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THESIS

**THE PREPAREDNESS WEB: REGIONAL
COLLABORATIVE NETWORKS FOR HOMELAND
SECURITY PREPAREDNESS**

by

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September 2007

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FOR HOMELAND SECURITY PREPAREDNESS**

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ABSTRACT

This case study is offered with the purpose of informing the initiation of regional collaborative efforts nationwide. This research effort examines a network of networks, called here a Preparedness Web, utilized to meet locally identified regional homeland security preparedness needs. How and why these networks were established is documented to allow other regions to draw parallels to their own situations. A measurement of the systems collaborative capacity is identified to validate the systems functionality. Recommendations are offered for other regions considering collaborative efforts based upon a retrospective examination of the system originators' strategic intent. To the extent to which this effort can be used to illustrate successful collaboration, on a national basis, it presents a replicable "ground up" process designed to entice more agencies to undertake or enhance their own regional collaborative preparedness efforts.

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DEDICATION

The motivation behind this effort emanates from a recognized need to better support our nation's all-hazard response and recovery personnel. With over twenty years of field experience and as a member of a federal Interagency Incident Management Team, I have served regions, agencies, and responders across our nation. It was the frustrations experienced in the aftermath of Katrina that, for the first time, made me contemplate giving up incident management. To do so would have been to give up on the responders by way of giving up on the demonstrated collaborative needs that are pervasive throughout our country. It is to those ill-served by non-collaborative systems that I humbly offer this body of research.

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I. INTRODUCTION

A. PROBLEM STATEMENT

Homeland security's all-hazard preparedness needs exceed the capacity of any one agency, discipline, or level of governance, as demonstrated by events such as the Murrah Federal Building bombing, the 9/11 attacks, the 2001 anthrax attacks, and, most recently, Hurricanes Katrina and Rita. The inherent complexity in a regional homeland security preparedness effort is evidenced by the number of disparate agencies with statutorily-mandated roles interacting with non-mandated preparedness partners (e.g., volunteer groups, university researchers, private critical infrastructures, and a variety of utility districts) in dynamic and non-linear relationships. Despite the acknowledged complexity, some regions across the nation are still not using interagency collaboration to meet their homeland security preparedness needs.¹ Any approach to preparedness that does not embrace interagency collaboration will be episodic at best while ignoring some of the most painful homeland security lessons learned in our nation's history.²

Some concerns cited for not utilizing interagency collaboration include: (a) ineffective leadership; (b) lack of commitment, primarily stemming from a lack of trust and knowledge of interdisciplinary capabilities; (c) poor communications; and (d) poor planning leading to resource allocation issues.³ These barriers are cited by field commanders who, at the same time, acknowledge the potential benefit of collaboration to more effectively meet their homeland security mission. An example of the chaos resulting from this aversion to collaborative approaches to preparedness was televised nationwide in the fall of 2005, as the Gulf Coast floundered in the wake of Hurricane

¹ Amy K. Donahue and Robert V Tuohy, "Lessons We Don't Learn: A Study of the Lessons of Disasters, Why We Repeat Them, and How We Can Learn Them," *Homeland Security Affairs* 2, no. 2 (July 2006): 6-8.

² William V. Pelfrey, "The Cycle of Preparedness: Establishing a Framework to Prepare for Terrorist Threats," *Journal of Homeland Security and Emergency Management* 2, no. 1 (2005): 8

³Donahue and Tuohy, "Lessons We Don't Learn," 6-8.

Katrina. This lack of collaborative preparedness hindered the local, state and federal response well past the seventy-two hour threshold that is traditionally touted for citizen preparedness needs.⁴

Unintentionally exacerbating this problem is the multitude of small to mid-size agencies choosing to ignore collaboration as a tool for homeland security preparedness because they do not see credible homeland security risks for their regions.⁵ This is commonly referred to as “It won’t happen here.” This position is rather ironic as it is the small to mid-size agencies that send a proportionally large share of their resources to assist the larger urban areas in a given time of need (e.g., the 2003 firestorms in Southern California).

The complexity of interagency collaborative preparedness can be solved. The challenge is how to design and support governmental systems that can adapt to the urgent demands and complex operating conditions in extreme events.⁶ However, even at the most basic level this solution is not possible unless one appreciates all of the actors and the roles they play within any given region. In a practical sense, without having participated in planning, exercises, and operations in interagency collaborative network systems, assisting hierarchical organizations can be as much of a hindrance as a help. These hindrances arise from factors (e.g., a lack of knowledge of interagency capabilities and procedures) that can potentially affect the behavior of the whole system.⁷ Regionally, interagency and interpersonal relationships must be exercised before disaster strikes, to

⁴ U.S. Department of Homeland Security, *Preparing Makes Sense, Get Ready Now*, http://www.ready.gov/America/_downloads/Ready_Brochure_Screend_EN_20040129.pdf [Accessed July 26, 2006].

⁵ Donahue and Tuohy, “Lessons We don’t Learn,” 10-11.

⁶ Louise Comfort, “Managing Intergovernmental Response to Terrorism and Other Extreme Events,” *Publius: The Journal of Federalism* 32, no. 4 (2002): 29-49.

⁷ Phillip Anderson, “Complexity Theory and Organizational Science,” *Organizational Science* 10, no. 3 (May-June 1999): 217.

insure reciprocal needs can be met. Trying to build these needed relationships in the face of a disaster is difficult or impossible, given the charged and high-pressure atmosphere.⁸

B. PURPOSE

This case study has been conducted with the purpose of informing the initiation of regional collaborative efforts nationwide. The research examines a regional preparedness system that extensively utilizes regional collaborative networks to meet its homeland security preparedness needs. This framework is referred to as a “preparedness web” for the purposes of this research effort. To the extent to which this effort can be used to illustrate successful collaboration and meet the expressed concerns of field leadership, on a national basis, it presents a replicable “ground up” process to entice agencies averse to collaboration to undertake or enhance their own regional collaborative preparedness efforts.

C. BACKGROUND

This thesis examines three regional collaborative networks functioning in the greater Sacramento Metropolitan region of California: (1) the Operational Area Counsel, (2) the Tactical Commanders Network, and (3) the Consortium of Technical Responders. The study includes an examination of how the networks were developed as well as an assessment of their current collaborative capacities.⁹ These networks are illustrative of a greater number of networks currently functioning within the case study region and were chosen for this research effort due to their nationwide preparedness applicability and their spread across the tactical-strategic continuum. For context, a non-comprehensive list of the functioning networks in the case study region is provided in Table 1. Each of these

⁸ Brian Jackson, *Information Sharing and Emergency Responder Safety Management* (Santa Monica, CA: RAND, 2006), 2.

⁹ Susan Hocevar, Gail Thomas, and Erik Jansen, *A Diagnostic Approach to Building Collaborative Capacity in an Interagency Context*, Project prepared for the Office of Domestic Preparedness (Monterey, CA: Naval Postgraduate School, 2006), 19-28.

regional networks has a specific mission filling an identified regional need. The use of these networks across the region culminates in what the author refers to as a preparedness web.

Table 1. Sample Regional Collaborative Networks in Sacramento, CA (non-comprehensive).

Regional Collaborative Network	Make-Up	Strategic / Tactical Focus
Sacramento Operational Area Counsel *	All Countywide Governance	Strategic Preparedness
Regional Terrorism Threat Assessment Ctr.	Multi-disp. / Multi-governance	Strategic Preparedness / Tactical Response
Sac Regional Radio Communication Systems	Multi-disciplinary	Strategic Preparedness
Sacramento Multi-Aircraft Response Team	Multi-disciplinary	Tactical Response
Tactical Commanders Network *	Multi-disp. / Multi-governance	Strategic Preparedness / Tactical Response
Consortium of Technical Responders *	Multi-disp. / Multi-governance	Strategic Preparedness / Tactical Response
Medical / Operational Oversight Committee	Multi-disciplinary	Strategic Preparedness / Tactical Response

* Network to be examined in this research effort.

By far, the oldest of the three networks examined in this case study, the Operational Area Counsel (OAC), has been in use in California for more than sixty years. Originally established to facilitate emergency response under the California Master Mutual Aid System, each OAC maintains a focus on all-hazard strategic preparedness for the county within which it operates. These strategic issues include, but are not limited to, planning to mitigate regional vulnerabilities and subsequent grant coordination and allocation. In Sacramento County twelve people sit on the OAC; the agency and discipline representatives are listed in Table 2. The function of the operational area effects all local governments contained therein, thus each local government has a stake in the development and maintenance of the OAC functions.

Table 2. Operational Area Counsel – Representative Make-up.

Sacramento County Representative
City of Sacramento Representative
City of Folsom Representative
City of Galt Representative
City of Isleton Representative
Fire Districts Representative
Law Enforcement Agencies Representative
Flood Control & Reclamation Districts Representative
Utility Districts Representative
Park Districts Representative
Cemetery Districts Representative
Water Districts Representative
School Districts Representative

The second network to be examined is the Tactical Commanders Network (TCN), the core of which is made up of regional law enforcement Special Weapons and Tactics (SWAT) and Explosive Ordnance Detail (EOD) field commanders along with fire department HAZMAT field commanders. Twenty-two members sit on the Tactical Commanders Network; the member agencies are listed in Table 3. The Tactical Commanders Network was established in 2003, and meets on a monthly basis to discuss and exercise complex issues of inter- and intra-disciplinary preparedness in an effort to make incident response more efficient. Somewhat contra-indicated by its name, the efforts of this network actually bridge the tactical-strategic continuum. For example, its efforts include (but are not limited to) strategic regional planning as well as standardizing tactical methodologies and equipment. For context, a sample agenda for the Tactical Commanders Network is provided in Appendix A.

Table 3. Agencies Represented in the Tactical Commanders Network.

Regional Terrorism Threat Assessment Center * Sacramento County Sheriff Department Violence Suppression & Narcotic Investigations Roseville Police for the Roseville and Rocklin Regional SWAT Team Sacramento County Sheriff Department Explosive Ordinance Detail City of Roseville Explosive Ordinance Detail University of California at Davis Police Department Sacramento County Sheriff Criminal Intelligence Unit Sacramento City Police Department, Explosive Ordinance Detail Sacramento Regional Transit Police Sacramento City Fire Department, Special Operations ** Sacramento Metropolitan Fire District, Special Operations ** Roseville City Fire Department, Special Operations ** Sacramento County Department of Public Health Sacramento County Environmental Management Department ** Department of Homeland Security / Transportation Security Administration Federal Bureau of Investigation

* More than one representative

** Encompasses Hazardous Materials

Finally, the Consortium of Technical Responders (CTR) is a multi-discipline, multi-governance-level preparedness network that was established in 2005. Thirty-three members sit on the Consortium of Technical Responders; the member agencies are listed in Table 4. Also bridging the tactical-strategic continuum, the CTR meets once a month and focuses on chemical, biological, and radioactive incident preparedness issues encompassing inter- and intra-disciplinary approaches. Examples of their efforts include the standardization of disparate policies and regional capability advancement. For context, a sample agenda for the Consortium of Technical Responders is provided in Appendix B.

Table 4. Agencies Represented in the Consortium of Technical Responders

<p>City of Roseville Fire Department, Special Operations*</p> <p>Sacramento Metropolitan Fire District, Special Operations *</p> <p>Sacramento City Fire Department, Special Operations *</p> <p>City of West Sacramento Fire Department</p> <p>Regional Terrorism Threat Assessment Center*</p> <p>Sacramento County Public Health *</p> <p>Placer County Public Health</p> <p>Sacramento County Sheriff Department</p> <p>Sacramento City Police Department</p> <p>Sacramento County Emergency Medical Services Authority</p> <p>City of West Sacramento Police Department</p> <p>City of Roseville Police Department</p> <p>Sacramento County District Attorney</p> <p>Sacramento County Crime Lab</p> <p>California State Office of Emergency Services</p> <p>University of California, Davis *</p> <p>California Highway Patrol - Hazardous Materials Division *</p> <p>US Department of Defense - 95th CST</p> <p>United States Postal Inspection Service *</p> <p>Federal Bureau of Investigation</p> <p>United States Coast Guard</p>

* More than one representative

The OAC, TCN, and CTR, as representative regional collaborative networks, are modules in a replicable system designed to achieve desired preparedness benefits through alliance. Simultaneously, they are designed to reduce the sources of resistance to utilizing collaboration in homeland security preparedness efforts. These sources of resistance include: (a) ineffective leadership; (b) lack of commitment, primarily stemming from a lack of trust and knowledge of interdisciplinary capabilities; (c) poor communications; and (d) poor planning leading to resource allocation issues.¹⁰ This preparedness web system is designed to be initiated by local governance agencies with a regional outlook to insure that the area’s preparedness system mirrors the response system.

Furthermore, this system is scalable. The complexity in every region varies, and so too will the structures of any regional preparedness web. In addition, the preparedness

¹⁰Donahue and Tuohy, “Lessons We Don’t Learn,” 6-8.

web system embraces both the tactical and strategic foci, providing the necessary robustness required of all-hazard homeland security preparedness.

In the preparedness web, each of the regional collaborative networks brings disparate agencies together under a specific and clearly defined mission – with measurable goals and objectives – in pursuit of collective outcomes.¹¹ A critical aspect of the preparedness web’s effectiveness is that the agencies involved go far beyond what are thought of as traditional first responders: they encompass a multi-disciplinary/multi-governance level cross-section that is representative of complex homeland security incident management. The immediate benefit is a much more holistic look at regional preparedness that accounts for the needs of all preparedness partners. Each regional collaborative network within the preparedness web is organized as an all-channel network in which every node (member or agency) is connected to every other node in the system to enhance efficiency and resiliency. A representative picture of what a single regional collaborative network looks like, in this case the Sacramento Consortium of Technical Responders, is displayed in Figure 1.

¹¹ Susan Hocevar, Gail Thomas, and Erik Jansen, “Building Collaborative Capacity: An Innovative Strategy for Homeland Security Preparedness,” in *Innovation Through Collaboration* (Monterey, CA: Naval Postgraduate School, 2006), 3.

