IMPROVING THE EFFECTIVENESS OF EMERGENCY MANAGEMENT AND EMERGENCY RESPONSE THROUGH SYNCHRONY CREATED BY BOUNDARY SPANNING FUNCTIONS

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ABSTRACT

Although emergency management is established for the purpose of addressing disasters and other major emergencies, I have found that it can be purposefully engineered to also be an assist leader to other agencies and entities during nonemergency periods because the key element of synchrony that enables emergency managers to be effective during an emergency can also be employed during nonemergency periods to assist other departments in a manner that not only delivers a direct benefit to the department but also enhances the emergency preparedness, mitigation, and resiliency efforts of the jurisdiction. Emergency managers can create this performance-enhancing synchrony using boundary spanning functions that bridge the divide that separates stakeholders. Emergency management practitioners are steadfast in their pursuit of methods and practices by which they can be more effective. The recent increase in the frequency and severity of natural disasters is only one example of the ever-growing demands placed upon these professionals. Compounding this development is the fact that the occurrences of natural disasters have outpaced research and theory development regarding how emergency management professionals should prepare for and respond to these events. This research study envisions, proposes, and outlines a framework in which emergency managers function in a broader capacity that could elevate their overall performance and importance to a higher plane than the one on which perhaps most currently operate.

DEDICATION

Dedicated to the outstanding and brave men and women of

emergency management and emergency response

who work around the clock

to keep us safe.

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Many, many thanks to Professor T.L. Hill for the dedication, diligence, and sincere interest shown in navigating this research—and for making the research process and our weekly discussions always stimulating, interesting, and fun!

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CHAPTER 1

INTRODUCTION

Emergency management is a relatively young profession that is becoming increasingly more important as the frequency and severity of natural disasters increase and the occurrences of geopolitical conflicts and the hazards that accompany them escalate. This increase in emergencies has far outpaced research and theory development regarding how emergency management partnerships should prepare for and respond to these events (McWilliams et al., 2021).

Although emergency management is focused on mitigation, planning, response, and recovery from disasters and other major emergencies (McWilliams et al., 2021; Monroe, 2009), I believe that the department is well positioned to help other agencies and entities during nonemergency periods because the capacity, connections, convening, and coordination that enable emergency managers to create synchrony during emergencies can also improve synchrony between departments in nonemergency periods. Emergency managers can create this performance-enhancing synchrony using boundary spanning functions that bridge the divide that separates stakeholders.

This research study explores the ways in which emergency managers leverage boundary spanning and other roles and functions to create synchrony during both emergency response and more broadly. My hope is to help emergency managers elevate their overall performance and increase their importance in public administration; in the process, I also hope to develop theory related to the creation of inter-departmental synchrony.

This dissertation is comprised of two qualitative research studies based on interviews with senior emergency management and response professionals, as well as other leaders within the city and county government. It explores the relationship between synchrony and the role of *boundary spanning* in preparing for, responding to, and recovering from emergencies, as well as the relationship between synchrony and the roles *structural holes*, *contagion,* and *entanglement* in improving coordination across government more generally.

The first study, "Understanding Synchrony in Emergency Management," shows that boundary spanning leads to synchrony at all levels of the emergency management organization and is critical to a successful emergency response. Its key takeaways related to the aggregating and performance-enhancing power of boundary spanning and synchrony are that boundary spanning happens in a dynamic and fluid environment with constantly changing boundaries, and that the boundary spanning role, consequently, must change according to changes in the operative boundary. Its practical implications include assessments and recommendations regarding uniform training, written procedures, the use of symbols for enhanced communication and coordination, the importance of operational and professional consistency as it relates to trust building, and the imperative for versatility and flexibility. The theoretical implications include delineations and explanations regarding the aggregation of synchrony, the dynamic nature of boundary spanning and synchrony, a new proposed framework for defining "effectiveness," and the necessity of unified study of emergency management and emergency response.

The second study, "Can Emergency Management Leverage Its Boundary Spanning Capabilities to Facilitate Synchrony Across the City?" scaffolds upon these

insights by analyzing the potential role of boundary spanning when it leverages the advantages of structural holes, the proliferating effect of contagion, and the predictive power of entanglement to create synchrony, and by exploring how this kind of created synchrony could result in enhanced systemwide performance that extends beyond emergency preparedness and response. The implications of the results provide new insights into the joint application of the strategic advantages of boundary spanning, structural holes, contagion, and entanglement that enable, enhance, and maintain synchrony on a broad scale and suggest specific and detailed boundary spanning strategies for improving the effectiveness of emergency management operations. The practical implications include assessments and recommendations regarding relationship management, brand management, and the use of a new proposed *Priority Pyramid* for the careful allocation of resources during nonemergency periods. The theoretical implications include a new proposed framework for creating widescale synchrony and accompanying improvements through the sequential combination of the three theories of structural holes, contagion, and entanglement.

The implications of the combined studies include an understanding of the mechanisms that produce successful emergency management and response operations such as the boundary spanning functions that produce synchrony, the dynamics of synchrony, and the improvements that synchrony can produce during the different phases of emergency management cycle. The combined findings highlight the pivotal role of the deft management skills displayed by emergency managers throughout the cycle and point to the possibility for greater and more widescale effectiveness during nonemergency periods.

A Note on Emergency Management & Emergency Response

Emergency management has only recently become an integral part of city and regional government following the establishment of the US Department of Homeland Security created in response to the terrorist attacks of September 11, 2001 (Monroe, 2009). Emergency management agencies' central role and responsibility are to mitigate, prepare for, respond to, and recover from emergencies. Their work includes developing enduring relationships between themselves and the public and private stakeholders whom they serve (McWilliams et al., 2021). They are tasked with crafting emergency management plans, determining the resources needed, and deciphering any gaps that may require collaboration with other parties (McWilliams et al., 2021).

In practice and in the professional literature, emergency response is often distinguished from emergency management. Emergency response focuses on the work of emergency first responders (EFRs), such as firefighters, police officers, paramedics, disaster recovery workers, and support professionals such as dispatch workers and coordinators (Bevan et al., 2022). Emergency response works in partnership with emergency management. When the scale of an emergency with which emergency response is involved warrants the official involvement of the city's emergency management department, the emergency managers take on a convening and coordinating role, although they do not directly manage the work of the EFRs. In this paper, I focus on the emergency management level of planning, convening, and coordinating – not the important tactical work of EFRs. That said, the work of and insights gained from EFRs permeates the world of emergency management (Monroe, 2009) and informs this research.

Synchrony

Synchrony is a concept taken from neuroscience that is commonly defined as an instance in which individuals temporally align with one another (Hoehl et al., 2021). Studies show that behavioral synchrony within groups facilitates information flow (Miles et al., 2009) and the longer-term quality of interpersonal relationships (Hoehl et al., 2021). Synchrony is necessary for effective emergency management because many different entities assemble to deal with an emergency, and it is the proper coordination of their activities that produces a successful outcome. Synchrony may also play a role in the effective completion of more mundane day-to-day emergency management operations. The literature suggests the plausibility of the idea that to achieve synchrony emergency managers must bridge structural holes through boundary spanning to create contagion of their sponsored initiatives and it supports the concept that both bridging and contagion are enabled and accelerated by entanglement. The first study delves into the inner workings of emergency management and response to ask: What is the role of boundary spanning and synchrony in emergency management and response? Can boundary spanning lead to synchrony at the individual, business unit, and organizational levels of emergency management and response? Does this created synchrony translate to improved operational efficiency? The second study seeks to answer pivotal questions regarding the influence and power of municipal emergency management as it relates to synchrony: How can bridging a structural hole through boundary spanning allow emergency management to effectively communicate systemwide in municipal government? Can the influence of emergency management create widespread beneficial contagion? Will this beneficial contagion lead to synchrony in the municipal system?

