, Danbury, CT
M.S. Justice Administration   **2008**

Geneva College, Beaver Falls, PA
B.A. Sociology   **2000**
Minors: Biblical Studies, Pre-law

ACADEMIC AWARDS

Arthur Niederhoffer Memorial Fellowship, John Jay College   **2012**
Fyfe Fellowship, John Jay College   **2011**

AWARDS (NON-ACADEMIC)

Outstanding Performance Award (DWI), Darien Police Dept.   **2008**
Departmental Commendation, Darien Police Dept.   **2004, 2006, 2009**
Certificate of Appreciation, M.A.D.D.   **2005, 2008**
Outstanding Performance Award (Criminal Arrests), Darien Police Dept.   **2006, 2008**
Honorable Discharge, United States Army Reserve   **2004**
USAR 475th Quartermaster Co., Soldier of the Year Award   **1997**
Eagle Scout, Boy Scouts of America   **1996**

TEACHING EXPERIENCE

Western Connecticut State University, Danbury, CT   **2013 - Present**
Lecturer – Department of Justice and Law Administration- Taught
undergraduate level courses entitled "Research Methods" and "Criminology".

Loyola University, New Orleans, LA   **2011 - 2015**
Adjunct Professor – Department of Criminal Justice Administration. Taught
online masters level courses entitled "Survey of Justice Administration",
"Special Topics in Justice Administration", and "Ethics of Justice
Administration".

John Jay College of Criminal Justice, New York, NY **Adjunct Professor –** Department of Public Management. Taught online and hybrid undergraduate courses entitled "Leadership, Supervision and Performance" and "Public Administration".	**2010 - 2012**
Darien Police Department, Darien, CT **Field Training Officer –** Provided on the job training for new police officers.	**2005 - 2008**
The Kildonan School, Amenia, NY **Teacher** – 9th grade Ancient History, 12th grade Government and Economics Developed course syllabi and authored all evaluative materials.	**2000 – 2002**
Language Development Tutor- Orton-Gillingham Method. Provided individualized daily tutoring for high school students with dyslexia.	**2000 – 2002**
Geneva College, Beaver Falls, PA **Teaching Assistant** – to Dr. Howard Mattson-Boze for undergraduate Introduction to Sociology course. Took attendance for class lectures, led weekly student discussion group, and assisted with grading.	**Fall, 1999**

RELATED EXPERIENCE

Darien Police Department, Darien, CT **"Acting Lieutenant"** Assigned to the Patrol Division (Midnight shift). Provides supervision for four to five patrol officers and oversees one patrol sergeant.	**2014 - Present**
Detective Sergeant First line supervisor assigned to Detective Division. Provided supervision for two detectives, two youth detectives, and one civilian clerk. Managed caseload, reviewed reports and legal process, prepared cases for prosecution. Liaison to ROIC Fusion Center. Conducted pre-employment background investigations. Responsible for all asset forfeiture and *in rem* proceedings.	**2012 – 2014**
Patrol Sergeant First line supervisor assigned to Patrol Division. Provided supervision for four to six patrol officers. Assigned patrol units, directed investigations, reviewed incident reports, and evaluated subordinates on an annual basis.	**2008 - 2012**
Accreditation Manager Authored comprehensive *Directory of General Orders* in order to bring department policy into conformity with State of Connecticut Tier II accreditation standards. Managed accreditation process resulting in agency accreditation by the State of Connecticut in 2009. Ensured agency compliance with accreditation standards for a three year period resulting in reaccreditation.	**2008 - 2011**
Patrol Officer Served community stakeholders within a municipality of approximately 20,000 residents. Performed general patrol duties including traffic enforcement, investigation of criminal complaints, accident investigation and responding to requests for medical aid. Provided training and supervision to probationary police officers as a Field Training Officer (FTO).	**2002 - 2008**

ADVANCED POLICE TRAINING

290th session, Connecticut POSTC Police Academy.

49th annual Fairfield County Detectives Conference.

First Line Supervisor Course, Roger Williams University's Justice System Training & Research Institute.

Innovations in Police Management Course (Inaugural session), University of New Haven's Center for Advanced Policing.

CONFERENCES AND TRAINING DELIVERED

Lecture Presentation: What is Justice? Implications for the Criminal Justice System in America, Geneva College, October 10th, 2014. Beaver Falls, PA.

Panel Discussant: Introduction to Career Series, Norwalk Community College, September 30th, 2014. Norwalk, CT.

Trainer: Organizational Performance Measurement, Capital Region Police Chiefs, April 15th, 2014. Rocky Hill, CT.

Invited Observer: Executive Session on Policing and Public Safety, Harvard Kennedy School of Government, November 1st – 3rd, 2012. Cambridge, MA.

Paper Presentation: Violence on the Border: A Sector-level Analysis of Assault Trends. Academy of Criminal Justice Sciences, March 2nd, 2011. Toronto, ON.

Panel Discussant: Why the Anger and Violence? Taking Steps to Bring Back Civility in Our Community, March 31st, 2010. Darien, CT.

American Society of Criminology, 2008 attendee. St. Louis, MO.

PUBLICATIONS

Johnson, J. P. (ND). [Personal Narrative]. In Ackerman, A & Sacks, M. *Introduction to Criminal Justice: A Personal Narrative Approach*. (Book contract: Carolina Academic Press).

ACADEMIC SERVICE

Curriculum Guidance: Online Criminal Justice Program, City University of Seattle (2014-Present)