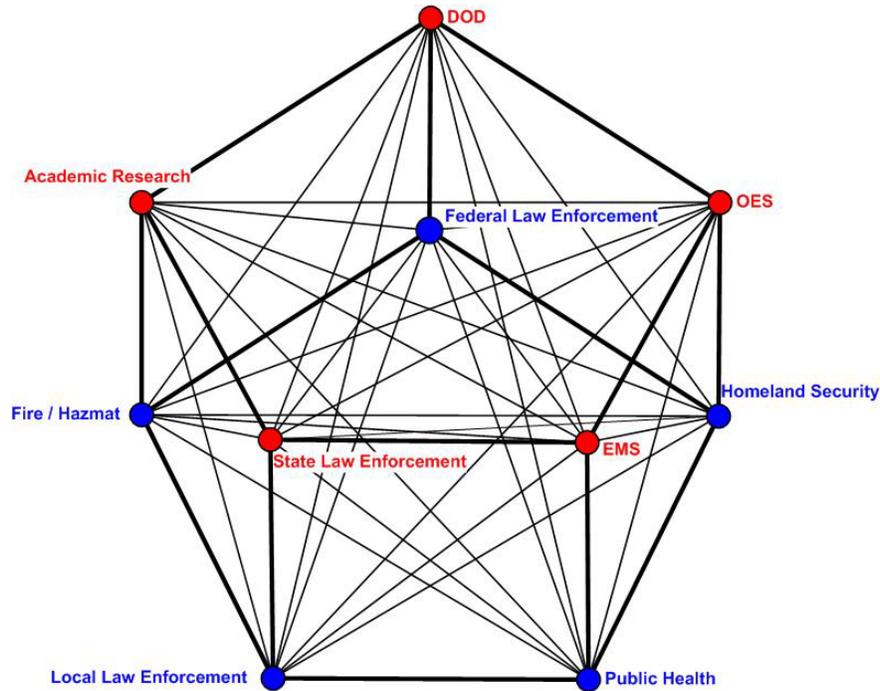


Figure 1. The Sacramento Consortium of Technical Responders.

As each of the Regional Collaborative Networks is linked to each other, an extremely resilient preparedness web is extended across the region as illustrated in Figure 2. The linkages providing connectivity of the networks within the preparedness web are critical and accomplished by cross-pollination within the networks themselves. This purposeful inter-network linkage serves the preparedness needs of each network while minimizing duplication of effort and significantly reducing gaps in preparedness. As illustrated, the networks can clearly transcend geo-political lines through the use of different types of agreements (e.g., mutual and automatic aid, memorandums of understanding, and joint powers agreements). It should be noted that Figure 2 is provided for conceptualization purposes; for clarity only three of many networks are displayed. The preparedness web system’s flexibility and scalability allows networks to be either wholly contained within a geo-political boundary or to transcend boundaries as dictated by regional needs.

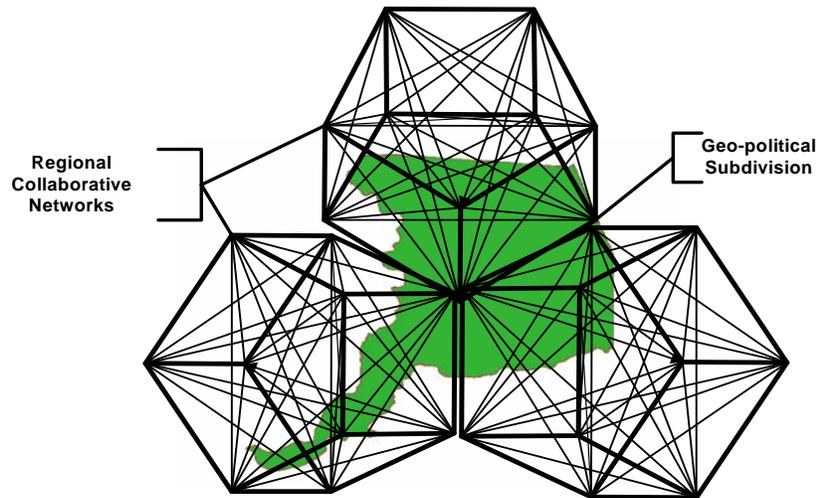


Figure 2. Illustration of the Sacramento Regional Preparedness Web (non-comprehensive).

D. RESEARCH QUESTIONS

This research effort goes beyond just highlighting the functionality of the preparedness web system; it also examines why and how the system was implemented, allowing other regions to draw parallels to their own situations with the vision of maximizing applicability. The following research questions are addressed:

1. Why and how were the Regional Collaborative Networks developed?
2. What is the collaborative capacity of the preparedness web system?
3. What opportunities for system improvement can be identified?

E. METHODOLOGY

The methodology used to answer the research questions included both quantitative and qualitative approaches. Quantitatively, a survey was used to measure the collaborative capacity of the system and identify opportunities for improvement. Qualitatively, personal interviews were conducted to answer why and how the Tactical Commanders Network and the Consortium of Technical Responders were initiated.

Information on the initiation of the third network, the Operational Area Counsel, is drawn from archival data and presented in the Background section of this chapter.

F. BENEFITS OF THIS STUDY

Critical examination of the Sacramento region's preparedness web provides an opportunity to identify potential system improvements of direct benefit to the case study region and indirectly benefiting any other regions that undertake a similar effort. In light of our country's demonstrated lack of preparedness for complex interagency incidents, there is value in the systematic examination, validation, and presentation of any regional preparedness system that takes a multi-disciplinary and multi-governance level approach. By addressing the stated concerns of field commanders, this system is intended to be especially beneficial to regions currently opting out of a designated preparedness methodology. Finally, this research project will assist in the validation of the collaborative capacity audit developed by Susan Hocevar, Gail Thomas, and Erik Jansen.¹²

G. OVERVIEW

This thesis is organized as follows:

Chapter II – Literature Review: An examination of the current relevant literature on the topics of network and complexity theory, collaboration measurement, and organizational change theories.

Chapter III – Research Methodology: An operational explanation of the methodologies utilized in this research effort.

Chapter IV – Quantitative Results: An analysis of the survey results obtained in this research effort. These results quantify the collaborative capacity of the regional collaborative networks.

¹² Hocevar et al. *A Diagnostic Approach to Building Collaborative Capacity*, 19-28.

Chapter V – Qualitative Results: An explanation and interpretation of the interview results obtained in this research effort, clarifying how and why the regional collaborative networks were established.

Chapter VI – Summary, Conclusions and Recommendations: A summation of the research effort and subsequent conclusions reached. Recommendations are offered in a framework conducive to managing complex adaptive systems.

II. LITERATURE REVIEW

A. INTRODUCTION

To date, the available research on collaboration, as well as successful field examples, have been inadequate in addressing the sources of resistance or in providing sufficient motivation to encourage broader engagement of interagency collaboration. This claim is empirically supported by after-action reports such as the *9/11 Commission Report*¹³ and *Hurricane Katrina Lessons Learned*,¹⁴ by policy documents such as the *National Preparedness Goal*,¹⁵ and reports from boots-on-the-ground homeland security professionals.¹⁶

This literature review looks at network theory and complexity theory, followed by an examination of collaboration theory – specifically the assessment of collaborative capacity. Lastly, work in the area of organizational change theory is discussed in an effort to highlight predictable problem areas faced by those organizations undertaking transformation.

A brief examination of The *National Preparedness Goal* (NPG) offers situational context. This document provides the nation with strategic direction to meet three overarching priorities and four capability-specific priorities, as shown in Figure 3.¹⁷ Notably, the first overarching priority is the expansion of regional collaboration.

¹³ National Commission on Terrorist Attacks on the United States, *9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States* (New York, W.W. Norton Company, 2004), 353.

¹⁴ U.S. Department of Homeland Security, *Hurricane Katrina Lessons Learned*, (Washington, D.C.: Government Printing Office, 2006), 52.

¹⁵ U.S. Department of Homeland Security (DHS), *National Preparedness Goal* (Washington, D.C.: The White House, 2005), 13.

¹⁶ Donahue and Tuohy, “Lessons We Don’t Learn,” 1.

¹⁷ DHS, *National Preparedness Goal*, 13

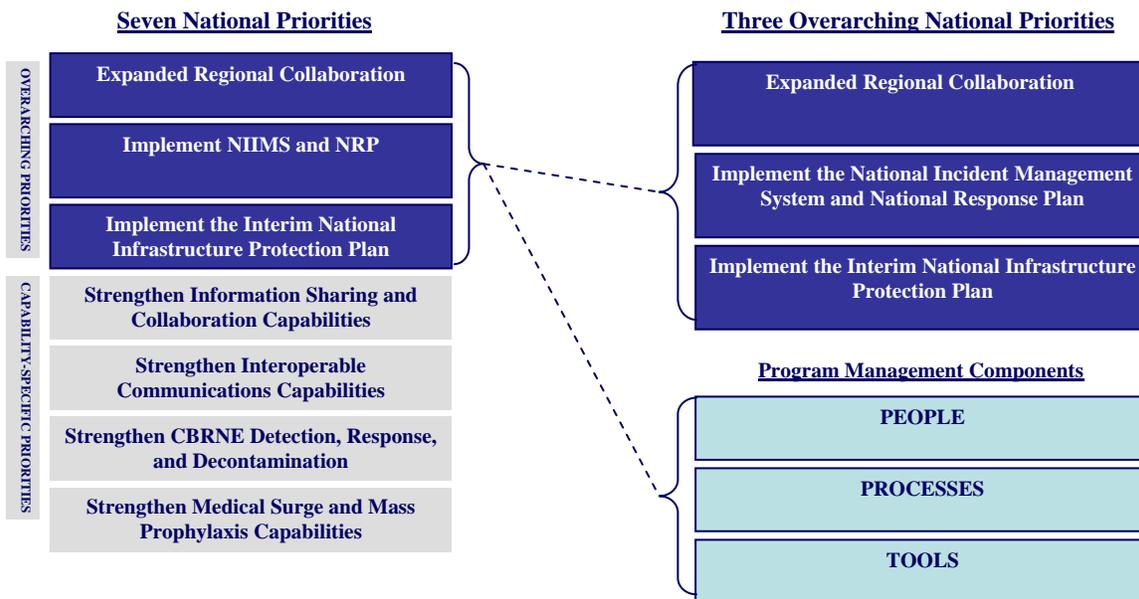


Figure 3. National Preparedness Goal – Seven National Priorities.

It would be simplistic to point to the first overarching priority of expanding regional collaboration and recount its importance to this thesis and the country’s preparedness effort; to do so only sheds light on a portion of the issue’s complexity. As indicated in the opening paragraph of this chapter, many calls for expanded collaboration have been made. The fact that those calls are ongoing would indicate that perhaps the issue of collaboration is more complex than it appears.

Michael Wermuth points out that homeland security’s all-hazard preparedness needs exceed the capacity of any one agency, discipline, or level of governance.¹⁸ Given this position, as one moves down the list of National Priorities into the Capability Specific Priorities it is clear that expanded regional collaboration needs actually transcend all organizations’ abilities to carry out the items listed, as shown in Figure 4.¹⁹

¹⁸ Michael Wermuth, *Enhancing Emergency Preparedness in California* (Santa Monica, CA: RAND, 2006), 6.

¹⁹ DHS, *National Preparedness Goal*, 13.

Now we have an issue that, initially stated as three words (expand regional collaboration), begins to reveal its wicked complexity. It is within this context of complexity that this research effort is offered.

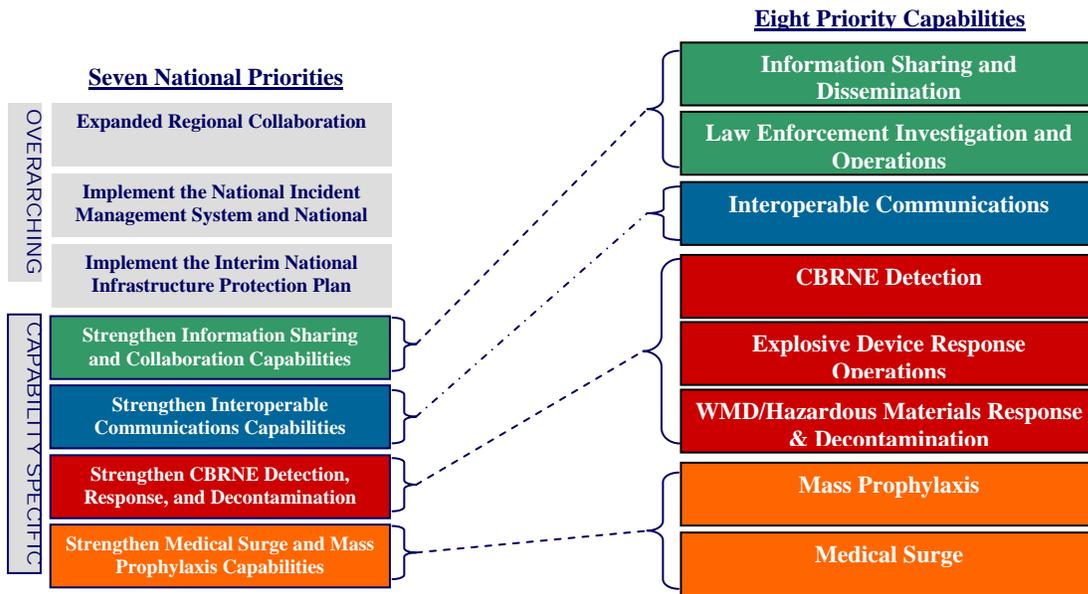


Figure 4. National Preparedness Goal - Eight Priority Capabilities.

Interagency collaboration in homeland security preparedness efforts could mean many things to many people; the following definition is provided as a foundation upon which this literature review is built. “Interagency collaboration is the act of disparate organizations entering into, developing, and sustaining inter-organizational systems in pursuit of collective outcomes.”²⁰

B. NETWORK AND COMPLEXITY THEORY

The examination of network theory and complexity theory are combined here to call attention to the inherent complexity of the networks’ interactions. Intuitively, it would seem that a separate examination of these theories would be easier, but in

²⁰ Hocevar et al., *A Diagnostic Approach to Building Collaborative Capacity*, 2.

evaluating a system of networks, separating these theories presents difficulties. Phillip Anderson points out that the simple causal representations of network theory are inadequate for modeling systems with complex interconnections and feedback loops.²¹ The understanding of complex systems is critical as the central focus of this research project examines how and why a network of networks was developed and further examines the dynamic interactions of those networks.

To provide the reader with context for the complexity theory inherent in this discussion, a Cynefin²² sense-making framework is depicted in Figure 5. Reading the right side of the figure, the initiation and replication of regional collaborative networks – as the central vision of this study – lies in the realm of “what is known” and the “knowable” in homeland security and the social sciences. For example, social network theory can indicate best practices (the known) to build a network; and homeland security provides a mission for analysis and scenario planning (the knowable), ultimately indicating who should likely populate that particular network.