To understand synchrony's role in emergency management, it is useful to look at the theories of structural holes, boundary spanning, contagion, and entanglement that are featured in the second study.

Structural Holes

Burt (2004) posits that homogeneous ideas exist more within than between groups of an organization, and that individuals who occupy positions that lay between groups, called *structure holes*, are exposed to the diversity of ideas that exist in the separate groups. *Structural holes* create opportunity, because Burt (2004) further explains that certain advantages and benefits can be gained in this brokerage (or *boundary spanning*) position, including those related to compensation, positive performance evaluations, promotions, and good ideas—all of which are disproportionately afforded to the individuals whose network ties enable them to bridge a structural hole in the network.

Boundary Spanning

Boundary spanning is the facilitation of collaboration and cooperation of separated business units (Schotter et al., 2017); boundary spanning can be done by individuals or departments. For example, the complexities inherent in global business influenced a plethora of boundary spanning roles to tackle them—so much so that *boundary spanning* has become an umbrella term used to describe the broad set of communication and coordination activities performed to bridge separations within organizations caused by cultural, organizational, or institutional differences (Schotter, et al., 2017). These activities, such as the boundary spanner acting as a *knowledge broker* or *change agent*, among other roles, aim to create alignment of the entities on the different sides of the boundary.

Contagion

Contagion as used in this study is drawn from Mir et al.'s (2021) description of the factors influencing the ways in which supply chain management can become contagious from downstream to upstream members of the supply chain. The implications from their study, particularly regarding contagion pathways, hold transferable lessons for *contagion* in other types of networks, such as those of municipal government agencies and their stakeholders.

Entanglement

Entanglement is a novel proxy-like approach to measuring the level of synchrony in the communication between team members of an organization (Gloor et al., 2022). Gloor et al. (2022) explain in their research how *entanglement* shows the concentration of communications within an organization and posit that this concentration is an indicator of the level of synchrony within the system. Furthermore, they state that this measure can be a predictor of individual and organizational behavior and performance.

Two Studies on Synchrony in Emergency Management

The first study examined the role and function of emergency management and emergency response in Philadelphia using the impact of the remnants of Hurricane Ida in 2021 as a case study. It outlined how boundary spanning functions were employed by the Philadelphia Office of Emergency Management ("OEM") to create synchrony that aggregated from the individual level to the business unit level and ultimately to the organizational level among the various stakeholders in the city. This study revealed three salient characteristics of emergency management: the fluidity of OEM's influence; OEM's position within a structural hole in city government; and OEM's boundary

spanning capacities. The first characteristic is the fluid nature of OEM's influence and authority, which is dramatically elevated within the city when a major emergency occurs; the second, revealed by this elevation in influence and authority, is that OEM is situated in a *structural hole* within the city's municipal network; and the third is OEM's versatile and extraordinary communication capabilities**,** which were displayed before, during, and after Hurricane Ida to convene, organize, and assist a large and varied group of stakeholders in assessing and addressing the emergency in light of their individual priorities. The contributions of this study include the key finding that boundary spanning can lead to synchrony at the individual, business unit, and organizational levels and that it also improves performance; a suggested framework for measuring the "effectiveness" of an emergency response; and the discovery that synchronies created by boundary spanning functions form at different speeds depending on the environment in which it is created, along with the key takeaways underlying this discovery, which are that boundary spanning happens in a dynamic environment with constantly changing boundaries and that the boundary spanning role must change according to changes in the operative boundary.

The second study grew out of the first study and the intuition that the relationships and skills that enable boundary spanning and the effective creation of synchrony during emergencies could be used in "Blue Skies" periods to further synchrony between government agencies and stakeholders engaged in other projects. In the second study, I interviewed heads of emergency management departments and their colleagues in other departments to explore the ways in which emergency managers' *boundary spanning* and the *entanglement* created through their relationship building might be mechanisms by

which emergency managers could bridge various *structural holes* in city agency networks and facilitate c*ontagion* of ideas and processes, thereby improving *synchrony* in government. This study results in an outline and explanation of the process by which an emergency management department could become an "assist leader" by creating widespread synchrony and measurable operational improvements across an entire jurisdiction. The contributions of this study include providing emergency management practitioners' with a deeper understanding of the role of structural holes, contagion, and entanglements when they are operationalized using boundary spanning functions to create synchrony, a priority setting tool for asset allocation and tracking, and practical insights regarding the effects and uses of relationships, strengths, and other resources operationalized during Blue Skies.

Outline

I will present the first study focused on understanding synchrony in the emergency management and response context followed by the second study that examines the "assist leader" possibility using the sequential application of three theories. I will then look ahead to avenues for future research and conclude with a summarizing conclusion.

CHAPTER 2

STUDY ONE: UNDERSTANDING SYNCHRONY IN EMERGENCY MANAGEMENT AND RESPONSE

Introduction

Following Seawright's advice that "deviant cases and extreme cases…are the best ways to choose cases for close analysis when the goal is discovery" (2016: 520), this research draws on the details of emergency preparedness and response to explore the processes that support effective organizational responses to emergencies. Emergencies introduce stress situations that test the effectiveness of systems and relationships and provide insight into which systems and relationships work, and which unravel, under pressure. In other words, the extreme conditions of emergencies test the integrity of the organizational structure and reveal weaknesses that would remain hidden in ordinary conditions. In particular, emergencies can highlight the role and value of subtle but important mechanisms, such as boundary spanning, that facilitate operational cooperation, collaboration and cohesion. Weick's famous analysis of the Mann Gulch disaster (1993) is a case in point: He was able to trace in detail the breakdown in sensemaking under pressure that contributed to the death of a crew of otherwise experienced firefighters; further, the analysis helped Weick to identify and describe a set of mechanisms that we now know as sensemaking. The goal of this study is to delve into the details of emergency management and emergency response to better understand the role of boundary spanning in the creation and maintenance of synchrony across the diverse individuals charged with emergency management and emergency response.

Synchrony

Synchrony is defined as a temporal alignment of individuals with one another (Hoehl, Fairhurst, and Schirmer, 2020) achieved through 'respectful interaction,' the combination of a 'synthesis of meaning' and 'merged subjectivity' (Weick, 1993). It is one of the desired results of business operations because it has been shown to have a positive impact on improving organizational performance (Helquist et al., 2009). It is an important goal of an organizational function such as boundary spanning, so much so that it can even become implicit and constitute the 'bridge' of cooperation between disparate organizations or sub-organizations that is the goal of boundary spanning (Schotter et al., 2017). However, questions remain as to *how* organizational synchrony is created and maintained—answers to which is the goal of this research. In particular, can boundary spanning lead to synchrony at the individual, business unit, and organizational levels of emergency management and response? Does this created synchrony translate to improved operational efficiency?

Boundary Spanning

Boundary spanning is the facilitation of collaboration and cooperation of separated business units (Schotter et al., 2017). The complexities inherent in global business influenced a plethora of boundary spanning roles to tackle them—so much so that boundary spanning has become an umbrella term used to describe the broad set of communication and coordination activities performed to bridge separations within organizations caused by cultural, organizational, or institutional differences (Schotter, et al., (2017). These activities, such as the boundary spanner acting as a knowledge broker or change agent, among other roles, aim to create alignment of the entities on the

different sides of the boundary, which is equivalent to the creation of synchrony. This function of boundary spanning, then, provokes questions regarding boundary spanning in relation to synchrony: How might boundary spanning create or enable organizational synchrony? How does, or can, boundary spanning support and maintain synchrony?

Research Question

One end-goal of boundary spanning seems to be the creation of synchrony. That is, just as interpersonal synchrony occurs when individuals temporally align with one another (Hoehl, et al., 2020), the end-goal of boundary spanning seems to be some form of operational alignment. Therefore, the combination of the societal importance of emergency management and emergency response, the potential identification of key boundary spanning functions, and the implications of the desirability for synchrony as a result then leads to a salient research question: *What are the roles of boundary spanning and synchrony in emergency management and emergency response?*

Contributions (to Literature and Practice)

This research contributes to the literature on both boundary spanning and synchrony by linking their theories, and by revealing any resulting effect that either or both have on emergency management and emergency response organizational performance. Findings regarding any effects of interactions will have significant implications for practice as they will provide practitioners with valuable insights that should improve the practice of emergency management preparedness and response.