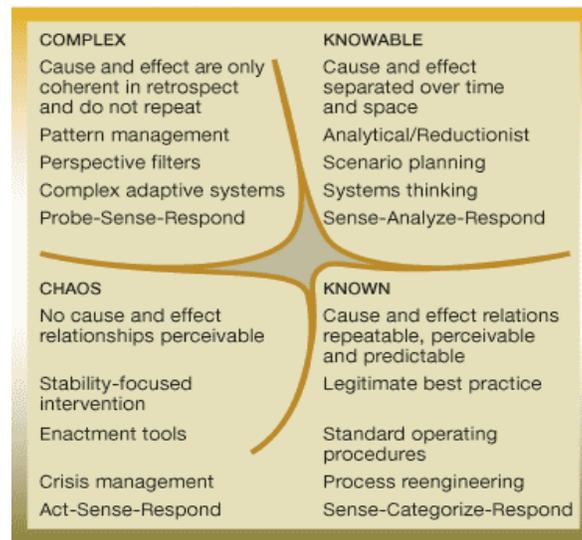


Figure 5. Sense-Making Domains.

²¹ Anderson, “Complexity Theory,” 216

²² C. F. Kurtz and D.J. Snowden, “The new dynamics of strategy: Sense-making in a complex and complicated world,” *IBM Systems Journal* 42, no. 3 (2003): 468.

However, as one moves to the upper left side of the figure, the dynamic interaction of these regional collaborative networks, defined as complex adaptive systems, resides in the realm of the complex, the home of complexity theory. When defining complex adaptive systems, Phillip Anderson indicates these networked systems are complex, in that they are diverse and made up of multiple interconnected elements, and adaptive, in that they have the capacity to change and learn from experience.²³ Louise Comfort describes this same characteristic as auto-adaptation or a “learning strategy”.²⁴ In a visual representation of a complex system shown in Figure 6, one can see how complex systems involve (a) many components, (b) dynamically interacting, (c) giving rise to a number of hierarchical levels, (d) which exhibit common behaviors, (e) across disciplines.²⁵

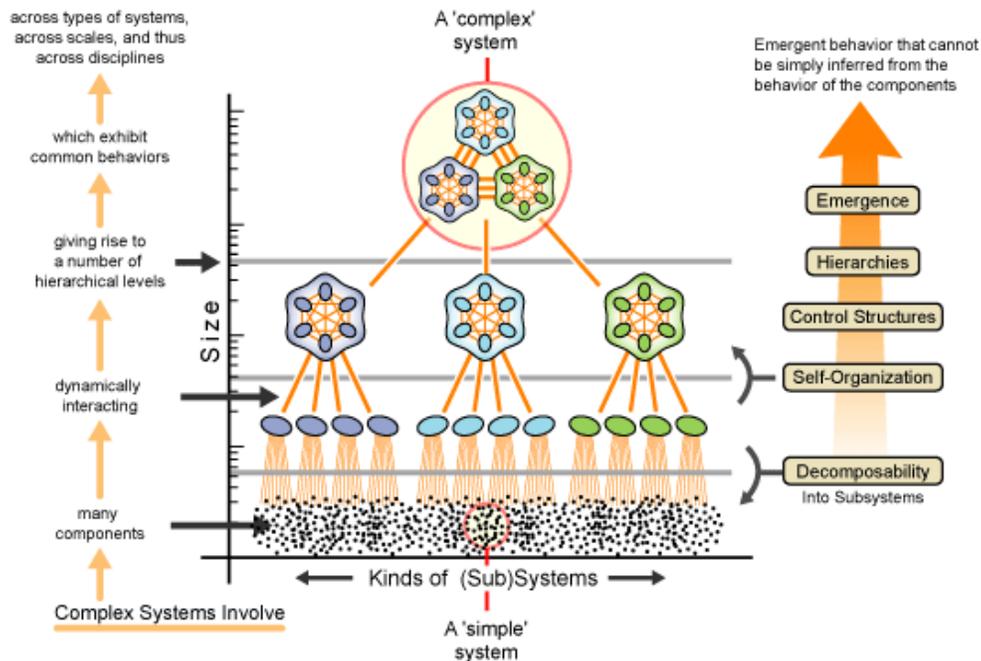


Figure 6. Characteristics of Complex Systems.

²³ Anderson, “Complexity Theory,” 216.

²⁴ Comfort, “Managing Intergovernmental Response to Terrorism,” 40.

²⁵ Idiagram, “Characteristics of Complex Systems, *Visual Modeling & Facilitation for Complex Business Problems*, <http://www.idiagram.com/examples/complexity.html> [Accessed July 18,2007].

Complementing this understanding of network dynamics, the field of social network analysis has been identified by Steve Ressler as the key to network knowledge which unlocks a system to overcome similarly designed terror networks.²⁶ Ressler further asserts that open and decentralized networks supply more diversity of knowledge and information, so that ultimately the network becomes more important than the individual.²⁷ In parallel fashion to complexity theory, Anderson points out that in complex systems the whole of the system can be greater than the sum of the parts.²⁸

Albert-Lazlo Barabasi defines networks as individual nodes connected by complex but understandable relationships and claims networks are the prerequisite for describing any complex system.²⁹ All networks differ in size and shape but their genesis is categorized in one of three primary types: the chain network, the star or hub network, or the all-channel network.³⁰

In the all-channel network, each of the nodes is linked, strongly or loosely, to every other node in the network.³¹ Resiliency is inherent in this network structure as the loss of any given node theoretically does not have a cascading negative effect. The downside to this structure is that it is identified as difficult to organize and sustain.³² Sustaining the effectiveness of the network, Anderson argues, is accomplished by balancing flexibility and stability.³³ Even with its difficulties of organization and sustainability, the all-channel network is particularly well suited to meet the needs of a collaborative effort.³⁴

²⁶ Steve Ressler, "Social Network Analysis as an Approach to Combat Terrorism: Past, Present and Future Research," *Homeland Security Affairs* 2, no. 2 (July 2006), <http://www.hsaj.org:2> [Accessed October 2006].

²⁷ Ibid.

²⁸ Anderson, "Complexity Theory," 224.

²⁹ Albert-Lazio Barabasi, *Linked: The New Science of Networks* (New York: Perseus, 2002):

³⁰ John Arquilla and David Ronfeldt, *Networks and Netwars: The Future of Terror, Crime and Militancy* (Washington D.C.:RAND, 2001):6.

³¹ Ibid.

³² Arquilla and Ronfeldt, *Networks and Netwars*. 9.

³³ Anderson, "Complexity Theory," 224.

³⁴ Arquilla and Ronfeldt, *Networks and Netwars*, 9

Given this basis, the goal of a functional homeland security preparedness collaborative can be achieved with networks of agencies and personnel working together in nonlinear approaches. According to Anderson, these systems are considered non-linear because their participants change inputs to outputs via a web of feedback loops.³⁵ This is consistent with what Comfort defines as auto-adaptive “systems of interacting units, each performing at its own rate but adjusting that performance to that of its near-neighbors in response to incoming information from the environment.”³⁶

According to David Snowden, studying the past to determine the future (i.e., focusing on traditional strategic planning or behavioral control systems) can make a system more vulnerable to threat and less open to opportunities.³⁷ When managing complex adaptive systems Christopher Bellavita suggests a more effective approach of: (1) setting boundaries, (2) creating attractors, (3) stabilizing desirable patterns, and (4) disrupting undesirable patterns.³⁸ Failure to appreciate this point can lead many well-intentioned people to waste large amounts of time and energy slogging through incremental bureaucracy and grasping for control through excessive use of rules.³⁹

Lastly, designing an interagency preparedness system that resembles the structure of the response effort adds another facet to the complexity. This factor of similarity in design between preparedness and response structures has been identified by Michael Wermuth of the RAND Corporation as a key component of preparedness efficiency and effectiveness.⁴⁰ Every region across the country employs a slightly different response profile due to the limited lifetimes of (a) political relationships, (b) agreements like automatic and mutual aid, and even (c) jurisdictional boundaries and governance

³⁵ Anderson, “Complexity Theory,” 224.

³⁶ Comfort, “Managing Intergovernmental Response,” 48.

³⁷ Lisa Roner, “Knowledge Management in an Unordered World,” <http://www.eyeforpharma.com/index.asp?news=38182> [Accessed July 22, 2007].

³⁸ Christopher Bellavita, “Changing Homeland Security, Shape Patterns not Programs,” *Homeland Security Affairs* 2, no. 3 (October 2006), 15, <http://www.hsaj.org> [Accessed July 22, 2007].

³⁹ Ibid.

⁴⁰ Michael A Wermuth, “Emergency Preparedness in California,” Testimony to the Little Hoover Commission, (Santa Monica, CA: RAND, 2006), 8.

structures. As a result of this vacillation, response and preparedness networks should be viewed as dynamic and complex, rather than static.

C. COLLABORATION MEASUREMENT

The pool of research on the measurement of collaborative capacity in homeland security preparedness efforts is currently very small. An argument could be made that with an analytical tool to measure the collaborative capacity of one's agency, more effective steps could be taken to bolster the collaborative capacity of said agency. This argument has been proffered by Hocevar, Thomas, and Jansen in their research report *Building Collaborative Capacity for Homeland Security*.⁴¹ Their conceptual model and diagnostic process forms the basis for the methodology used for this thesis research.

Theirs is the only tool for measuring collaborative capacity that was uncovered in this literature review. Through a series of interviews with homeland security professionals, Hocevar, Thomas, and Jansen identified the following five dimensions as contributing to collaborative capacity and then categorized respective sub-dimension enablers and inhibitors:

1. Strategy and Purpose
2. Structure
3. Lateral Mechanisms
4. Incentives and Motivation
5. People and People Processes

“Strategy and Purpose” enablers include a commonly felt need, or perceived risk, combined with a willingness to adapt the collaborative effort to the needs and interests of other participating organizations. “Structural” enablers include the formal power and authority of those engaged in an interagency collaboration. “Lateral Mechanisms” center on the enablers of social capital, effective communications, and technical interoperability. “Incentives” include enablers such as increased resources, career incentives, and

⁴¹ Hocevar et al., “Building Collaborative Capacity for Homeland Security,” i.

leadership commitment. Finally, “People and People Processes” include factors such as commitment, an appreciation for others’ perspectives, power sharing, conflict management skills, and trust.⁴²

The diagnostic tool is designed to be utilized through a feedback process allowing organizations to self-examine and identify appropriate interventions to improve their collaborative capacity. It is its presence or absence that classifies any characteristic as an enabler or inhibitor. Collecting data from organizational members regarding the degree to which these capabilities are present allows a prescriptive analysis to be made of the organizations’ collaborative capacity. This process is reflected in Figure 7.

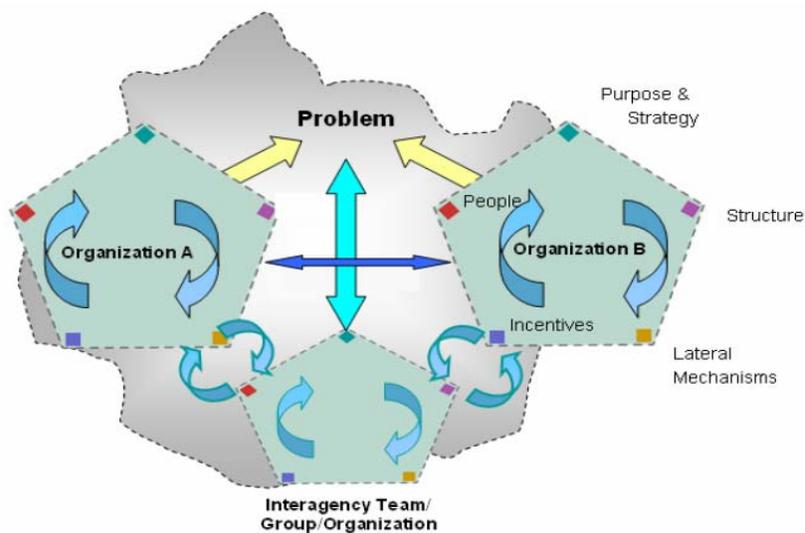


Figure 7. Developing Organizational Design Dynamics to Improve Collaborative Capacity.

A strength of the model is the way in which it complements other existing theories. While social network analysis is a well-established technique in organizational science, most other social science studies examine the presence or absence of a particular type of attribute between members.⁴³ By looking across the identified collaborative capacity dimensions, the tool described by Hocevar, et al. simultaneously examines

⁴² Hocevar et al., “Building Collaborative Capacity for Homeland Security,” 6-7.

⁴³Mark S. Mizruchi, “Social Network Analysis: Recent Achievements and Current Controversies,” *Acta Sociologica* 37 (1994): 329-343.

dozens of collaboration-enabling characteristics to come to an actionable conclusion. Furthermore, when overlaid with complexity theory and the study of complex adaptive systems as mentioned above, this tool offers a mechanism for the examination of network behavioral evolution. This becomes critical as network behavioral evolution must be understood to begin to predict the behavior of complex adaptive systems.⁴⁴

In a similar fashion, this tool adds to the value of other purely social science theories. For example, Jeff Weiss and Jonathan Hughes view the key to collaboration as acknowledging and managing conflict. They recommend devising and implementing a common method for resolving conflict that is made a part of everyday business. So, if conflict resolution was identified by the collaborative capacity audit as an inhibitor to a system's collaborative capacity, Weiss and Hughes' conflict strategies could then be used to develop methodologies for improved conflict management.⁴⁵

D. ORGANIZATIONAL CHANGE

Emergency preparedness should be based on an all-hazard approach that fully integrates all responder disciplines.⁴⁶ The traditional hierarchical organizational structure of responder disciplines does not equip those same responders to function in a networked collaborative environment. The requisite transformation to an open and decentralized network structure is possible, but not probable, without a well-constructed plan of action.⁴⁷

Richard Beckhard and Reuben Harris recognize that "change is not a neat and linear process."⁴⁸ They further assert that the first step in initiating an organizational change is that of defining the need for change. This point is critical in gaining the

⁴⁴ Anderson, "Complexity Theory," 217.

⁴⁵ Jeff Weiss and Jonathan Hughes. "Want Collaboration? Accept – and Actively Manage – Conflict," *Harvard Business Review* Online Version (March 2005), 2-9, <http://harvardbusinessonline.hbsp.harvard.edu/b01/en/hbr/hbrsa/curren> [Accessed March 12, 2007].

⁴⁶ Wermuth, "Emergency Preparedness in California," 6.

⁴⁷ John P. Kotter, "Leading Change: Why Transformation Efforts Fail," *Harvard Business Review* (March-April 1995): 59

⁴⁸ Richard Beckhard and Reuben T. Harris, *Organizational Transitions, Managing Complex Change* (Reading, MA: Addison-Wesley Publishing, 1987), 30.

participating agencies' buy-in to the value of the process. As all homeland security incidents exceed the capacity of any one agency, discipline, or level of governance, the need for change from a hierarchical structure to a collaborative system cannot be understated.

In the case of homeland security preparedness, this need for change has been trumpeted by the failures in the wake of nationally historic incidents. These events demonstrated the necessity to change the approach to preparedness or risk continued ineffectiveness.⁴⁹ In the homeland security public safety environment this ineffectiveness readily translates into life and death, as vividly demonstrated in the aftermath of Hurricane Katrina.

Even in the face of this compelling argument, Donahue and Tuohy have documented that there continues to be an aversion to organizational change in the homeland security preparedness environment. They found that field leadership from around the country cited a conscious disregard for collaboration stemming from a myriad of reasons including: (a) ineffective leadership, (b) lack of commitment resulting from a lack of trust and inadequate knowledge of interdisciplinary capabilities, (c) poor communications, and (d) poor planning leading to resource allocation issues.⁵⁰

Similar barriers to collaboration were found by Jerome Hagen in his master's thesis, "Interagency Collaboration Challenges among Homeland Security Disciplines in Urban Areas." Hagen states that some agencies just "go through the motions" without real commitment to the process or meaningful participation.⁵¹

If public agencies can acknowledge the need for change from a hierarchical structure to a networked collaborative, a strategy must be chosen for change. Kotter and Schlesinger point out that organizational change efforts based on inconsistent strategies tend to run into predictable difficulties. Examples of this include efforts that are not

⁴⁹ John P. Kotter and Leonard A. Schlesinger, "Choosing Strategies for Change," *Harvard Business Review* (March-April 1995): 112.

⁵⁰ Donahue and Tuohy, "Lessons We Don't Learn," 6-7.

⁵¹ Jerome D. Hagen, "Interagency Collaboration Challenges Among Homeland Security Disciplines in Urban Areas" (master's thesis, Naval Postgraduate School, 2006) https://www.hsdl.org/homesecc/docs/theses/06Mar_Hagen.pdf (Accessed September 12, 2006).

thoroughly planned in advance, yet are implemented quickly, and tend to become bogged down due to unanticipated problems. Also, efforts that involve a large number of people, but are implemented quickly, usually become either stalled or less participative.⁵² This same point is underscored by Harold Sirkin, Preey Keenan, and Alan Jackson as they have used predictable factors to guide the execution of more than 1,000 change management programs. Their research identifies the following predictable factors as determinant to a change effort's success:

Duration

This factor includes the length of the change project and how often formal project reviews occur. Shorter projects with more frequent reviews, occurring \leq every 2 months, are statistically more successful.

Integrity of Performance

This factor includes the capability of the team leader and the skills and motivations of the team members. Additionally this factor considers if the team has enough time to spend on the project.

Commitment

This factor looks at two types of commitment, the commitment of senior management and local level commitment. Senior management commitment is measured in the amount of and strength of communications utilized to convey the change message. Local level commitment looks to those most affected by the change, their understanding of the needed change and their beliefs that the effort is worthwhile.

Effort

This factor looks to the percentage of increased effort that employees must undertake to implement the change.⁵³

It stands to reason that an interagency collaborative undertaking should be insured of every chance for success. John Kotter, of the Harvard School of Business, claims that a change process goes through a series of phases that, without methodical planning, account for the top eight reasons why transformational efforts fail:

⁵² John P. Kotter and Leonard A. Schlesinger, "Choosing Strategies for Change," *Harvard Business Review* (March-April 1979): 112.

1. Not establishing great enough urgency.
2. Wrong (not powerful enough) players in the coalition.
3. Lack of vision.
4. Too little communication by a factor of 10.
5. Not removing obstacles.
6. Not systematically planning for creating short term wins.
7. Declaring victory too soon.
8. Not anchoring the change into corporate culture.⁵⁴

Even when accounting for the phases mentioned above, Kotter points out that the change process is extremely complex and time consuming, and that skipping steps in the process may create the illusion of speed but never produces a satisfying result. Additionally, making critical mistakes in any of the phases can have catastrophic consequences to the process, negating hard won gains.⁵⁵

Again, to date, there has been little in the research on collaboration to guide change efforts. There have also been few documented field examples that demonstrate how sources of resistance have been addressed or provide sufficient examples to encourage broader engagement in interagency collaboration. This case study is intended to provide an example of a regional all-hazards process that can be duplicated by any authority to initiate robust interagency collaboration among strategic and tactical partners to meet homeland security preparedness needs.

⁵³ Harold L. Sirkin, Preey Keenan, and Alan Jackson, "The Hard Side of Change Management," in *Harvard Business Review on Leading Through Change* (Cambridge, MA: Harvard Business School Publishing Corporation, 2006), 141-166.

⁵⁴ Kotter, "Leading Change," 59.

⁵⁵ Ibid.

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III. RESEARCH METHODOLOGY

A. INTRODUCTION

This research effort focused on three Regional Collaborative Networks that function as a portion of a larger homeland security preparedness system, a preparedness web. These regional collaborative networks were examined to answer the following research questions: (1) How and why were the regional collaborative networks established? (2) What is the collaborative capacity of the preparedness web system? (3) What potential collaborative improvements can be identified with the system?

To answer these questions, both qualitative and quantitative approaches were required. The methodology took two forms: (1) an electronic survey was conducted of the network participants, and (2) personal interviews were conducted with key informants involved in the formation of the networks.

B. THE QUANTITATIVE APPROACH

1. Participants

All of the current participants in the three case-study Regional Collaborative Networks were asked to participate in the quantitative survey process. The networks surveyed included The Consortium of Technical Responders (N=33), the Tactical Commanders Network (N=22), and the Operational Area Counsel (N=12). These networks are comprised of representatives from twenty-four local agencies, three state agencies, and five federal agencies. Interagency representation is shown by network in Chapter One, Subsection C – Background, Tables 2, 3, and 4.

2. Quantitative Measures

Ultimately fifty-four survey items were selected from a database of collaborative capacity questions developed by Hocevar, Thomas, and Jansen (2006) at the Naval

Postgraduate School. The questions were chosen from the following dimensions listed below, each of which is followed by an illustrative question from that dimension:

- **Strategy and Purpose** (My home organization is able to balance our individual organizational goals with cross-agency (regional) requirements.)
- **Structure** ([This network] invests significant time and energy to de-conflict existing policies and processes that impede collaboration.)
- **Lateral Mechanisms** (My home organization works with other agencies to identify lessons learned for improved collaboration.)
- **Incentives and Motivation** ([This network] has experienced successful interagency collaboration in the past.)
- **People and People Processes** (Members in my home organization are willing to share decision-making authority with other organizations when addressing interagency issues.)

Additionally, the questions were selected for (a) applicability to either an agency or network aspect and (b) to include a range of sub-dimensions included in each of the major categories (e.g. under the dimension of Strategy and Purpose were the sub-dimensions of felt need and adaptability, amongst others).

Each of the questions was given a 4-point scale for response (e.g. 1-strongly disagree, 2-disagree, 3-agree, 4-strongly agree) from which the results were evaluated. For the four questions that were negatively worded (e.g. A history of competition and conflict affects [this network's] interagency capability), the results were re-coded to allow direct comparability of results (e.g. a mean of 2.0 for a negatively worded item was re-coded to 3.0). Each re-coded item is identified as such.

Prior to distribution the survey was beta tested by three homeland security professionals in the Sacramento, California region to identify problems of clarity, visual layout, and the organization of questions. This assessment included the respondent taking the online version of the survey and recording the required time and unclear aspects of the tool. As a result of the beta test, these changes were made:

- All “home agency” and “collaborative network” questions were grouped to eliminate changing focus back and forth with each new dimension.

- Survey dimension titles were eliminated as they served no role for the respondents.
- The words “metrics” and “network” were replaced with layman’s terms.

The survey was administered in an electronic format, using the research tool Survey Monkey, between May 8 and June 15, 2007. Sixty-seven participants were asked to answer the questions from two different perspectives; (1) from that of their own home agency, and (2) from the perspective of the Regional Collaborative Network in which they participate. The data generated from the first perspective would characterize the collaborative capacity of the system of organizations that participate in the preparedness web. The data generated from the second perspective would characterize the collaborative capacity of the specific networks. Of the surveys distributed, 70.1% were returned, for a total of forty-nine participants.

3. Quantitative Data Analysis

The data were aggregated and summary statistics generated for the two points of reference described in the section above: (1) home organizations and (2) regional collaborative networks. This was done to focus the evaluation on the system of constituent organizations that participate in the preparedness web and the illustrative set of networks comprising the web. The purpose of the research is not to compare networks, but to present an aggregate description of the preparedness web and the organizations it represents. Trends were examined across and between each of the survey dimensions for the home agencies and the networks to identify their strongest collaborative characteristics and the potential opportunities for improvement. Statistical data was analyzed utilizing Microsoft Excel.

C. THE QUALITATIVE APPROACH

Five interviews were conducted with the persons involved in the formation of two of the Regional Collaborative Networks: the Consortium of Technical Responders (CTR) and the Tactical Commanders Network (TCN). The interviews were conducted for the purpose of ascertaining how and why the networks were developed.

1. Participants

All interview participants were selected as a result of their direct involvement in the networks' initiation processes. Each identified interviewee was then contacted by telephone by the author to request their participation (to which all agreed). A listing of the interview participants by job function and employer is presented in Table 5.

Table 5. Interview Participants by Network.

Consortium of Technical Responders	Home Agency
Battalion Chief – Special Operations	Sacramento Metropolitan Fire District
Battalion Chief – Special Operations	Roseville City Fire Department
Battalion Chief – Former Haz-Mat Coordinator	Sacramento Metropolitan Fire District
Tactical Commanders Network	
Lieutenant-Cmdr. – Regional Terrorism Threat Assessment Center	Sacramento County Sheriff's Office
Captain – Haz - Mat Coordinator	Sacramento Metropolitan Fire District

2. Interview Protocol

The interview protocol was constructed with the goal of gaining a better understanding of how and why the collaborative networks were established. This semi-structured protocol included questions addressing the dimensions of:

- Strategy, Purpose, Leadership, Goals and Values
- Network Structure
- Lateral Mechanisms
- Incentives and Motivation
- People and People Processes

A copy of the interview protocol is provided in Table 6.

Table 6. Protocol for Consortium of Technical Responders and Tactical Commanders Network Interviews.

CTR/TCN INTERVIEWS

[Introduce myself.] All information is non-attributional. Data will be scrubbed, coded, and summarized. We're studying interagency collaboration, hoping to learn more about how interagency efforts begin and develop over time. I understand you are part of the Consortium of Technical Responders/Tactical Commanders Network. The questions I'll ask will help me learn about the initiation and development of the network.

- Describe the current collaborative effort. How is it structured? What is its purpose? Draw a diagram.
DESCRIPTION
- What initiated this collaboration? **PURPOSE AND STRATEGY**
- Who were the key leaders at the start of the effort? **LEADERS**
- In what way did they contribute to the success of the effort? Pose challenges?
- What do you see as the primary outcomes or benefits of this collaboration? **OUTCOMES**
- Are these outcomes measured or documented? If so, how?
- Have the benefits/outcomes changed over the history of the effort.
- Were existing structures (committees, groups) used in the initial effort? Have they been modified?
FORMAL STRUCTURE
- Are there established procedures? Which are most critical to the collaboration? Why and how were they developed? How much adaptation of org policies, procedures, processes have been necessary to achieve IA collaboration?
- How is the interagency network linked to the home organizations? How informed are the home organizations about the workings of the interagency team? How do they stay informed? **LATERAL MECHANISM, LINKAGES**
- What existing relationships were important to the startup of the IA effort? How have relationships been established?
- To what extent did senior leadership support the collaboration? How was it demonstrated? Has it changed over time? How was/is it demonstrated? **INCENTIVES**
- What is the motivation for those who are involved? For those who are not leaders, what are their motivations? **MOTIVATION**
- What are the key skills or characteristics necessary for those working in the collaboration? How are they developed? How have these changed over time? How do you select people for roles in the TACN? Is rank or position a consideration? **PEOPLE AND PEOPLE PROCESSES**
- How well do members of your organization understand the capabilities and requirements of the other organizations in the network? How has this understanding been developed? **KNOWLEDGE OF OTHER ORGANIZATIONS (LATERAL MECHANISMS)**

3. Interview Process

All of the interviews were conducted by Dr. Gail Thomas of the Naval Postgraduate School on June 11, 2007. This third-party interviewer was used to maintain objectivity as the author of this thesis was also an interviewee. Each interview lasted approximately one hour. Two interviews were conducted at Roseville Fire Station #1 (Roseville, CA) and three interviews were conducted at the Sacramento Regional Office of Homeland Security (McClellan, CA). The variation of locations was based on the availability for response (on-duty) requirements of the participants. All interviews were digitally recorded.

4. Qualitative Data Analysis

After the interviews were completed, each of the recordings was transcribed. Following transcription, each interview was hand coded. Given the research questions, three themes were pre-identified in the coding sequence: (1) how the networks were established, (2) why the networks were established, and (3) recommendations for other agencies considering a similar effort. The coded interviews were then compared to the others within their respective Regional Collaborative Network for thematic trends. At this time other themes emerged from the data including: (4) inhibitors encountered, (5) history of collaboration in the region, and (6) successes since implementation. Finally, the summaries of the thematic analysis for the two Regional Collaborative Networks were evaluated against each other to identify systemic trends regarding the development of these networks.

IV. QUANTITATIVE RESULTS

A. INTRODUCTION

This chapter examines the quantitative results of the analysis of the survey data. The chapter is broken into three sections: (1) a summary of the collaborative capacity assessment of the “Home Organizations,” (2) a summary of the collaborative capacity of the three regional collaborative networks combined, and (3) a side-by-side comparison of the nineteen identical survey items asked of the respondents about both their home organizations and their respective networks. The first two sections will begin with an overview of the survey findings and then report by dimension (Strategy and Purpose, Structure, Lateral Mechanisms, Incentives, and People and People Processes). For each dimension, collaborative capacity strengths are reported and opportunities for improvement are identified.

The following criteria were used to evaluate the mean ratings for each survey question:

- The weakest characteristics – mean ≤ 2.5
- Moderate characteristics – mean = 2.6 to 3.1
- Strongest characteristics – mean ≥ 3.2

In the tables below the mean and standard deviation is listed for each individual survey item and the items are organized by dimension.

1. Overall Home Organization Findings

The home organizations are a critical starting point in the evaluation of the overall regional system; as the capacity of groups depends on the capacity of its individuals, so do the capacities of interagency partnerships depend on the collaborative capacity of each individual organization.⁵⁶

⁵⁶ Hocevar et al., “Building Collaborative Capacity,” 75.

An overall list of questions with associated means and standard deviations for the respondents' home organizations is provided in Appendix C. A detailed discussion of findings, broken down by survey dimensions, follows this section.

The survey respondents reported that their constituent organizations possess, by and large, a relatively moderate collaborative capacity. Overall, 11% of the characteristics measured were reported as weak, 64% were reported as moderate, and 25% were reported as strong.