Outline

I will first provide a Conceptual Foundation grounded in the literature covering emergency management, emergency response, synchrony, and boundary spanning. This

will be followed by a discussion of the Methodology, a look ahead to the Anticipated Outcome, and I will conclude with a summary of the Conclusion and Contribution, in which other avenues for contribution to the literature will be explored.

Conceptual Foundation (Literature-Grounded)

This review will first examine the literature that analyzes the purpose and function of emergency management that will include a look into the operation and challenges of public-private partnerships (PPPs) formed for the purpose of emergency management. This will be followed by a look at the research on synchrony and its potential link and impact on organizational performance. It will conclude with a discussion of the literature on boundary spanning, including an extensive analysis of boundary spanning roles and functions and how they might be linked to interactions within organizations. (see Appendix A for a Literature Review Summary).

Emergency Management

The central role and responsibility of emergency management agencies is to develop enduring relationships between themselves and the public and private stakeholders whom they serve (McWilliams et al., 2021). They are tasked with crafting emergency management plans, determining the resources needed, and deciphering any gaps that may require collaboration with other public agencies or even private sector parties in a PPP (McWilliams et al., 2021). But the policies and practices that provide guidance for how communities in the U.S. should respond to disasters varies widely across federal, state, and municipal bodies (Kapucu et al., 2009). Naturally, this presents the problem of organization and questions related to coordination for emergency management agencies. There appears to be consensus, however, among experts that

responding to large scale disasters requires coordination—vertical or horizontal, or both, if necessary.

This necessity opens the door to a wide-ranging discussion of partnerships in emergency management. For example, Kapucu et al. (2009) discussed the Emergency Management Association Compact (EMAC), described as "a mutual aid agreement and partnership between states that allow states to assist one another in responding to natural and man-made disasters" (p. 297). It was first introduced in 1993 by the governor of Florida in response to his dissatisfaction with the poor emergency response to Hurricane Andrew. It was approved by Congress in 1996 and is now enacted across the U.S. The literature also examines the organization of emergency management services within public-private partnership (PPPs) as one avenue to deal with organizational challenges. Largely comprised of the views of emergency management agents regarding the value proposition of such arrangements, the studies also include a discussion of the formation, structure, and operation of emergency management PPPs—we can discern from the literature that *formation* refers to the arrangement in which a private entity is engaged to fill gaps in resources that the public agency may decipher, *structure* to the allocation of resources between the entities, and *operation* to the active sharing and disposition of those resources (McWilliams et al., 2021). The organizational structure of PPPs consequently involves the collaboration of distinct entities and—due to the obvious fact that the intent and purpose of the partnership is to work together—highlights the importance of the role of boundary spanning.

Synchrony

The literature on synchrony lends critical insights to boundary spanning regarding the fundamental importance of interpersonal synchrony in human social interactions. Synchrony—specifically, interactional synchrony—is framed in the literature as a concept taken from neuroscience that is commonly defined as an instance in which individuals temporally align with one another (Hoehl, et al., 2020). Hoehl et al. (2020) point out in their research on interactional synchrony that "at different levels ranging from the dyad to a large group and from very specific tasks to more general social dynamics, synchronizing affords a broad range of benefits that have been and still are drivers for its frequent occurrence when humans come together" (p. 14). Likewise, Kirschner and Tomasello (2009) showed that the drumming accuracy of children was higher when they had a human drumming partner compared to a computer.

Neuroscience research also uncovers that social synchronizing goes beyond body movements to include brain activity that allows dyads and groups to become a kind of unified 'super-organism" (Hoehl et al., 2020). Synchrony has been shown to increase predictability of incoming information which, in turn, improves information processing at the individual level and strengthens bonds at the dyadic and larger group levels (Hoehl et al., 2020). Studies also show that behavioral synchrony within groups facilitates information flow (Miles et al., 2009) and the longer-term quality of interpersonal relationships because the level of synching that individuals attain is influenced by previous interactions between those individuals (Hoehl et al., 2020), and synchrony can be viewed as a way to facilitate group cohesion instead of the traditional and time-consuming grooming. Hoehl et al. summarize the benefits of interactional synchrony:

> There is evidence that recognizing and aligning with temporal regularity makes the other(s) more predictable which then facilitates joint attention and action, information exchange and the formation of affective bonds. Because synchronizing works in dyads as well as in crowds, it may serve as a social adhesive that engenders affection for others and feelings of belonging. (p. 10)

Linking Synchrony to Improved Emergency Management and Emergency Response Performance

Weick (1993) describes the desired operational condition of 'respectful interaction' as being dependent on intersubjectivity comprised of a "synthesis of meaning" and a transformation of "the self or subject…during interaction such that a joint or merged subjectivity develops" (p. 642). I*nterpersonal synchrony,* which is defined as an instance when individuals temporally align with one another (Hoehl et al., 2020), is also comprised of these elements that Weick calls 'respectful interaction.' Therefore, we can argue that synchrony is linked to improved performance because Helquist et al. (2009) have shown in their research that 'synchronous exchange' has led to improved performance.

Q1: What is the role of synchrony in emergency management and emergency response *performance? How does one facilitate synchrony?*

Boundary Spanning

It is fair to say that complex and unpredictable processes such as emergency responses are not executed perfectly each time, or perhaps at any time; there are varying degrees of effectiveness with each challenge. There must be, then, internal (though also external) factors that affect the degree to which effectiveness is attained. Boundary spanning is one of those factors. Boundary spanning exerts its influence in various contexts including *legitimacy* by the establishment of processes and procedures (Levina

& Vaast, 2006), *governance* by ushering in changes that can govern relationships (Roberts & Beamish, 2017), and *functions* that steer collaboration of business operations (Hsaio et al., 2012; Levina & Vaast, 2005; Schotter, et al., 2017). These functions include *active change agent, gatekeeper, knowledge broker, collaborator,* and *community organizer*.

Roberts and Beamish, (2017); Schotter et a., (2017) examined how a boundary spanner can function as an *active change agent* who operates within the organization in a way that acts as a structure or 'scaffolding' that supports the transfer of knowledge. Schotter, et al., (2017) discussed how the boundary spanner can facilitate a kind of 'loose coupling' by facilitating ties between separate groups in a way that provides structure yet allows flexibility at the boundaries. Carlile, 2002,2004; Hsaio et al., 2012; Levina and Vaast, 2005; Schotter, et al., 2017 discussed how the boundary spanner can be a *gatekeeper* who oversees boundary objects—mechanisms that enable sharing of knowledge between groups. Pawlowski, S., Robey, D., (2004) explained how the boundary spanner can be a *knowledge broker* who facilities the transfer of knowledge across an entire organization via an enterprise network such as an IT system. The boundary spanner can also be a *collaborator* in a context in which knowledge must be shared across disciplinary boundaries in an iterative troubleshooting process involving adaptive learning, as outlined by Hsiao, R., Tsai, D., Lee, C., (2012). The boundary spanner can also be a *collaborator* when an enterprise-wide IT system is implemented and requires careful interpersonal transfer of knowledge (training) on the proper and efficient use of the system (Levina & Vaast, 2006).