The strongest characteristics (mean ≥ 3.2) across dimensions of the home organizations are shown in Table 7. Interestingly, they come from every dimension except Structure. In evaluating the individual items listed in this table, a theme emerges of a desire to reach outside of the organization to meet their requisite needs. This theme is supported by: (a) considerations of the interests and goals of other agencies in the region, (b) strong information sharing, and (c) a history of successful collaboration fostering respect for others and supported by agency leadership.

Table 7. Strongest Characteristics of Case Study Home Organizations.

Strategy & Purpose	
My home organization considers the interests of other agencies in our planning.*	3.2 (0.5)
My home organization is willing to address cross-agency goals.*	3.4 (0.6)
Inter-agency collaboration is a high priority for my home organization.*	3.3 (0.7)
Lateral Mechanisms	
My home organization provides other agencies adequate access to information we have that is relevant to their work.*	3.2 (0.6)
People in my home organization actively engage in exchanges with counterparts in other organizations.*	3.3 (0.6)
Incentives - Motivation and Leadership	
My home organization has experienced successful inter-agency collaboration in the past.*	3.3 (0.5)
To what extent does leadership support collaboration in your home organization? **	3.2 (0.9)
People and People Processes	
Members in my home organization respect the expertise of those in other organizations with whom we have to work.*	3.3 (0.4)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Rarely to 4-Almost Always

The weakest characteristics (mean ≤ 2.5) across dimensions of the home organizations are shown in Table 8. Two of the items listed – a lack of measurement criteria in place to identify organizational-level benefits of collaboration and a lack of training in place to develop collaborative skills – understandably may not have been immediate priorities within the home organizations upon the initiation of collaborative efforts. This being said, for a region with such a long history of collaborative efforts the lack of these characteristics is notable. The third item, collaborative activities being added on top of regular workload, leaves the possibility of personnel “burn out” due to the collateral duties. Also, and just as importantly, this item leaves a possibility of putting aside the collateral collaborative duties when faced with an overwhelming amount of “regular” duties (for example, in a time of crisis).

Table 8. Weakest Characteristics of Case Study Home Organizations.

Structure	
My home organization has measurement criteria in place that evaluate the organizational level benefits of collaboration.*	2.3 (0.7)
Incentives	
In my home organization, collaborative activities and responsibilities are added on top of our regular work load. *	1.8** (0.6)
People and People Processes	
My home organization has training in place to develop collaborative skills (e.g., conflict management, team process skills). *	2.3 (0.7)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** Recoded value to allow direct comparability

2. Home Organization Findings by Dimension

The following discussion presents major findings of the survey questions regarding the collaborative capacity of “home organizations.” Results are organized according to the dimensions of collaborative capacity as identified by Hocevar, Thomas and Jansen. Each section presents the existing strengths and opportunities for improvement. The percentages for collaboration characteristic classifications (e.g. weak, moderate, or strong) are provided with each table by dimension.

a. Strategy and Purpose

In the dimension of Strategy and Purpose, the survey results show 60% of the characteristics as strong in the following sub-dimensions: the region’s adaptability to the interests of other organizations; the willingness to address regional goals; and the felt need for collaboration. The remaining 40% of items were rated as moderate, including the willingness to commit resources to the collaborative effort and an ability to balance individual agency needs with regional concerns. Consideration should be given to including these last two items in areas for potential improvement, but more research may be needed to definitively make that decision. Overall, the data indicates a positive response by respondents regarding their home organizations’ efforts in these areas, with all mean ≥ 3.0 as depicted in Table 9.

Table 9. Strategy and Purpose / Home Agency.

Weak - 0% / Moderate – 40% / Strong – 60%	
My home organization considers the interests of other agencies in our planning.*	3.2 (0.5)
My home organization is willing to address cross-agency goals.*	3.4 (0.6)
Inter-agency collaboration is a high priority for my home organization.*	3.3 (0.7)
My home organization is willing to invest resources to accomplish cross-agency goals.*	3.1 (0.7)
My home organization is able to balance our individual organizational goals with cross agency (regional) requirements.*	3.0 (0.7)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

b. Structure

In the dimension of Structure, 75% of the sub-dimensions were rated as moderate, including (a) flexibility and adaptability, (b) de-conflicting policies and procedures, and (c) formalization of roles and responsibilities. Within this dimension, the remaining 25% were rated as weak capabilities under a sub-dimension of formal controls (as represented by measurement criteria for evaluating the benefits of collaboration). This

last item presents a significant opportunity for improvement. Without understanding the organizational-level benefits of collaboration, it is possible that the home organizations could withdraw support for beneficial programs.

Table 10. Structure / Home Agency.

Weak - 25% / Moderate – 75% / Strong –0%	
My home organization is willing to adapt procedures to meet the requirements of other organizations with which we do inter-agency work. *	3.1 (0.6)
My home organization invests significant time and energy to de-conflict existing policies and processes that impede collaboration. *	2.9 (0.7)
My home organization has developed an understanding of our interagency roles and responsibilities.*	3.0 (0.6)
My home organization has measurement criteria in place that evaluate the organizational level benefits of collaboration.*	2.3 (0.7)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

c. Lateral Mechanisms

In the dimension of Lateral Mechanisms, a trend materializes in evaluation of the highest and lowest mean ratings of the eleven items surveyed. The highest rated items (all with a mean ≥ 3.1) focused on the willingness and ability to share information. The lowest rated items (all with a mean ≤ 2.7) focused on the willingness to commit financial resources to meet this end. This may suggest that the agencies' support of collaborative efforts could possibly wane or cease to exist if the costs were to escalate. That being said, the overall returns of the dimension were still quite positive, as indicated in Table 11. Further research would be needed to definitively identify opportunities for system improvement.

Table 11. Lateral Mechanisms / Home Agency.

Weak - 0% / Moderate – 82% / Strong –18%	
My home organization supports the decisions and recommendations of the inter-agency team. *	3.0 (0.6)
My home organization commits adequate human and financial resources to training with our inter-agency partners. *	2.7 (0.8)
My home organization gives members of the inter-agency team adequate authority to speak on behalf of the organization. *	3.0 (0.6)
My home organization has strong norms that encourage sharing information with other agencies. *	3.1 (0.6)
My home organization invests time and resources to become familiar with the capabilities and requirements of our partner organizations. *	2.7 (0.6)
My home organization is flexible in adapting our procedures to better fit with those of partner organizations. *	2.8 (0.6)
My home organization provides other agencies adequate access to information we have that is relevant to their work.*	3.2 (0.6)
My home organization works with other agencies to identify lessons learned for improved collaboration.*	3.0 (0.6)
My home organization makes necessary investments in the infrastructure for collaboration.*	2.7 (0.7)
People in my home organization actively engage in exchanges with counterparts in other organizations. *	3.3 (0.6)
My home organization has the technical interoperability to enable effective inter-agency collaboration. *	3.1 (0.7)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

d. Incentives

A relatively positive reflection of the incentives dimension is demonstrated by only one (17%) of the items being rated as weak, 50% of the sub-dimensions being rated as moderate, and the remaining 33% being rated as strong (see Table 12). Interestingly, the history and support indicated for these efforts has not changed the fact that collaborative efforts are still seen as being “above and beyond” the respondent’s normal workload rather than institutionalized into that workload. This characteristic presents a significant opportunity for system improvement to mitigate the potential for individual “burn out” or the possibility of respondent commitment to the process fluctuating with the demands of the “regular” workload.

Table 12 . Incentives / Home Agency.

Weak - 17% / Moderate – 50% / Strong –33%	
A history of competition and conflict affects my home organization's interagency capability.*	2.7*** (0.7)
My home organization has experienced successful interagency collaboration in the past.*	3.3 (0.5)
In my home organization, collaborative activities and responsibilities are added on top of our regular work load. *	1.8*** (0.6)
To what extent does leadership support collaboration in your home organization? **	3.2 (0.9)
My home organization saves on costs of technology and equipment by collaborating with other agencies. *	2.7 (0.9)
A significant motivation for my home organizations involvement in interagency collaboration is the opportunity for outside funding. *	2.7 (0.8)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Almost Never to 4-Almost Always

*** Recoded value to allow direct comparability

e. People and People Processes

Several enablers in the area of people and people processes are identified in the assessment of the home organizations' collaborative capacity. The items with moderate or strong means included (a) knowledge of other agencies' capabilities, (b) communication, (c) inter-agency trust and respect, and (d) conflict management. Further research should examine conflict management for a potential opportunity for improvement. One clearly identified opportunity for system improvement was the fairly low rating (mean = 2.3) as to the availability of collaborative skill development training.

Table 13. People and People Processes / Home Agency.

Weak - 14% / Moderate – 71% / Strong –14%**	
Members of my home organization are aware of the capabilities of other organizations with which we work. *	2.9 (0.6)
People in my home organization are unwilling to share information with others. *	3.1*** (0.6)
Members in my home organization are willing to share decision making authority with other organizations when addressing interagency issues.*	2.9 (0.6)
Members in my home organization respect the expertise of those in other organizations with whom we have to work.*	3.3 (0.4)
My home organization manages conflict well. *	2.7 (0.7)
My home organization has training in place to develop collaborative skills (e.g., conflict management, team process skills). *	2.3 (0.7)
People in my home organization tend to be suspicious and distrustful of our counterparts in other organizations.*	2.8*** (0.6)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** Does not equate to 100% due to rounding.

*** Recoded value to allow direct comparability

3. Overall Regional Collaborative Network Findings

The respondents' view of collaborative capacity within their home organizations was greatly surpassed by their estimation of their respective networks' collaborative capacity. Overall, only 3% of the collaboration characteristics measured were reported as weak, 38% were reported as moderate, and 59% were reported as strong. There are two possible explanations for these relatively high ratings: (1) as collaboration is the purpose of these networks they do in fact have a high collaborative capacity (while collaboration is only one aspect of the work of the home organizations) or (2) the survey instrument is not currently sensitive enough to pick up on limitations in the collaborative capacity of participating networks. Only one item showed a weak score with a mean = 2.5, but when coupled with the weak scores reported from the home organizations, it is assumed that the survey instrument is in fact sensitive enough to differentiate the data. Additional research efforts utilizing this tool will be needed to validate that contention.

An overall list of questions with associated means and standard deviations for the respondent's networks is provided in Appendix D. Following this section a detailed discussion of findings, broken down by survey dimension, is provided.

The strongest features (mean ≥ 3.2) across dimensions for all regional collaborative networks are shown in Table 14. Interestingly, as with the results of the home organization data, the strongest characteristics come from every dimension other than Structure. These strongest characteristics included: information sharing, adaptability, a history of collaboration, felt need, shared vision, interagency capability awareness, conflict management, and an increased trust in and respect for interagency partners.

Table 14. System Strengths Across Regional Collaborative Networks.

Strategy & Purpose	
Interagency collaboration is a high priority for [this network].*	3.5 (0.7)
[This networks] participants are able to balance individual organizational goals with cross-agency (regional) requirements.**	3.2 (0.8)
[This network] has contributed to the creation of a shared vision for interagency collaboration on a regional basis. *	3.3 (0.5)
Lateral Mechanisms	
[This network] has strong norms that encourage sharing information with other agencies. *	3.4 (0.5)
[This network] is flexible in adapting our procedures to better fit with those of partner organizations.*	3.2 (0.5)
[This network] has adequate access to needed information from other agencies. *	3.2 (0.6)
[This network] works with other agencies to identify lessons learned for improved collaboration. *	3.3 (0.5)
People in [this network] actively engage in exchanges with counterparts in other organizations. *	3.4 (0.5)
Incentives - Motivation and Leadership	
[This network] has experienced successful interagency collaboration in the past.*	3.4 (0.5)
People and People Processes	
Members of [this network] are aware of the capabilities of other organizations with which we work.*	3.2 (0.5)
People in [this network] are unwilling to share information with others.*	3.2*** (0.8)
Members in [this network] respect the expertise of those in other organizations with whom we have to work. *	3.3 (0.6)
Members in [this network] manage conflict well.*	3.2 (0.6)
People in [this network] tend to be suspicious and distrustful of our counterparts in other organizations. *	3.2*** (0.6)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Rarely to 4-Almost Always

*** Recoded value to allow direct comparability

There was only one item with a mean rated as “weak” (relative mean ≤ 2.5) across all dimensions of the regional collaborative networks (see Table 15). The item listed – a lack of training in place to develop collaborative skills – understandably may not have been at the top of the “to do” list upon network initiation, but it will affect the longevity of the network process.

Table 15. Weakest Characteristics of Case Study Regional Collaborative Networks.

People and People Processes	
[This network] has training in place to develop collaborative skills (e.g., conflict management, team process skills). *	2.5 (0.5)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

4. Regional Collaborative Network Findings by Dimension

The following discussion presents major findings of survey questions regarding the collaborative capacity across the regional collaborative networks. Results are organized according to the dimensions of collaborative capacity (e.g. Strategy and Purpose, Structure, Lateral Mechanisms, Incentives, People and People Processes). Each section presents the existing strengths and opportunities for improvement. The percentages for collaboration characteristic classifications (e.g. weak (mean ≤ 2.5), moderate (mean = 2.6 to 3.1), or strong (mean ≥ 3.2)) are provided with each table by dimension.

a. Strategy and Purpose

The strongest collaboration enablers of the Strategy and Purpose dimension lie in the sub-dimensions of (a) felt need and (b) a shared vision of meeting regional needs (see Table 16). It is puzzling that the characteristic of goal clarity received a moderate rating, as it seems that clear goals would be a necessary part of establishing these networks. Goal clarification, if needed, could perhaps facilitate important advances in the existing networked system.

Table 16. Strategy and Purpose / Regional Collaborative Networks.

Weak - 0% / Moderate – 25% / Strong –75%	
Interagency collaboration is a high priority for [this network].*	3.5 (0.7)
[This networks] participants are able to balance individual organizational goals with cross agency (regional) requirements.**	3.2 (0.8)
[This network] has clearly established goals for interagency collaboration.*	2.9 (0.7)

[This network] has contributed to the creation of a shared vision for interagency collaboration on a regional basis.*	3.3 (0.5)
-----------------------------------------------------------------------------------------------------------------------	--------------

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Rarely to 4-Almost Always

b. Structure

In the dimension of Structure, moderately strong capabilities were reported for the sub-dimensions of (a) flexibility and adaptability, (b) de-conflicting policies and procedures, and (c) role clarity/formalization. The moderately high scores reflected in Table 17 do not necessarily mean there is no possible room for improvement in this dimension of the regional collaborative network system; with all “moderate” ratings, all of these aspects of collaboration could be examined for ways to improve effectiveness.

Table 17. Structure / Regional Collaborative Networks.

Weak - 0% / Moderate – 100% / Strong –0%	
[This network] is willing to adapt procedures to meet the requirements of other organizations with which we do interagency work.*	3.1 (0.4)
[This network] invests significant time and energy to de-conflict existing policies and processes that impede collaboration. *	3.1 (0.6)
[This network] has developed an understanding of our interagency roles and responsibilities. *	3.1 (0.5)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

c. Lateral Mechanisms

All of the results in the dimension of Lateral Mechanisms were consistently high (≥ 3.2) as well (Table 18). This speaks well of the sub-dimensions covered, including (a) culture of collaboration, (b) flexibility and adaptability, (c) information sharing, (d) social capital, and (e) sharing lessons learned in the regional collaborative networks. Once again, further research would be needed to identify opportunities for improvement, as none were immediately identifiable.

Table 18. Lateral Mechanisms / Regional Collaborative Networks.

Weak - 0% / Moderate – 0% / Strong –100%	
[This network] has strong norms that encourage sharing information with other agencies.*	3.4 (0.5)
[This network] is flexible in adapting our procedures to better fit with those of partner organizations.*	3.2 (0.5)
[This network] has adequate access to needed information from other agencies. *	3.2 (0.6)
[This network] works with other agencies to identify lessons learned for improved collaboration.*	3.3 (0.5)
People in [this network] actively engage in exchanges with counterparts in other organizations. *	3.4 (0.5)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

d. Incentives

The results from the dimension of incentives were also strongly indicative of a high collaborative capacity, as depicted in Table 19. The sub-dimensions of (a) history of competition and (b) history of experience were examined and found to be strengths. Further research examining other aspects of incentives would be needed to definitively identify opportunities for improvements in this system.

Table 19. Incentives / Regional Collaborative Networks.

Weak - 0% / Moderate – 50% / Strong –50%	
	2.0 3.0** (0.7)
A history of competition and conflict affects [this network] inter-agency capability.*	
[This network] has experienced successful inter-agency collaboration in the past. *	3.4 (0.5)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** Re-coded value to allow direct comparability

e. People and People Processes

As depicted in Table 20, five of the seven items were reported to be strengths of the regional collaborative network system, including the sub-dimensions of (a) appreciation of what other organizations bring to the shared problem; (b) adequacy of information sharing; (c) respect for other parties’ interests, expertise, roles, and

perspectives; (d) conflict management skills; and (e) trust. An identified area for improvement in the regional collaborative network process includes the implementation of increased training opportunities to develop collaborative skills with the goal of increasing the robustness and longevity of the system.

Table 20. People and People Processes / Regional Collaborative Networks.

Weak - 14% / Moderate – 14% / Strong –71%**	
Members of [this network] are aware of the capabilities of other organizations with which we work. *	3.2 (0.5)
People in [this network] are unwilling to share information with others.*	1.8 3.2*** (0.8)
Members in [this network] are willing to share decision making authority with other organizations when addressing interagency issues. *	3.0 (0.5)
Members in [this network] respect the expertise of those in other organizations with whom we have to work. *	3.3 (0.6)
Members in [this network] manage conflict well. *	3.2 (0.6)
[This network] has training in place to develop collaborative skills (e.g., conflict management, team process skills). *	2.5 (0.5)
People in [this network] tend to be suspicious and distrustful of our counterparts in other organizations. *	1.8 3.2*** (0.6)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** Does not equate to 100% due to rounding.

*** Re-coded value to allow direct comparability

5. Comparison between Home Organization and Regional Collaborative Networks on Identical Survey Items

There were nineteen identical survey questions asked of both reference groups, the respondent's home organization and their respective regional collaborative network. It is noteworthy that mean scores averaged 0.2 higher in favor of the collaborative capacity of the regional collaborative networks. While this difference is small, when differences appeared, they were consistently in favor of the networks. This may be explained by the fact that the home organizations are not solely focused on collaboration and collaboration is the primary function of the regional collaborative networks. Given this distinction, the result may not necessarily be surprising, but the trend nonetheless

speaks to the collaborative functionality of the network system. A complete listing of the questions, their mean scores, and standard deviations are provided in Appendix E.

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V. QUALITATIVE RESULTS

A. INTRODUCTION

This chapter answers the research question: “How and why were the Regional Collaborative Networks developed?” based on a thematic analysis of interviews with five of the people who initiated the Tactical Commanders Network (TCN) and the Consortium of Technical Responders (CTR). The TCN is a multidisciplinary group focused on preparedness for and consequence management of the traditional weapons of terrorism: guns and bombs. The CTR is a multidisciplinary and multi-governance-level group focused upon preparedness for and consequence management of Chemical, Biological, Radioactive, Nuclear, and Explosive (CBRNE) incidents. Because the CTR and the TCN developed in a similar fashion, the analyses are integrated.

B. NETWORK DEVELOPMENTAL FRAMEWORK

The following framework (see Table 21) provides an overall thematic reflection on how and why the two networks came into being. Following each milestone is a brief narrative. In the second column a reference is provided linking the milestone to the sub-dimensions of collaboration from the model of collaborative capacity developed by Hocevar, Thomas, and Jansen.⁵⁷ Following the overall framework is a more detailed examination of each item organized by perspective: (1) Phases of the Networks’ development, (2) Motivation for the development of the Networks, and (3) Outcomes from the Networks.

⁵⁷ Hocevar et al., “Building Collaborative Capacity.”

Table 21. Network Developmental Framework.

Parallel From Collaborative Capacity Model

Phases of the Networks' Development	
Change Agents: Both networks were initiated by first responder division (mid-level) managers.	<ul style="list-style-type: none"> • Stakeholders • Purpose
Leadership: Permission was given, without specific direction, by visionary leaders in the regions fire services and law enforcement to pursue a new methodology to address needs. A history of collaboration in the region played a role in that decision process.	<ul style="list-style-type: none"> • Leadership Support • Values • History – experience • Power Sharing • Culture
Network Construction: Both networks were modeled after existing programs. Coincidentally both came from programs that originated in the Los Angeles, CA region. Personal relationships played a key role in the establishment of the networks. Formal meeting criteria established.	<ul style="list-style-type: none"> • Social Capital • Network Ties • Trust • Formal Meetings
Participant Selection: Network participants were selected for their particular disciplinary specialty providing they were powerful enough to speak for their agency.	<ul style="list-style-type: none"> • Formal Authority • Skills Competency • Communication
Mission Clarification: Interagency mission based on local standardized risk assessments allowing efficient vulnerability management and coordinated planning. These were sold to participants via differing methodologies but with same buy in.	<ul style="list-style-type: none"> • Shared Vision • Planning • Information Sharing • Role Clarity
Overcome Resistance: Political resistance encountered tied to “traditional” thoughts of participants. Financial resistance encountered with competing grant funding and annual budgets. Process stabilization issues encountered without organizational mandates for network participation.	<ul style="list-style-type: none"> • Resources – Budget • Flexibility / Adaptability • Combined Training • Problem Solving
Successes Replicated: Incremental network successes were replicated including the development of regional policies, highlighting increased incident efficiencies, identifying lessons learned, preparedness gaps identified and closed, and continued fostering of relationships.	<ul style="list-style-type: none"> • History- success • De-confliction • Formal Procedures • Increased Familiarity of Interagency Capability
Motivation for the Development of the Networks	
Felt Need: Network initiators recognized a need for increased collaboration at the strategic and tactical level. A desire to break from “settling complex interdisciplinary issues in the street at 2 am”.	<ul style="list-style-type: none"> • Felt Need • Goals-Divergent • Problem-consensus
Change in Mission Scope: Post 9/11 the increased attention to the threat of terrorism affected the entire spectrum of the response community.	<ul style="list-style-type: none"> • Familiarity w/ other organizations • Role Clarity
Increasing Public Sector Accountability: Field commanders felt increasing accountability in many forms and from many sources.	<ul style="list-style-type: none"> • Felt Need • Goal / Outcome
Outcomes from the Networks	
Development of Regional Policies: This issue took two forms; 1) the development of regional policies and 2) the de-confliction of individual agency policies.	<ul style="list-style-type: none"> • De-confliction • Shared Vision
Relationships: Cited as how work gets done, the relationships fostered have had a direct effect on effectiveness and efficiency.	<ul style="list-style-type: none"> • Social Capital • Trust
Bottom Up Preparedness: This foundational approach utilizes local risk assessments to identify and meet regional needs.	<ul style="list-style-type: none"> • Problem Consensus • Appreciate what other orgs bring to problem

C. PHASES OF HOW THE NETWORKS DEVELOPED

1. **Change Agents** – The initiation of both of the networks was accomplished by mid-level change agents. These individuals included the field leadership of various specialized tactical units from the fire and law enforcement services.

Interpretation: The respondents did not wait for top-down direction to identify a process to remedy their identified need. These individuals relayed a sense of empowerment to initiate an organizational change that would reduce their agencies' literal and figurative liability from the consequences of homeland security issues as each of them oversaw a specialized unit that would be called upon in any significant regional event.

2. **Leadership** – A strong inter-agency partnership existed between the County Sheriff and one local Fire Chief. Soon this leadership had the commitment of two of the other major players in the region, the City Police Department and the City Fire Department. The combined group's visionary leadership led to political and financial commitments to meet the locally identified needs faced by the region.

So the political side was being taken care of, [these leaders] were very strong partners; they believed in it and committed to it. What that did was, even though we didn't have formal procedures, give us complete support and we could speak on behalf of agencies and commit money and resources. – Co-founder, TCN

Interpretation: The respondents indicated they were given a means or “permission” for these collaborative efforts to proceed without specific direction on how to accomplish the ends. An incontrovertible element in these leaders' decisions was the history of collaborative efforts throughout the region (e.g., each of the leaders sat on the Operational Area Counsel, a regional collaborative network in operation for over sixty years).

3. **Network construction** – Both the CTR and the TCN were modeled after existing programs. The Tactical Commanders Network was modeled after the Terrorism Early Warning Group, while the Consortium of Technical Responders was modeled after a similar group of the same name.

Even the largest agencies didn't have the capabilities or the capacity to deal with these types of issues. When the groups were formed the idea was to bring these partners together to advance and discuss the state of situational awareness, and not so much operational. We did an assessment, a real assessment, and then it truly became a consequence management piece. – Co-founder, TCN

We talked to Jonathan Hall, who developed the CTR in Los Angeles, and he arranged for us to attend one of his meetings to see what it was about. We flew down attended the meeting and pretty much took a blueprint home with us of how we were going to do it. – Co-founder, CTR

Interpretation: The network structure utilized never seemed to be in question; perhaps as a result of other functioning collaborative networks in the region. While the structure of the Tactical Commanders Network was initially patterned after the Terrorism Early Warning Group, its focus changed from situational awareness to consequence management in an effort to meet the locally identified regional needs. Both groups relied heavily upon relationships for the initiation efforts – internally with the groups comprising the networks and externally looking to existing systems in other regions. Formalized meeting criteria were established, including the use of structured agendas and formalized facilitation to strengthen system information exchange.

4. Participant Selection – Network participant selection went far beyond traditional first responders to encompass a multi-disciplinary/multi-governance-level cross section that is representative of complex homeland security incident management.

For example if someone sends a white powder in the mail it's not just a hazardous materials incident involving county environmental and the fire department; Public Health has to eventually receive that sample while local law enforcement maintains incident command. Additionally the U.S. Postal Inspection Service has a mandate to investigate and prosecute in concert with the Federal Bureau of Investigation. –Co-founder, CTR

Interpretation: According to the respondents, participant selection – in risk assessment fashion – is based upon those disciplines that are likely to be drawn upon in any given homeland security incident. While some members are specifically sought out,

all interested parties are welcome and participant selection is never exclusionary. Rank is not necessarily a consideration in participant selection, but the ability of that individual to speak for his or her agency is paramount.

5. Mission Clarification – The increased recognition of interagency interdependence dictated that requisite mission scope be clarified. The following quote indicates how an issue of mission clarification was resolved.

The fire department gets into places that cops don't necessarily, so I'm just looking at them to report suspicious odd things that they happen to see. Using them as proactive collectors of data is a role contrary to what fire has always done; it's easy for a cop to do that, but much more problematic with fire because it's not a role they normally do. They are invited into people's houses cops are not, so we try to keep the distinction there for their own sake because problems could arise if you're not careful with that. – Co-founder, TCN

Interpretation: The respondents indicated that mission clarity is seen as necessary for increasing effective information exchange while reducing potential liability and duplication of efforts. Furthermore, mission clarification provided an opportunity to identify gaps that existed on the periphery of each of the disciplines' preparedness efforts (e.g. law enforcement borrowing the fire department's self-contained breathing apparatus or HAZMAT teams borrowing bullet-proof vests to meet a particular mission objective). It was reported that, prior to the collaborative efforts, as these disciplines came together under a shared vision to meet a need their integration was not always seamless.

6. Overcome Resistance – Upon initiation of the collaborative networks, resistance surfaced on a number of fronts. Political resistance was encountered as network participants fought to maintain their traditional modus operandi. Financial resistance surfaced as network participants were occasionally in direct competition for budget allocations and potential grant funding. Finally, without organizational mandates for network participation, longevity and stability issues surfaced.

There was a spirit of cooperation for the intent to communicate but not necessarily a consensus on direction. The cooperation was to be at the table in the discussion into the dialogue, but there were some friendly

debates back and forth about a particular call or a particular policy that was still in development. –Co-founder, CTR

Those snags happen and so what you do is you look at it and instead of it being a barrier that's going to stop you, you find a way around it. You build that into your planning. Instead of fighting to change something you're not going to change, you workaround it. You have got to be flexible enough to do that. – Co-founder, TCN

Interpretation: It was repeatedly indicated that flexibility and adaptability are key components to the collaboration effort. A goal of having everything standardized was reportedly not viewed as realistic; the realistic goal was finding a way to make policies, procedures and equipment interoperable. Leadership and communication skills were cited as invaluable in this arena as eventually someone will feel that their agency has come out on the losing end of an issue.

7. Successes Replicated – Incremental network successes were replicated, including the development of regional policies, emphasis on increased incident efficiencies, identification of lessons learned, preparedness gaps being identified and closed, and the continued fostering of relationships. The following quote is an example of a real life lesson learned:

A few months ago Agency X went to an incident at an agricultural processing facility involving a water-reactive fumigant, so they gave us a presentation at the network meeting. A month later we responded to the railroad where some of our guys were exposed to that same water-reactive fumigant. As a result of the network meeting [our personnel] were better able to protect themselves. –Co-founder, CTR.

Interpretation: The replication and relay of successes was viewed as necessary to institutionalize the organizational change process. As more successes were realized and broadcast, more people recognized the value of the collaborative effort. In an example of this trend, both networks positively reported monthly discussions about incidents of significance.