Finally, the boundary spanner can also act as a *community organizer*. For example, in rural India, where a newly formed public-private partnership was launched to provide emergency medical services, community engagement was implemented as a component that provided education and awareness: education and training was provided to groups that would function as emergency first responders, such as police, private guards, and rickshaw drivers; awareness was raised in communities regarding general practices that would help emergency management and emergency response, such as making way for ambulances and discouraging fake emergency calls (Sriram et al., 2017). In addition, a detailed study of Central Taiwan's organized public-private partnership response to the massive 7.3 earthquake that struck Tantou County in 1999 revealed that among the most critical processes that should be put in place after a disaster are three that particularly match this boundary spanner role: 1) Efforts by emergency executives to prevent the spread of misinformation by using the media strategically, 2) a strengthening of disaster managers' language skills, with the use of translators, if necessary, and 3) plans that "strengthen communities natural disaster resistance capacity and provide disaster information, training, and equipment to communities willing to participate in the programs. In addition, liaisons…to serve as a bridge between the community and the government" (Zhihong, 2009, p. 310). These imperatives—especially the third, which basically defines the role of a boundary spanner—fall within the domain of the *community organizer* boundary spanner.

Boundary Spanning Roles and Functions

To identify the functions of boundary spanning, it is helpful to first outline some of the roles of boundary spanners to then point to the underlying functions that are

operationalized. The *active change agent* and *community organizer* roles could involve introducing new knowledge and business processes into the organization or community. Scholars have illustrated various methods by which this can be done. For example, where there are language barriers, besides the obvious translator the boundary spanner could employ a focus on *drawability* and *demonstrability* (Sunaoshi et al., 2005). *Drawability* in the Sunaoshi et al. (2005) ethnographic study refers to the use of drawings to illustrate troubleshooting ideas that Japanese engineers used on the factory floor to communicate with their American coworkers effectively and quickly. *Demonstrability* refers to the practice by these engineers of physically demonstrating ideas, sometimes by touch, to communicate skills and proper handling, such as the amount of pressure to apply to a machine process. The boundary spanner could also engage in a process of gaining small wins that will lead to the legitimizing of a new role (Reay et al., 2006). This strategy was developed by nurses in Alberta Canada who were successful in gaining acceptance of a new Nurse Practitioner role in the area's healthcare system. This change was instituted by a three-step process of 1) cultivating opportunities for changes, 2) fitting the new role into the established system, and 3) proving the worth and success of the new role. The *knowledge broker, gatekeeper,* and *collaborator* roles can involve the boundary spanner occupying a privileged position, called a *structural hole,* within the organization. Structural holes are the bridging positions between organizational units and are embedded in the formal hierarchy of job rankings (Burt & Merluzzi, 2014). Burt and Merluzzi (2014) point out that "people whose networks span these structural holes gain advantages of information breadth, timing, and arbitrage" (p. 163). Related to this privileged position is the concept of *social capital* which has direct linkage to intellectual capital (Nahapiet

& Ghoshal, 1998). The knowledge broker and the collaborator therefore are attractive to, and have access to, a wide network across the organization and can use resultant interactions and exchanges to create social capital since social capital rests in relationships and is created via exchange (Nahapiet & Ghoshal, 1998). Therefore, these exchanges build social capital for the boundary spanner. This social capital, in turn, facilitates the development of intellectual capital by fostering conditions that allow exchanges and combinations of knowledge to occur. Nahapiet and Ghoshal (1998) state that, "new intellectual capital is created through the combination and exchange of existing intellectual resources, which may exist in the form of explicit or tacit knowledge and knowing capability" (p. 250). The role of the boundary spanner as *knowledge broker* is therefore facilitated—and even reinforced—by these interactions and exchanges.

In addition, emergency management partnerships maximize their value when the partners combine complementary resources, which will increase collaboration and enhance the idiosyncratic resources of the partnership (McWilliams et al., 2021). Because of the dynamic and unpredictable nature of emergencies, and the urgent and unforgiving nature of the work of emergency management and emergency response discussed at the beginning of this paper, intellectual capital building is of utmost importance to emergency management and emergency response. Therefore, the boundary spanner can be an operationalized communication link between both emergency management agencies as well as EFRs and their partners using boundary spanning functions instrumental in creating social capital which will, in turn, create the intellectual capital necessary for continuous learning and improvement in the practice of emergency management and emergency response. Table 1 and 2 below summarize these features.

Table 1

Roles and Functions of Boundary Spanners

Role	Function
Active Change Agent	Operates within an organization to help enact change.
Collaborator	Engages in interpersonal transfer of knowledge via training (Levina & Vaast. 2006) and troubleshooting across disciplinary boundaries within an organization (Hsiao, Tsai, and Lee, 2012).
Community Organizer	Coordinates necessary community educational opportunities (such as first responder training) and awareness regarding acceptable public responses to emergency activities (i.e., giving way to ambulances).
Gatekeeper	Oversees boundary objects—mechanisms that enable sharing of knowledge between groups.
Knowledge Broker	Facilitates the transfer of knowledge across an organization.

Table 2

Functional Mechanisms of Boundary Spanner Roles

Mechanism	Roles	Function
Drawability	Active Change Agent Collaborator Knowledge Broker	The use of drawings to overcome a communication barrier (caused by language differences) and transfer knowledge.
Demonstrability	Active Change Agent Collaborator Knowledge Broker	The use of physical demonstrations, such as holding and touching, to create a sense or actual physical 'feel' for what is correct, to overcome a communication barrier (caused by language differences) and transfer knowledge.
Small Wins	Active Change Agent Collaborator	Organizational change that is achieved by the succession of processes involving cultivating opportunities for the change, fitting the change into the already established system, and proving the worth and success of the change.
Interactions & Exchanges	Knowledge Broker Gate Keeper Collaborator	The boundary spanner occupies a privileged position called a **"structural hole"** within the organization from which the creation of **social capital** (and the resulting **intellectual capital)** can be created through interaction and exchanges with individuals across the organization.

Linking Boundary Spanning to Improved Emergency Management and Emergency Response Performance

In his analysis of the Mann Gulch disaster and discussion of the importance of the maintenance of sensemaking in organizational operations, Weick (1993) posits that there are four elements that enable resiliency in organizational sensemaking: the ability to improvise, flexibility to assume virtual roles, an open mind receptive to the possibility that one's judgement could be wrong—the 'attitude of wisdom' as Weick calls it—and 'respectful interaction,' which is essentially a bonding between individuals. If we define an improvement in emergency management and emergency response performance as the organizational *attainment via boundary spanning* of any of the elements of Weick's composite (as opposed to improved performance referring to the outcome of an emergency event) then we can link boundary spanning to 'respectful interaction' (and improved performance) in the following ways:

Drawability and Demonstrability. The use of drawings and physical demonstrations was adopted on the factory floor because the Japanese engineers, tasked with transferring knowledge, and the American workers to whom they attempted to transfer knowledge did not share a common verbal language. Therefore, these devices were used to overcome a communication barrier caused by language differences. The use of such devices for the purpose of the transfer of knowledge is clearly an instance of aiming to achieve a quite literal "synthesis of meaning" as this is commonly understood to be the principal purpose of teaching. Weick's 'merged subjectivity' is especially evident in *demonstrability's* aim to create a sense or actual physical 'feel' for what is correct. 'Respectful interaction' is comprised of these two elements: 'synthesis of meaning' and 'merged subjectivity' (Weick, 1993).

Small Wins. Achieved by:

1) Cultivating opportunities for changes: These cultivations point to interactions with others within the social system to create social capital. Social capital exists in relationships and is created via exchange (Nahapiet & Ghoshal, 1998), or cultivation in this instance. These interactions are productive through 'respectful interactions.'

2) Fitting the new role into the established system: The fitting of one unit into another implies that a kind of 'synthesis of meaning' is created, which is a component of 'respectful interaction' (Weick, 1993).

3) Proving the worth and success of the new role: Proving worth implies that there is an understanding and agreement between different entities (that something is proven), which is a 'synthesis of meaning' and a 'merged subjectivity.'

Interactions and Exchanges. Interactions and exchanges, which create social capital and resultant intellectual capital (Nahapiet & Ghoshal, 1998), implies that a common understanding ('synthesis of meaning') and 'merged subjectivity,' both components of 'respectful interaction,' have been attained.