D. MOTIVATION FOR THE DEVELOPMENT OF THE NETWORKS

1. **Felt Need** – Post 9/11 the first-responder community acknowledged that the autonomy commonly practiced by various agencies was no longer an acceptable business practice in the region. Individual departments such as fire and law enforcement realized the interdependent nature of the problems they faced.

When overwhelming numbers of anthrax scares started going around the United States, our Special Operations Division sought out a way to effectively deal with these. There were some cutting-edge technologies out there but it wasn't being widely accepted. For example, we actively sought out the technology to look at a white power under a microscope. Our health department said absolutely not, you guys are not microbiologists. So we reached out to them and said what we want to do is look at these images and then send them to you to make the decision. Then the FBI was saying we're not going to do that, we're going to take them straight to the labs and we don't care about your issues with decontamination and whether or not you're closing down businesses. It became clear right away that we had to collaborate with our partners and come to consensus in order for this to work because us doing on our own just wasn't going to happen. – Co-founder, CTR

Interpretation: The data indicates that the networks were set up to mitigate a fear of consequences brought on by strategic and tactical dissatisfactions as experienced by the change agents. Examples of these dissatisfactions were procedural conflicts noticed with the exponential increase in the volume of homeland security incidents; a portion of the incidents were attributed to increased vigilance while many others were the direct result of anthrax incident copy-cats. Ultimately, problem consensus made the vision of collaboration retrospectively clear in a post 9/11 environment.

2. **Change in Mission Scope** – Post 9/11, issues surfaced that had not been widely supported prior to the event. These included (but were not limited to) issues raised by the *National Preparedness Goal* and its subsequent *Target Capabilities List*, the *Interim Critical Infrastructure Protection Plan*, the *National Incident Management System* and the *National Response Plan*. The following quote indicates how 9/11 changed the environmental perceptions of what was important.

Those same folks [Al Qaeda] were here doing those same things prior to 9/11. As a matter of fact, some of the main players you know with Al Qaeda actually traveled up and down the central valley [CA] in fundraising prior to 9/11. It is just that no one looked at them as a threat at that point. – Co-founder, TCN

Interpretation: The respondents indicated that the region's mission grew exponentially following 9/11 and few administrators questioned the broadened mission scope. None of these sweeping changes would have been possible without a large infusion of federal grant dollars that not only bolstered existing capabilities but funded new ones. Expanded missions included adding a new Intelligence Fusion Center, having Hazardous Material Response Teams field test for biological agents, and the purchase of self-contained breathing apparatus with training, for law enforcement. When homeland security was declared to be an all-hazard undertaking the mission scope of all public safety agencies was, literally, redefined.

3. Increasing Public Sector Accountability – This recurring theme took many forms, including increased financial accountability to the public and government regulators, increased attention from the media, and increased personal liability for the field commanders themselves.

Public officials and other operational officers are being held accountable now in ways that they weren't before. – Co-founder, TCN

You know everybody is armchair quarterbacking on how you are doing it. The media is there judging you all the time. Governmental agencies across the board are being held more accountable. Incident commanders are being taken on criminally. – Co-founder, CTR

Interpretation: This issue became a motivating factor in the development of the networks as responders recognized improved information availability and exchange as a precursor to increased incident effectiveness and efficiency. For example, as early white powder incidents were overloading the response system nationwide, the protocol solution allowed responders to drive out, pick the powder samples up, and deliver them to the lab. This, however, flew in the face of Occupational Safety and Health Administration

(OSHA) regulations. A new protocol was developed and brought forth for regional adoption in an attempt to meet the needs of all involved.

E. OUTCOMES FROM THE NETWORKS

1. Development of Regional Policies – Given the autonomous nature of public safety organizations in a pre-9/11 environment, it was no surprise that policies and procedures did not align across or between disciplines.

I think it is unprecedented in my twenty years of experience of being able to sit at the table with an FBI agent and say “What you are doing is not meeting my needs as a customer,” or vice versa. – Co-founder, CTR

Discussing radiation response protocols for first responders, we've effectively changed the seven counties surrounding Sacramento and their EMS protocols addressing radiation. When Placer County first changed their protocols they weren't that excited about it. We kind of put the technical light and educated them as to the ramifications of acting against this greater body of knowledge. – Co-founder, CTR

Interpretation: Incongruent inter- and intra-disciplinary policies were cited repeatedly throughout the interviews. One barrier to collaboration was ignorance of interagency capabilities. An oft-cited solution included a migration toward regional policies with the acknowledgement that individual agency policies had their place, providing they were de-conflicted across departments. One enabler used to begin the de-confliction process is indicated in the quote above: the idea that each agency is a customer of every other agency in the network. While this initial mindset is one of coordinating and cooperating, early successes have led to examples of true regional policy collaboration. In a recent case in point, a radiation response policy that was adopted locally has had a trickle *up* effect as the regional Emergency Medical Services Authority (EMSA) has now adopted the same policy, implementing it across a seven county area. The EMSA policy adoption was a direct result of the Consortium of Technical Responders credibility, where a greater body of knowledge aided the region in better decision making.

2. Relationships – The softer and more complex side of why the regional collaborative networks were developed has to do with how the constituent agencies actually interact. Replete throughout the data are indications that policies, mandates, and goals may provide direction, but interpersonal relationships are how things get done.

Personal relationships were really important because when we had a disagreement we stuck in and worked it out. – Co-founder, TCN

One of the things we noticed was that relationships were built independent of badge, uniform or branch of service. Federal, State or Local, all were there at the same table with the same collaborative mission of bettering their response. – Co-founder, CTR

Interpretation: Relationship building takes significant effort at a regional level across disciplines. However given the fact that these relationships are also fostered across all levels of governance and additionally include non traditional preparedness partners (e.g., university researchers) the task becomes exponentially more complex. Cited benefits of the fostered relationships included increased trust, social capital and better decisions made in a timelier fashion. These foundational enablers then transcended all other issues, including highly political ones like financial (grant) resource allocation, incident management efficiencies, and even power sharing.

3. Bottom Up Preparedness – There was early recognition in the case study region that national preparedness could only come from the bottom up. Local preparedness for the everyday event was viewed as the foundation that everything else was built upon.

This is an example of how these guys can work together and there is a lot of information. Not just on...terrorists and stuff, but day in and day out the normal things that we all deal with. – Co-founder, TCN

One big success is we not only do terrorism things but we talk about typical hazards. – Co-founder, CTR

Interpretation: The concept of national preparedness originating from local preparedness is deeply rooted in how the case study region's preparedness networks operate. This is based largely on the premise that increased local preparedness reduces

the subsequent need for regional, state and national assistance. One example of maximizing preparedness are the monthly discussions of recent incidents of significance along with any lessons learned for the benefit of those not at the incident. Borrowing from the increased trust mentioned above, cases were cited in the data where the lessons learned now include what errors in judgment and technique were made. This mature system results not only in relaying information on “what to do” but also “what not to do.”

F. ANALYSIS OF PARALLELS FROM COLLABORATIVE CAPACITY MODEL

Table 21 also identifies parallel sub-dimensions based on Hocevar, Thomas, and Jansen’s Collaborative Capacity Model⁵⁸. The first section of the table lists the Phases of the Networks’ Development which are listed in chronological order. An examination of the sub-dimensions in this section shows that the earliest stages include stakeholders with an identified purpose and needs, followed by leadership support and a history of collaboration. Next, informal dimensions of social network ties and trust played a role. Then roles, skills, and information sharing were initiated. Finally, more formal dimensions such as budget, training, and procedures became more prevalent. When comparing the subsections Phases, Motivation, and Outcomes, Motivation sub-dimensions include felt need, role clarity, and shared goals. Outcomes sub-dimension parallels include shared vision, social capital, acknowledgement of what other agencies bring to the problem, and trust. It should be noted that the specific outcomes are unique to this scenario based upon the context in which they occurred.

G. SUMMARY

In the examination of how and why the regional collaborative networks were developed, the respondents were clear: the regional collaborative networks were developed to meet locally identified needs. No consideration of national-level policy or guidance was ever mentioned by the respondents as a reason for network initiation efforts.

⁵⁸ Hocevar et al., “Building Collaborative Capacity for Homeland Security,” i

The local collaborative solution to address the needs of these respondents was not without issues. In laying out the transactions of these networks in a sequential manner, as done in the developmental framework above, some of these issues are brought to light with the goal of informing other regions considering the adoption of a collaborative network system.

VI. SUMMARY CONCLUSIONS AND RECOMMENDATIONS

A. OVERVIEW

This chapter summarizes the findings of this research effort and is organized around the project's central questions: (1) Why and how were the Regional Collaborative Networks developed? (2) What is the collaborative capacity of the preparedness web system? (3) What opportunities for system improvement can be identified? Using Bellavita's framework for the management of complex adaptive systems,⁵⁹ recommendations are provided for those regions considering the initiation of a collaborative network preparedness system.

B. WHY AND HOW WERE THE REGIONAL COLLABORATIVE NETWORKS DEVELOPED?

The qualitative findings illustrate that the regional collaborative networks were developed to meet locally identified needs, specifically with regard to homeland security preparedness and consequence management. Consistent with Comfort's development of auto adaptive systems⁶⁰, satisfying these needs dictated that the newly defined interagency mission be based on local standardized risk assessments allowing efficient vulnerability management and coordinated planning. Given these instigating circumstances, the regional collaborative networks do a remarkable job of actively maintaining a balance between a macro view of the threat of terrorism and a micro view of the region's day-to-day needs.

The findings also illustrate the regional collaborative networks were patterned on pre-existing regional systems focused on information exchange. The importance of this point is emphasized by Jackson:

The requirements for information sharing must be addressed during the preparedness efforts. Building the needed relationships between individuals and organizations so that information can flow is difficult or

⁵⁹ Bellavita, "Changing Homeland Security, Shape Patterns not Programs," 15.

⁶⁰ Comfort, "Managing Intergovernmental Response to Terrorism," 48.

*impossible in the charged and high-pressure atmosphere of an ongoing disaster response. For sharing to occur effectively, the elements must be in place before a disaster occurs.”*⁶¹

Further, the preparedness web validates Comfort’s assertion that, with auto-adaptive systems, effective information exchange is bounded by shared risk, not jurisdictional boundary.⁶²

Findings of the network’s emphasis on the regional approach is in itself noteworthy, but the inclusion of multi-governance levels and the addition of nontraditional preparedness partners (e.g. university researchers) adds to the system’s uniqueness while bolstering its value. This same methodology is offered by Wermuth as a key to homeland security preparedness effectiveness.⁶³ This approach also correlates with Comfort in her contention that “regional systems of risk reduction and response are likely to emerge in metropolitan areas as the most effective balance between size, capacity and specificity needed for effective action.”⁶⁴

Finally, the findings demonstrate several aspects of the preparedness web’s auto-adaptive nature. These include: the development of regional policies; highlighting of increased incident efficiencies; identifying lessons learned; preparedness gaps being identified and closed; and continued fostering of relationships. The preparedness web is what Comfort calls a “system of continuous learning that fosters initiative and responsible action at all government levels through mutual adjustment and reciprocal exchange of resources.”⁶⁵

⁶¹ Jackson, “Information Sharing and Emergency Responder Safety Management”2.

⁶² Comfort, “Managing Intergovernmental Response to Terrorism,” 48.

⁶³Wermuth, “Emergency Preparedness in California,” 6.

⁶⁴ Comfort, “Managing Intergovernmental Response to Terrorism,” 48.

⁶⁵ Ibid.

C. WHAT IS THE COLLABORATIVE CAPACITY OF THE PREPAREDNESS WEB SYSTEM?

By all indications of this research effort, the collaborative capacity of the preparedness web system is very high. It is notable that the “home organizations” self-reported a moderate level of collaborative capacity, while the networks’ self-reported capacity was much higher. A portion of this can be explained by the networks’ singular focus on collaboration. Nonetheless the trend seems to indicate that the composite networked structure is better equipped to meet the regional preparedness and consequence management needs than the hierarchical organizations as supported by Arquilla and Ronfeldt ⁶⁶, Comfort ⁶⁷, Jackson ⁶⁸, and Wermuth ⁶⁹.

Quantitatively, the high collaborative capacity was supported by strong enablers of: information sharing, adaptability, a history of collaboration, felt need, shared vision, interagency capability awareness, conflict management, and an increased trust in and respect for interagency partners. It must be remembered that these items were not isolated strengths; these items were system wide strengths. When viewed through a multi-disciplinary *and* multi-governance level lens the significance of this list is appropriately magnified.

Several issues were identified in the problem statement of this research effort, indicating some reasons why, nationally, field leadership had an aversion to utilizing collaboration to meet their homeland security preparedness needs. These reasons included (a) ineffective leadership; (b) lack of commitment, primarily stemming from a lack of trust and knowledge of interdisciplinary capabilities; (c) poor communications; and (d) poor planning, leading to resource allocation issues.⁷⁰ An examination of the data readily identifies multiple collaborative enablers and concrete examples that address each of these concerns. Some issues – like leadership – are an amalgamation of many of the

⁶⁶ Arquilla and Ronfeldt, *Networks and Netwars*, 9.

⁶⁷ Comfort, “Managing Intergovernmental Response to Terrorism,” 48.

⁶⁸ Jackson, “Information Sharing and Emergency Responder Safety Management”2.

⁶⁹ Wermuth, “Emergency Preparedness in California,” 6.

⁷⁰ Donahue and Tuohy, “Lessons We Don’t Learn.”6-8.

system's collaborative enabling characteristics, while others – such as an increased familiarity with interagency capabilities, increased trust, and increased information availability and exchange – are singularly identified.

Given these data, it stands to reason that a preparedness web utilizing regional collaborative networks may well be applicable to meet homeland security preparedness missions on a nationwide basis. With this vision, other regions would do well to draw as many parallels as possible between their own situations and the thematic analysis of how and why these networks were established in the first place.

D. WHAT OPPORTUNITIES FOR SYSTEM IMPROVEMENT CAN BE IDENTIFIED?

One characteristic was identified as an inhibitor to the networks collaborative capacity: an absence of training to enhance collaborative skills. Identifying this absence as an inhibitor to the home organizations' collaborative capacity suggests potential value for the case study region to utilize economies of scale in the development and delivery of training opportunities.

Another limitation identified by the collaborative capacity audit was the lack of metrics to quantify benefits to the home organizations. This limitation has the ability to affect system longevity as the collaborative capacity audit points out that the institutionalization of approaches mandates the need to articulate the connections between behaviors and successes.⁷¹ This point is consistent with the quantitative data indicating that a lack of institutionalized agency approaches (e.g., a lack of mandated staffing for the networks) was considered to be a problem. Kotter indicates that over time, these factors could lead the programs to predictable, and thus preventable, difficulties.⁷²

E. RECOMMENDATIONS

For those regions looking for a methodology to meet all homeland security preparedness needs, the creation of a preparedness web can be, as indicated by this

⁷¹ Hocevar et al., "Building Collaborative Capacity."

⁷² Kotter, "Leading Change," 59.

research, considered one practical option. This brings up one of the difficulties in offering recommendations regarding the implementation of a complex adaptive system like a preparedness web: there is no guarantee that the cause and effect relationship will repeat itself outside of the original context.⁷³ However, what can be offered are recommendations of what the case study region retrospectively views as strategic intent.

These strategic intentions are offered as recommendations for those seeking collaboration results similar to those found in this research. These recommendations have been placed into the framework proffered by Christopher Bellavita for the management of complex adaptive systems: (1) set boundaries, (2) create attractors, (3) stabilize desirable patterns, and (4) disrupt undesirable patterns,⁷⁴ (as displayed in Table 22). “Setting boundaries” includes actions taken to define the “who, what, where, and why” for which the activities are intended to occur. “Creating attractors” includes activities undertaken to minimize the effort that participants will need to undertake to realize effective change. “Stabilizing and disrupting” patterns encompass the active management of the complex relationships. Each of the listed items was derived from the qualitative data and was broken out during the coding process. Some items have been paraphrased by the author to eliminate duplication of similar offerings while maintaining intent.

⁷³ Anderson, “Complexity Theory,” 217.

⁷⁴ Bellavita, “Changing Homeland Security, Shape Patterns not Programs,” 15.

Setting Boundaries

- The use of agreements to transcend geo-political lines is obligatory. Mutual and Automatic Aid Agreements, Boundary Drops, Memoranda of Understanding and Joint Power Authorities are all extensively used tools. These agreements then become foundational for further efforts.
- As a mission, make regional needs drive policy, not the opposite.
- A balance needs to be struck between having the efforts foundation built on relationships and formal organizational mandates. Without organizational mandates for participation, personnel transfers, promotions, and retirements have a potentially negative consequence. Without relationships the effort will be mired in bureaucratic incrementalism.

Creating Attractors

- Prior to initiating the effort, visit someone who is already engaged in a similar effort. This way the initiating region starts on a desired path, not building the path.
- Secure strong political and financial commitment prior to implementation. While the effort can be made absent these enablers, by design these networks function on limited time and money – a lack of these attractors may constrain the effectiveness of your efforts.
- Relationships are clearly how a majority of the work gets done in this environment. Foster these relationships in every undertaking. Leadership here will be critical.
- Many of the agencies in the room with you will potentially be in direct competition for either annual budget resources or potential grant dollars. This needs to be looked upon as a synergistic opportunity.
- Establish written mission statements with common, measurable goals and objectives.

Stabilize Desirable Patterns

- Approach this preparedness network as a regional partnership. To allow political or parochial proceedings, intended or not, will disable the effort as many of the resulting efficiencies will be based upon strengthened relationships resulting in social capital and increased trust.
- Check your ego at the door. A network built on trust, character, and competence will increase the speed of decision-making, increase the quality of decisions, and lower costs.
- If policies cannot be made regional then look to make disparate policies compatible across disciplines.

Disrupt Undesirable Patterns

- The participating personnel must be able to speak with the full authority of their agencies. Having the right people in attendance means that products are carried back to the home agencies as actionable items, not requests for permission. This becomes a time management issue.
- Early establishment of a conflict resolution methodology will allow issues to be resolved before they escalate to network-wide disputes with political divisions.

F. SUGGESTIONS FOR FURTHER RESEARCH

1. The Examination, Validation, and Presentation of Any Regional Approach to Preparedness.

Given our nation's episodic and fragmented approach to preparedness for all-hazard homeland security incidents, there is further need for the examination, validation, and presentation of any regional preparedness system that takes a multi-disciplinary and multi-governance-level approach. It is critical, as pointed out by William Pelfrey, that any further discussions of preparedness simultaneously explore complexity theory.⁷⁵ A purely social science approach surely contributes to the effort of advancing our understanding of the enabling and disabling characteristics of social interactions, but this must be viewed as only the first step on a road to examining social behavioral evolution.⁷⁶ For this to occur, studies like this one will need to be broadened and replicated over time.

2. Defining Preparedness

In a grossly underdeveloped benchmark, work must continue on defining "preparedness". If one were to take the *National Preparedness Goal* as gospel, preparedness would largely equate only to capabilities. This definition is hollow without preparedness' accompanying requisite characteristics. Without at least a set of categorical definitions there is currently no possible way to measure progress in meeting this end. Furthermore, resulting efforts will continue to be intermittent and incongruent at an unsustainable cost of finite resources. Lastly, without a common definition, what should be measurable value judgments of needed capabilities and supporting characteristics will continue to be little more than guesses; pity the citizenry and responders in regions that guess wrong.

⁷⁵ Pelfrey, "The Cycle of Preparedness," 13.

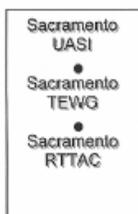
⁷⁶ Anderson, "Complexity Theory," 217.

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APPENDIX A.

Agenda, Tactical Commanders Network

Sacramento Regional Office of Homeland Security



The Special Operations Working Group of the Sacramento Regional Terrorism Threat Assessment Center (RTTAC)

Tactical Commanders Network Meeting Sacramento Regional Office of Homeland Security (SROHS)

MEETING TIME and LOCATION:
3/13/07 @ 1330 hrs.
Media Conference Room

SROHS
3720 Dudley Blvd.
McClellan CA 95652

Meeting called by:
Sacramento Regional Office of Homeland Security

Meeting Agenda:
Intel update:
Captain Cockrum, RTTAC
Training: March Madness IAP Briefing
Eric Ahrens, UASI Planning Team

Facilitator: Dean Grundy

Attendees: Sacramento Area Special Operations Responders: HAZMAT, EMS, Arson, HNT, CINT, EOD, SWAT, K-9, Air Ops., RT, USAR, FBI, Boat Patrol.

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APPENDIX B.

AGENDA, CONSORTIUM OF TECHNICAL RESPONDERS

CTR
Consortium of Technical Responders
"Uniting Resources to Fortify Endeavors"
Sacramento Area Chapter



Sacramento Office of Homeland Security
3720 Dudley Blvd.
McClellan, CA 95652

Meeting Agenda
March 8, 2007
1000 Hours

- No. 1 Call to Order
- Sign-in
- No. 2 New/ Old Business
- Type I Hazmat Teams (Discussion)
 - Mass Decon Teams (Discussion)
 - Status of Radiation Response Plan
 - OSHA Discussion on unknown substances
- No. 3 Presentation
- Recent Hazmat Incident (Rick Vasques, Rodney Tateishi)
- No. 4 Round Table Discussion
- Comments
- No. 5 Next Meeting
- Location
 - Date/Time
 - Agenda
- No. 6 Adjourn

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APPENDIX C

Overall Ratings of Home Organizations Across Collaboration Dimensions

Strategy & Purpose	Overall N=47
My home organization considers the interests of other agencies in our planning.*	3.2 (0.5)
My home organization is willing to address cross-agency goals.*	3.4 (0.6)
Interagency collaboration is a high priority for my home organization.*	3.3 (0.7)
My home organization is willing to invest resources to accomplish cross-agency goals.*	3.1 (0.7)
My home organization is able to balance our individual organizational goals with cross agency (regional) requirements.**	3.0 (0.7)
Structure	
My home organization is willing to adapt procedures to meet the requirements of other organizations with which we do interagency work.*	3.1 (0.6)
My home organization invests significant time and energy to de-conflict existing policies and processes that impede collaboration. *	2.9 (0.7)
My home organization has developed an understanding of our interagency roles and responsibilities. *	3.0 (0.6)
My home organization has measurement criteria in place that evaluate the organizational level benefits of collaboration.*	2.3 (0.7)
Lateral Mechanisms	
My home organization supports the decisions and recommendations of the interagency team. *	3.0 (0.6)
My home organization commits adequate human and financial resources to training with our interagency partners.*	2.7 (0.8)
My home organization gives members of the interagency team adequate authority to speak on behalf of the organization.*	3.0 (0.6)
My home organization has strong norms that encourage sharing information with other agencies. *	3.1 (0.6)
My home organization invests time and resources to become familiar with the capabilities and requirements of our partner organizations.*	2.7 (0.6)
My home organization is flexible in adapting our procedures to better fit with those of partner organizations. *	2.8 (0.6)
My home organization provides other agencies adequate access to information we have that is relevant to their work.*	3.2 (0.6)
My home organization works with other agencies to identify lessons learned for improved collaboration. *	3.0 (0.6)

My home organization makes necessary investments in the infrastructure for collaboration. *	2.7 (0.7)
People in my home organization actively engage in exchanges with counterparts in other organizations.*	3.3 (0.6)
My home organization has the technical interoperability to enable effective interagency collaboration. *	3.1 (0.7)
Incentives - Motivation and Leadership	
A history of competition and conflict affects my home organization's interagency capability. *	2.3 (0.7)
My home organization has experienced successful interagency collaboration in the past. *	3.3 (0.5)
In my home organization, collaborative activities, and responsibilities are added on top of our regular work load. *	3.2 (0.6)
To what extent does leadership support collaboration in your home organization? **	3.2 (0.9)
My home organization saves on costs of technology and equipment by collaborating with other agencies. *	2.7 (0.9)
A significant motivation for my home organizations involvement in interagency collaboration is the opportunity for outside funding.*	2.7 (0.8)
People and People Processes	
Members of my home organization are aware of the capabilities of other organizations with which we work.*	2.9 (0.6)
People in my home organization are unwilling to share information with others. *	1.9 (0.6)
Members in my home organization are willing to share decision-making authority with other organizations when addressing interagency issues. *	2.9 (0.6)
Members in my home organization respect the expertise of those in other organizations with whom we have to work. *	3.3 (0.4)
My home organization manages conflict well. *	2.7 (0.7)
My home organization has training in place to develop collaborative skills (e.g., conflict management, team process skills). *	2.3 (0.7)
People in my home organization tend to be suspicious and distrustful of our counterparts in other organizations. *	2.2 (0.6)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Rarely to 4-Almost Always

APPENDIX D

Overall Ratings of Regional Collaborative Networks Across Collaboration Dimensions

Strategy & Purpose	
Interagency collaboration is a high priority for [this network].*	3.5 (0.7)
[This network's] participants are able to balance individual organizational goals with cross-agency (regional) requirements.**	3.2 (0.8)
[This network] has clearly established goals for interagency collaboration.*	2.9 (0.7)
[This network] has contributed to the creation of a shared vision for interagency collaboration on a regional basis. *	3.3 (0.5)
Structure	
[This network] is willing to adapt procedures to meet the requirements of other organizations with which we do interagency work. *	3.1 (0.4)
[This network] invests significant time and energy to de-conflict existing policies and processes that impede collaboration.*	3.1 (0.6)
[This network] has developed an understanding of our interagency roles and responsibilities. *	3.1 (0.5)
Lateral Mechanisms	
[This network] has strong norms that encourage sharing information with other agencies.*	3.4 (0.5)
[This network] is flexible in adapting our procedures to better fit with those of partner organizations.*	3.2 (0.5)
[This network] has adequate access to needed information from other agencies.*	3.2 (0.6)
[This network] works with other agencies to identify lessons learned for improved collaboration.*	3.3 (0.5)
People in [this network] actively engage in exchanges with counterparts in other organizations.*	3.4 (0.5)
Incentives - Motivation and Leadership	
A history of competition and conflict affects [this network's] interagency capability. *	2.0 (0.7)
[This network] has experienced successful interagency collaboration in the past. *	3.4 (0.5)
People and People Processes	
Members of [this network] are aware of the capabilities of other organizations with which we work.*	3.2 (0.5)
People in [this network] are unwilling to share information with others.*	1.8 (0.8)
Members in [this network] are willing to share decision-making authority with other organizations when addressing interagency issues.*	3.0 (0.5)
Members in [this network] respect the expertise of those in other organizations with whom we have to work.*	3.3 (0.6)

Members in [this network] manage conflict well.*	3.2 (0.6)
[This network] has training in place to develop collaborative skills (e.g., conflict management, team process skills).*	2.5 (0.5)
People in [this network] tend to be suspicious and distrustful of our counterparts in other organizations. *	1.8 (0.6)

* 4 point scale; 1-Strongly Disagree to 4-Strongly Agree

** 4 point scale; 1-Rarely to 4-Almost Always

APPENDIX E

Home Organization vs Regional Networks - Identical Survey Items

Strategy & Purpose	Home Organization	Regional Network
Interagency collaboration is a high priority for my home organization.	3.3 (0.7)	3.5 (0.7)
[This network's] participants are able to balance individual organizational goals with cross-agency (regional) requirements.	3.0 (0.7)	3.2 (0.8)
Structure		
My home organization is willing to adapt procedures to meet the requirements of other organizations with which we do interagency work.	3.1 (0.6)	3.1 (0.4)
My home organization invests significant time and energy to de-conflict existing policies and processes that impede collaboration.	2.9 (0.7)	3.1 (0.6)
My home organization has developed an understanding of our interagency roles and responsibilities.	3.0 (0.6)	3.1 (0.5)
Lateral Mechanisms		
[This network] has strong norms that encourage sharing information with other agencies.	3.1 (0.6)	3.4 (0.5)
[This network] is flexible in adapting our procedures to better fit with those of partner organizations.	2.8 (0.6)	3.2 (0.5)
[This network] has adequate access to needed information from other agencies.	3.2 (0.6)	3.2 (0.6)
[This network] works with other agencies to identify lessons learned for improved collaboration.	3.0 (0.6)	3.3 (0.5)
People in [this network] actively engage in exchanges with counterparts in other organizations.	3.3 (0.6)	3.4 (0.5)
Incentives - Motivation and Leadership		
A history of competition and conflict affects my home organization's interagency capability.	2.3 (0.7)	2.0 (0.7)
My home organization has experienced successful interagency collaboration in the past.	3.3 (0.5)	3.4 (0.5)
People and People Processes		
Members of [this network] are aware of the capabilities of other organizations with which we work.	2.9 (0.6)	3.2 (0.5)
People in [this network] are unwilling to share information with others.	1.9 (0.6)	1.8 (0.8)
Members in [this network] are willing to share decision-making authority with other orgs when addressing interagency issues.	2.9 (0.6)	3.0 (0.5)
Members in [this network] respect the expertise of those in other organizations with whom we have to work.	3.3 (0.4)	3.3 (0.6)
Members in [this network] manage conflict well.	2.7 (0.7)	3.2 (0.6)
[This network] has training in place to develop collaborative skills (e.g., conflict management, team process skills).	2.3 (0.7)	2.5 (0.5)
People in [this network] tend to be suspicious and distrustful of our counterparts in other organizations.	2.2 (0.6)	1.8 (0.6)

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