Q2: What is the role of boundary spanning in emergency management and emergency response *performance? How does one facilitate boundary spanning?*

(Logically) Linking Boundary Spanning to Synchrony and Improved Emergency Management and Emergency Response Performance

Overall, we have seen from the literature that public agencies' partnering with private entities can be critical to effective emergency management (McWilliams et al., 2021). Effective partnering of distinct entities obviously and necessarily requires coordination. Boundary spanning is one mechanism to achieve such coordination

(Schotter et al., 2017). But it seems that boundary spanning itself—in functions such as organizational change (Roberts & Beamish, 2017; Schotter et a., 2017) and community organizing (Sriram et al., 2017; Zhihong, 2009) can also require understanding (a "synthesis of meaning") or 'respectful interaction' at a person-to-person level. Synchrony is posited in the literature to be a fundamental human inclination and a mechanism by which this kind of interpersonal alignment can occur (Hoehl et al., 2020).

Therefore, the linking of boundary spanning to synchrony and then synchrony to improved performance is that boundary spanning can be instrumental in creating alignment (Schotter et al., 2017), alignment is termed s*ynchrony* in the literature (Hoehl et al., 2020), and, in turn, 'synchronous exchange' has been shown to improve performance (Helquist et al., 2009).

Q3: How does boundary spanning interact with synchrony in emergency management and emergency response situations?

Methodology

The setting for this qualitative study was emergency management and emergency response in Philadelphia with Hurricane Ida's aftermath in Philadelphia in September 2021 as the focal point. A purposely varied set of interview participants was recruited to capture the holistic composition of the city's collective response to the hurricane: emergency management and emergency response practitioners, municipal agency directors, utility executives, and NGO leaders. In addition, an onsite study was conducted at the Philadelphia headquarters of the Office of Emergency Management, where a tour of the facilities led by the Executive Director was granted, in addition to an in-depth in-person interview with the agency's Deputy Director of Operations.

Data Collection

Data was collected using a case study methodology. Thirteen in-depth, semi-structured interviews were conducted via telephone and Teams video (when initiated by the interviewee). The goal of the interviews was to discern patterns in responses that would inform regarding the boundary spanning functions that lead to improved performance (in operation and outcome) and to synchrony in emergency management and emergency response. Since semi-structured interviews was the interview format, interview preparation consisted of pre-drafted interview questions that were asked during interviews with some questions steered toward the interviewee's decision-making during the Hurricane Ida response. The attached IRB Protocol (Appendix F) contains pre- and post-interview scripts and the list of questions that were asked (Appendix B of the IRB Protocol). Interviews lasted from 30 minutes to one- and one-half hours for a total of 10 hours of interviews. Otter.ai was utilized to transcribe the interviews and to aid with data analysis. Data analysis of each transcript took approximately 4 hours for a total of about 50 hours.

Participant Selection

Interview participants were selected based on their functional role within an entity that was either established for the sole purpose of dealing with emergencies or that functions in an emergency response capacity when an emergency occurs—in the case of the latter, participants were selected because their role in the organization includes an emergency response responsibility. All respondents were recruited locally. Interviews began in January 2023 and ended in mid-April 2023.

Inclusion and Exclusion Criteria

Recruitment phone calls and emails were made only to people with professional experience in planning for or responding to large-scale emergencies. Individuals belonging to a group recognized in the Belmont Report as entitled to special protection were not included in the study.

Data Analysis

Flexible pattern matching was used to analyze the data collected from the interviews. NVivo software was employed for coding, sub-coding, and thematic analysis. Since the purpose of the interviews was to gather rich qualitative data related to communication and coordination in emergency planning and response, the focus of the analysis was on discerning patterns in the responses that informed regarding the boundary spanning functions that led to improved communication and coordination performance (in operation and outcome) and to synchrony, if any, in the response to Hurricane Ida (and any other emergency response that the interviewee chose to discuss). Specifically, analyses focused on how boundary spanning is operationalized in emergency management and emergency response and whether, in the process, it creates or maintains business unit or organizational synchrony that leads to improved performance.

Coding Process

NVivo software was used for coding, sub-coding, and thematic analysis. Analysis was sharpened by performing it concurrently with data collection and in an iterative process (Miles et al., 2020). The focus of each analysis was on discerning patterns in the responses that informed regarding boundary spanning functions that led to improved coordination and to synchrony.

Three coding processes were created: one coding of the phases of the emergency management and response cycle, another of the synchrony process, and a third that combines these two processes. For the synchrony and combined coding structures, Glaser's three-step coding process was utilized to achieve theory formation through: (1) open coding, (2) selective categorizing, and (3) synthesizing of themes (Myers, 2020). The phases coding structure contains level one open coding and level two coding separated into two levels, the second of which rolls up into the four phases of the cycle.

NVivo Word Clouds were used to complement careful analysis of the transcripts to create or confirm open coding that was created for each section of the timeline. Three criteria were set for each Cloud: (1) top 50 words; (2) with stemmed words (i.e., "ing" gerunds); and (3) a minimum length of three letters for each word. Figure 1 below shows a sample of the NVivo Word Clouds used—Appendix C contains a detailed sampling of the NVivo Word Clouds used grouped by type of stakeholder (to represent the holistic nature of the city's Hurricane response).

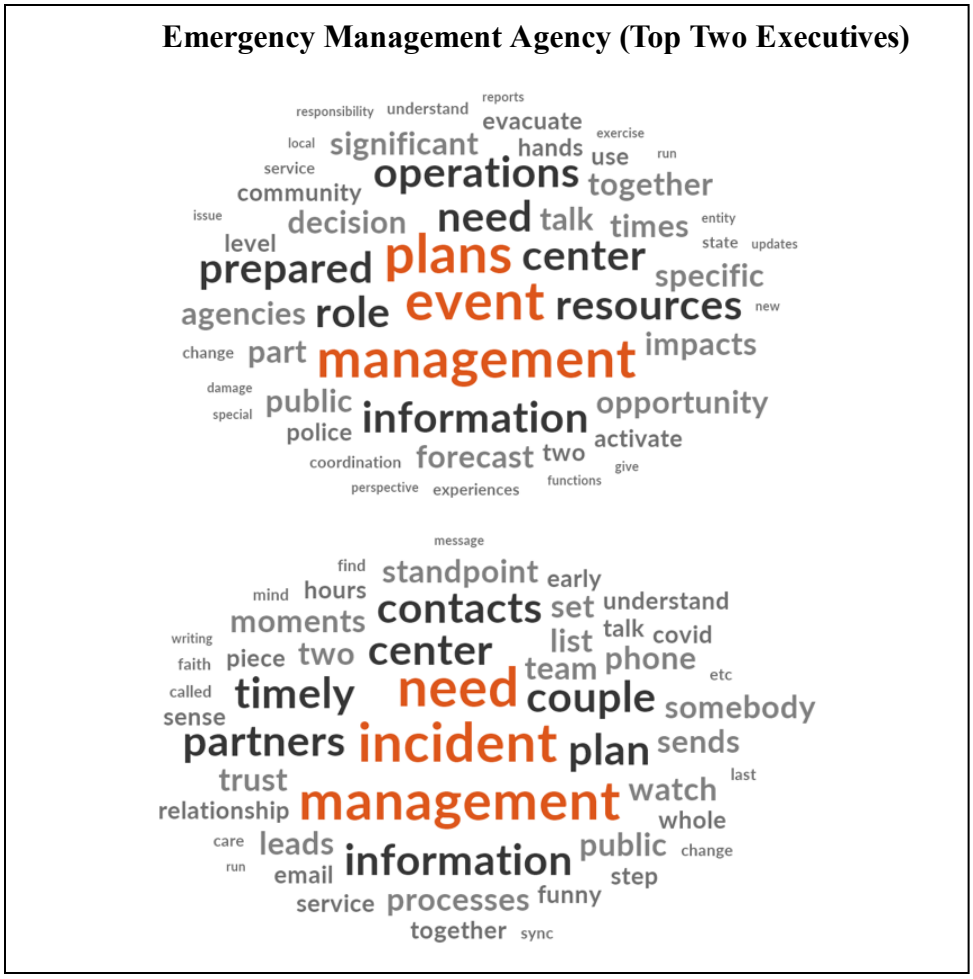

Figure 1. Word Cloud Sample—Study One.

Selective Categorizing. The second level selective categorizing was generated from the combination of a review of the literature on emergency management and response operations and iterative analyses of the interviews with a particular focus on the accounts regarding the Hurricane Ida response. The coding of the Phases relied heavily on established jargon among practitioners but with documented, detailed evidence of the unfolding of the phases with all its intricacies, which allowed for passage to the third level of coding that revealed clear theoretical themes.

Synthesizing Themes. The generation of synthesized theoretical themes flowed from a comprehensive and iterative review of the behaviors that characterize the selected categories and especially the dynamics occurring *between* them. Analysis of the changes in leadership dynamics in each phase of the cycle revealed the theme of power and influence of the roles of emergency managers and how it ebbs and flows during the emergency cycle. For example, during Grey Skies when an emergency event is occurring, the Gatekeeper boundary spanner is elevated from a standby position occupied during Blue Skies to what is essentially a leadership position during the emergency response. Conversely, after the emergency event has moved from Response to Recovery and After-Action Review, the Gatekeeper returns to the less prominent standby position. Likewise, analysis of the changes in phases that occur at the second level reveals the theme of boundary changes that take place with each change of Phase. Deeper analysis of our interviews revealed that emergency management organizations interact with other traditional permanent organizations during certain phases of the cycle and with what are essentially temporary organizations in the other phases. During Blue Skies, they may interact with other permanent organizations that are established with a permanent ongoing specific function, such as providing food or shelter during emergencies. For example, our interviews reveal that communication and planning may occur with the Red Cross and the Salvation Army regarding an action plan to be followed in the event of a specific kind of disaster. During Grey Skies, however, when an emergency has occurred, emergency managers are coordinating with *teams* of first responders that are established for the *temporary* purpose of addressing the emergency. When the emergency has been addressed by that team, it ceases to exist. Likewise, during the Recovery phase when

teams are assembled for the purpose of rebuilding, providing shelter and medical supplies, and similar services: once the recovery is considered complete, the temporary organization is disbanded.

The third level theme of 'speed of synchrony' was derived from analysis of the nature of the activities that take place within each Phase of level two. Blue Skies and After-Action Review and Planning are calmer periods in which activities such as planning and debriefing can happen; this is the opposite of the Grey Skies and Recovery Phases in which an emergency event is occurring or has just occurred, and the focus is on immediately tending to the emergency or to recovery. The different tone and urgency of these two kinds of phases influences different speeds of alignment of emergency personnel and resources: personnel gathering will occur slower during Blue Skies (e.g., planning with the Red Cross) than during Grey Skies (e.g., rushing to a fire). The temporal alignment of individuals is defined as synchrony, as discussed earlier. This shows that the speed of synchrony can change because of a change in Phase during the emergency cycle.

Findings

Setting

On Sunday August 29, 2021, Hurricane Ida crashed in Louisiana with peak winds of 150 mph. By Monday, it had moved north and weakened to a tropical storm with weather forecasts predicting flooding for the regions in its path. On Tuesday, the forecasts for flooding worsened. By Wednesday, it had arrived in Philadelphia bringing with it heavy rains and prompting widespread flood watches (Madej & Bryan, 2021). Ida's impact on Philadelphia tested the fortitude and very character of the professionals who

work in emergency management and emergency response in the city. Seeing how the storm events unfolded in Philadelphia through their eyes, as they recounted them to me in in-depth interviews, will provide context for understanding the lessons that I learned about emergency management and response, and the logic of the practical and theoretical implications that I will discuss.

Hurricane Ida in Philadelphia

"It rained a lot, and then the sun came out. And that's when the emergency started."

On Wednesday September 1, 2021, the day that the remnants Ida landed in Philadelphia, one of the top officials involved in Philadelphia's emergency management operations arrived home at around 8pm after having spent the day monitoring the changing conditions in the city caused by the storm. He got into bed at around 9 or 10pm, and about 45 minutes later got a call from back at the Emergency Operations Center with urgent news: the flooding forecast had changed significantly for the Schuylkill River, a major river that runs through the city. The caller told him in no uncertain terms, "I think we need to address this." The call was from one of his deputy directors who had relieved him of his duties that evening with a plan that he would relieve her the following morning (the Center is staffed with a director and three deputy directors who share duties in 12-hour rotations, a plan put in place to ensure that no executive will be on duty for an unsustainable amount of time when burnout would begin to happen). She had gathered a small group with her in a conference room equipped with sophisticated teleconferencing and other communication equipment. Also on the call was the Philadelphia Fire Commissioner and the mayor, who both were (he assumed) at home—or, at least, not

physically at the Center. They decided to host a call at midnight with the mayor and all the heads of the city's agencies to discuss the change in forecast and whether their level of preparation was enough for the new expectations that were just announced.

The projection for the Schuylkill River flooding had jumped significantly from a category of 'Moderate Flooding' to 'Major Flooding.' They knew then that Philadelphia was going to have a significant event—it was not the forecast that predicted historic flooding that would come later, but by midnight they knew they were going to have a significant event. They also knew that in the morning Philadelphia would have gone to bed with one expectation and woken up to a different reality if they were not aware of the updated forecast. On the midnight call, there were three things that he decided to do in light of the new forecast: (1) work with the Philadelphia Police Department and request for them to hold over police officers, because he was probably going to need extra public safety support in the morning for road closures, rescues, and anything else needed of that nature; (2) submit a Resource Request to the Pennsylvania State Emergency Management Agency for water rescue assistance, particularly the National Guard, to bring in high water vehicles to assist with water rescue operations in places where fire trucks and ambulances could not go; and (3) request extra staff support for the Police and Fire Departments. He also had the pressing concern of wanting to alert the public, but there was a problem now in doing that: the lateness of the hour. He knew that it would not make sense to send out an urgent message to the residents of Philadelphia via Twitter or the Center's website because very few people would be checking those sites at that hour. So, he decided it was best to use a tool very seldom activated called a wireless emergency

alert—used for the most urgent messages, such as tornado warnings and Amber Alerts—which go out locally and directly to the cell phones of all Philadelphia residents.

The executives on the call knew they were not going to do any mandatory evacuations because, per Philadelphia charter and Pennsylvania code, only the Governor has that authority. They also knew that the water had already begun rising and they did not want to put people out of their homes in the middle of the night into a situation where they would go onto flooded roadways and become stranded or something more dangerous. So, they drafted a message that basically read, "Prepare for flooding. If you think you can relocate safely, please do so; if not, Turn Around, Don't Drown." They also conveyed in other messaging that if residents find themselves flooded in the morning, they should hold on until the water recedes and only call 911 in an emergency. The messages went out to Philadelphia before 1am. Afterwards, the group began to think about contingencies: What are things that are different now because they had the updated forecast? They knew there would be more rescues and began allocating resources in that direction. But what about shelters if people wanted to evacuate their homes? And what about life in general in Philadelphia the next day when people wake up? He explained how he approached the urgent decisions of that moment:

> We already had shelters for people to evacuate to, so we felt comfortable with that—they were nowhere near capacity, which we were monitoring closely. We got the word out to the public as best we could. We knew with daybreak there would be more opportunities; we were preparing for that. So, the other thing we turned our focus to was city services and to, quite honestly, K through 12 schooling, as well. And so, we got the School District of Philadelphia on the phone at maybe four or so in the morning.... We did the same with city leadership and said, 'Are we going to open up city governments or are we going to keep it closed? What's the safest thing to do?' The same kind of conversation we would have during a snow event.

Once the sun rose over Philadelphia, the forecast proved true: the rain stopped, and the roads started to flood. After packing a bag along with a pillow (in case at some point he would be able to take a nap), he got in his car and drove from Manayunk, a northern part of Philadelphia, down along the Schuylkill River down to Southwest Philadelphia to get his personal assessment of the storm's impact on the city. And, unsurprising to him, he had not left Manayunk before the first calls for water rescues came in from property owners. He then talked to the fire department and the shelter that was located near those flood victims to make sure that they were aware. After driving around to other areas, he went into the Center and did a shift change at around 6 or 7am and began with a fresh crew. The rain had stopped, but he knew the river was forecasted to continue to rise because all the rain that had moved north was falling into the Schuylkill River and, in fact, the worst of the flooding would be later in the day when it was not actually raining. One deputy commissioner of a Philadelphia utility company described this strange development, telling me: "It rained a lot, and then the sun came out. And that's when the emergency started."

"We had to wait for the river to give us back the city."

The roads were closed by the Philadelphia Police Department and the Parks and Recreation Departments were assisting with cleanup wherever they could. But then there was the issue of Interstate 676 that cuts across the center part of the city. It is known for easily flooding during rain events due to both poor drainage areas and because that area of the road descends into a bowl-like formation that is part of the geography of the city. His emergency managers called the state police, who are in charge of interstate roads, and inquired if there were any issues yet. The state police informed them: "We think we're

pretty good." But they also informed that many of their Troopers were working in Montgomery County, north of Philadelphia, because of flooding conditions in that area. About 30 minutes later, they got a call back from the state police saying, "We actually have some issues on 676. Do you have some extra police officers? We need to shut this down." Shutting down cross-city traffic would be significant, but at that point it was only one of several priorities to deal with. It was the responsibility of the state's Department of Transportation and the Pennsylvania State Police, but the emergency managers believed it was important to be supportive of one another and so he provided that assistance. The water eventually rose from the floor of the 676 roadway to the top of an overpass in what is now an iconic image of Hurricane Ida's impact on Philadelphia. It was a shocking sight—and apparently amusing to some residents who took to diving and swimming in Ida's impromptu river. But one executive pointed out to me that during a press conference a warning went out from city officials; he recalled: "The message to everybody was this isn't the [Schuylkill] river. This isn't river water; this is sewage."

They did end up evacuating a few high-rise apartment buildings—a total of about 1000 apartment units—that are located near the 676 area after a 911 call came in informing them that water was encroaching on the buildings' mechanical rooms that held their power equipment. One executive whom I interviewed commented regarding the equipment and structures that his department has scattered around the city: "The amount of water that the river brought to bear on the city of Philadelphia at that moment, there is no human construction that can ever deal with it...we had to wait for the river to give us back the city." The National Guard and Fire Department had arrived to help, along with the local SEPTA bus service, which transported residents to shelters if they wanted to stay

in a shelter. His emergency managers worked through those kinds of issues throughout the course of the day. Later in the evening, he began to assess the total damage caused by the flooding in order to move into the next phase of their work. He explained their overall process:

> [We began] really wrapping [our] arms around where was the extent of the damage and how bad is 'bad.' And the reason that we needed to understand how bad is 'bad' is because it helps us pivot to that next phase of emergency management: We did Preparedness the days before; we're clearly in Response by rescues and those types of things. But then transferring to Recovery [and] cleaning up and hopefully building back and building back better—and building back to not be as susceptible in the future. So, damage assessments of what was flooded, how much was flooded, and what those impacts were.

The damage information was collected from their own personal visual assessments, the city's License and Inspections unit, the American Red Cross, and their own information collection platform, called ArcGIS, a geospatial information platform commonly used for mapping; it contains a survey tool that can be turned on for the public to report damages—basically crowdsourcing information. They received 1000s of reports of flooding, including reporting on the type of damage. There were many requests for interviews, for which they used social media to share information with the public. They also used a quick code system for which they had the public text the word "storm PHL" to a provided number and they would then push out very specific updates to that group. One of their updates asked residents to report any damage through that platform.

The damage reports were pulled together in a standard format and reported to the state's emergency office informing them that the mayor had declared a local emergency. This ultimately led to the governor making a declaration for the entire Commonwealth—and to the governor also requesting a presidential disaster declaration, which unlocked federal resources. Federal resources allowed the Philadelphia Office of Emergency

Management to continue to position city services for activities, such as hosing down streets and removing mud in different parts of the city, repairing infrastructure, fixing guard rails and walkways, and repairing other city property that was damaged by the storm. It also enabled emergency managers to implement a program called Individual Assistance, which channeled money directly to individuals who were impacted by the storm and to the Small Business Administration for damages to residences and businesses. One emergency manager recalled the tremendous impact of federal assistance:

> We positioned or transitioned to recovery in that third and fourth day. And what really helped was bringing in those federal resources to eventually get money into people's hands, but also to get money into the city's hands as well. The city expended millions of dollars to respond to the storm and suffered millions of dollars of damage as well. And so that is what the road to recovery looks like.

He also described the later stages of their work after the storm:

> After the Recovery, we conducted After-Action reviews [looking at] what worked well, what didn't work well, what could we do differently in the future.

The road to recovery can be long. It was mentioned in the interviews that the City of Philadelphia is still engaged in the submission process to recoup some of the costs related to Hurricane Ida. Indeed, almost two years after the storm, the city is still submitting documentation, invoices, quotes, and Incident Reports to the federal government to try to secure as much reimbursement as possible.

Lessons Learned

I gleaned five significant findings from these first-hand accounts given by professionals who were decision-makers in Philadelphia before, during, and after the storm.

Finding One

The first and most salient finding is confirmation that the operation of emergency management and response happens in a repeating cycle. The cycle (Figure 2), which I call the Emergency Management and Response Cycle, is comprised of four distinct phases.

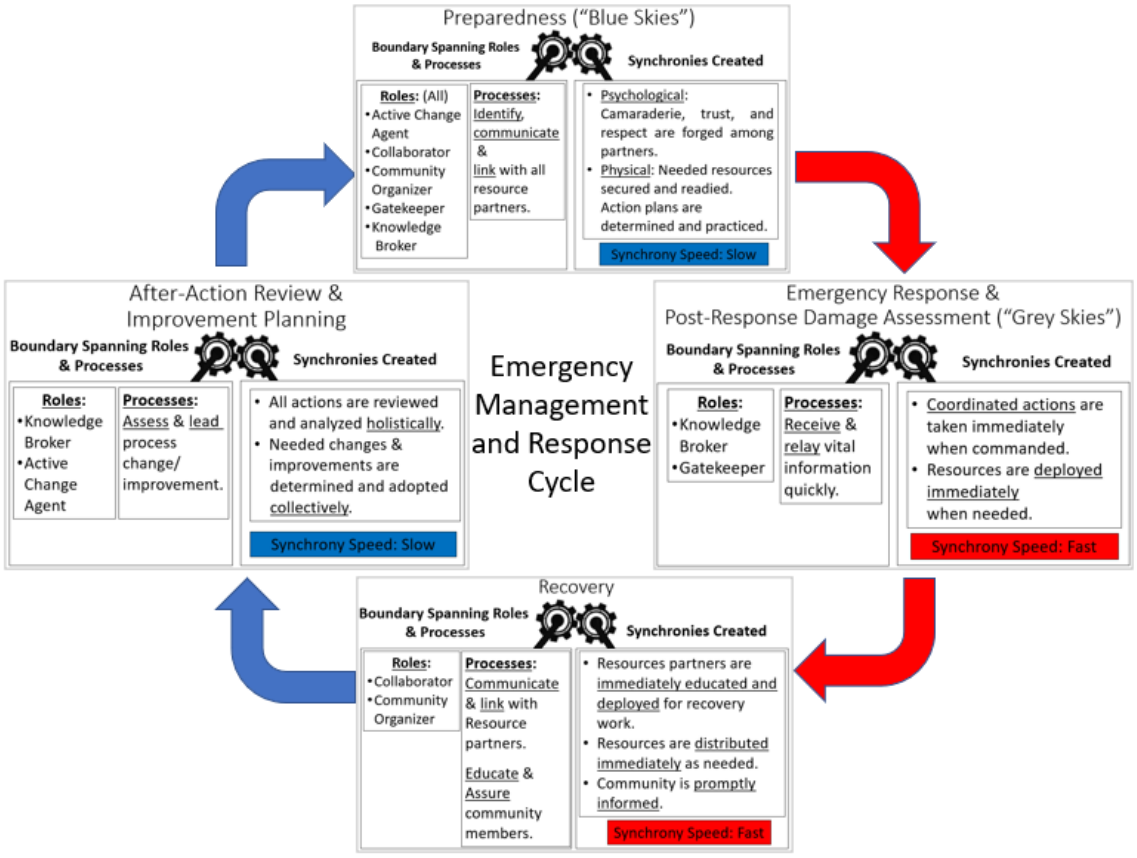

Figure 2. Emergency Management and Response Cycle.

The interviewees inform me that the first phase, referred to by emergency professionals as "Blue Skies," is—as the name implies—the period in which no major emergency incident is present. All boundary spanning roles are active during this phase employing processes that identify, communicate and link with emergency response partners and creating synchronies that are psychological as well as physical. The second phase, called

"Grey Skies," begins when a major emergency event occurs and causes the mobilization of emergency first responders. The *knowledge broker* and *gatekeeper* boundary spanning roles are activated starting processes that receive and relay vital information, creating synchronies such as coordinated actions and the immediate deployment of resources. After the emergency event has passed and the work of emergency first responders is completed (or is winding down), a damage assessment is performed to determine the work that must be done in the third phase, called Recovery. The boundary spanning roles of *collaborator* and *community organizer* are activated starting processes that communicate and link with Recovery resource partners and that communicate and assure members of the affected community. After the Recovery phase, the fourth and final phase of the cycle, called After-Action Review and Improvement Planning, begins in which emergency management and emergency response managers look back at their performance to see what was done satisfactorily and which areas need improvement. The roles of *knowledge broker* and *active change agent* are activated using processes that will assess performance and lead future process changes and improvements. After this fourth and final phase, the Cycle—and indeed sometimes the actual weather conditions—returns to the beginning "Blue Skies."

In addition, it is worth noting that the phases of the Cycle can overlap. This is most likely to occur between Recovery and After-Action Review because Recovery can many times take months or even years to be fully completed. This presents additional opportunities for boundary spanners operating at this intersection to provide active feedback to create more robust and immediate improvement in both Recovery and After-Action Review and Planning.

Finding Two

The second finding is that boundary spanning not only occurs within each phase of the cycle but that it occurs in a different way within each phase—that is, a different kind of boundary spanning role is appropriate for each phase of the cycle. The reason for these necessary changes in boundary spanning roles is that *the operative boundary changes* during each phase of the cycle. The operative boundary in emergency management and response is therefore fluid changing with each change in phase of the Cycle. So, the type of boundary spanning that is happening depends on the phase on the Cycle; each phase of the cycle presents a different boundary (or boundaries) that the appropriate boundary spanners will work to span. One Philadelphia utility executive, when asked during our interview about his process for ensuring that others understand his directives, commented that: "...command happens at different levels and crosses different boundaries." Most importantly, the boundary spanning that occurs in each phase is instrumental in creating some kind of synchrony between the emergency entity and an important internal or external stakeholder. Figure 3 below illustrates this finding in its delineation of the coding process of analyzing the data.

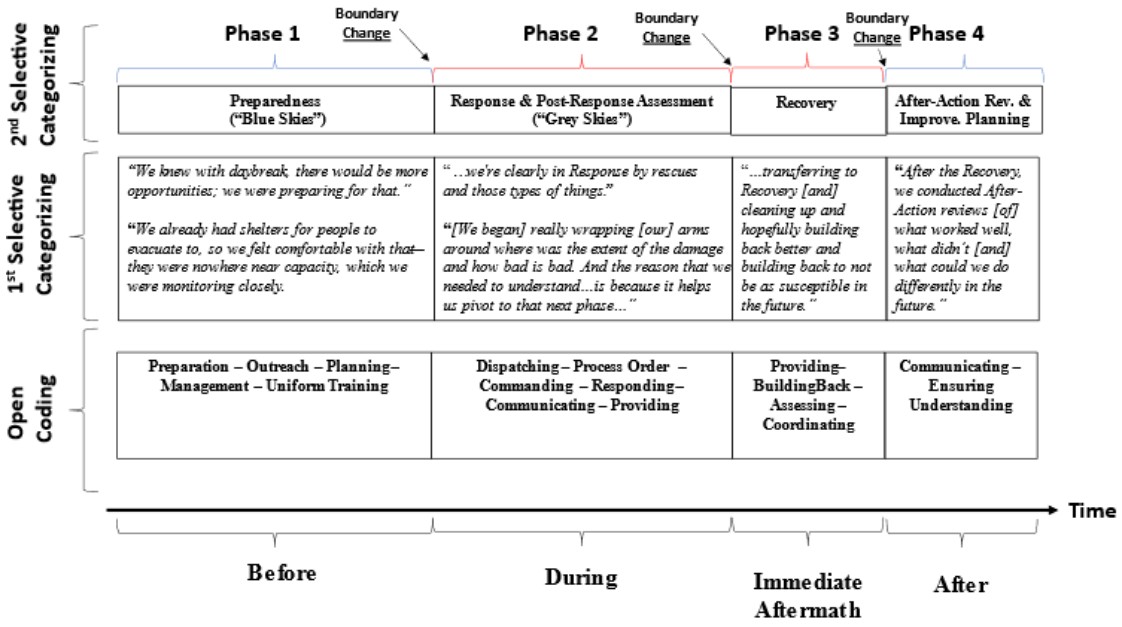

Figure 3. Coding Structure—Phases.

Finding Three

The third finding is that the synchrony that is created by boundary spanning occurs at *different speeds* within each phase of the Cycle. It is quite evident from the outlay of the Cycle (Figure 2) that emergency management and response operate in a very dynamic environment. Each phase is characterized by the tone of the urgency of the moment: Blue Skies and After-Action Review and Planning exist in the absence of a major emergency event and naturally is a calmer period in which fitting activities such as planning, communication, and debriefing can occur; this can be juxtaposed with "Grey Skies" and Recovery in which an emergency event is occurring or has just occurred and the focus has changed to immediately addressing the emergency or its aftermath. This change in tone imposes a change in the speed of alignment of emergency personnel and resources: i.e., personnel gathering will occur slower during Blue Skies than during Grey Skies. We know from the earlier discussion at the beginning of this study that this

temporal alignment of individuals is defined as synchrony. Here we see that its different occurrences in the Cycle show that *the speed of synchrony* changes during the emergency cycle. Figure 2 (above) which summarizes the Emergency Management and Response Cycle including the appropriate boundary spanning roles operationalized within each phase, the processes employed, and the resulting synchronies created, also includes a description of the speed of synchrony within each phase.

Also, contributing to the speed of synchrony in phases that involve temporary organizations (or emergency response teams) is the fact that individuals in these relatively close-knit temporary organizations tend to be quick to form trust between themselves and develop high expectation for each other's performance (Williamson, 2018; Beechy, 2006) with trust being a major influencing factor in their personal desire to fulfill their role on the team (Williamson, 2018; Muller et al., 2013). Figure 4 below illustrates this finding in its delineation of the coding process of analyzing the data.

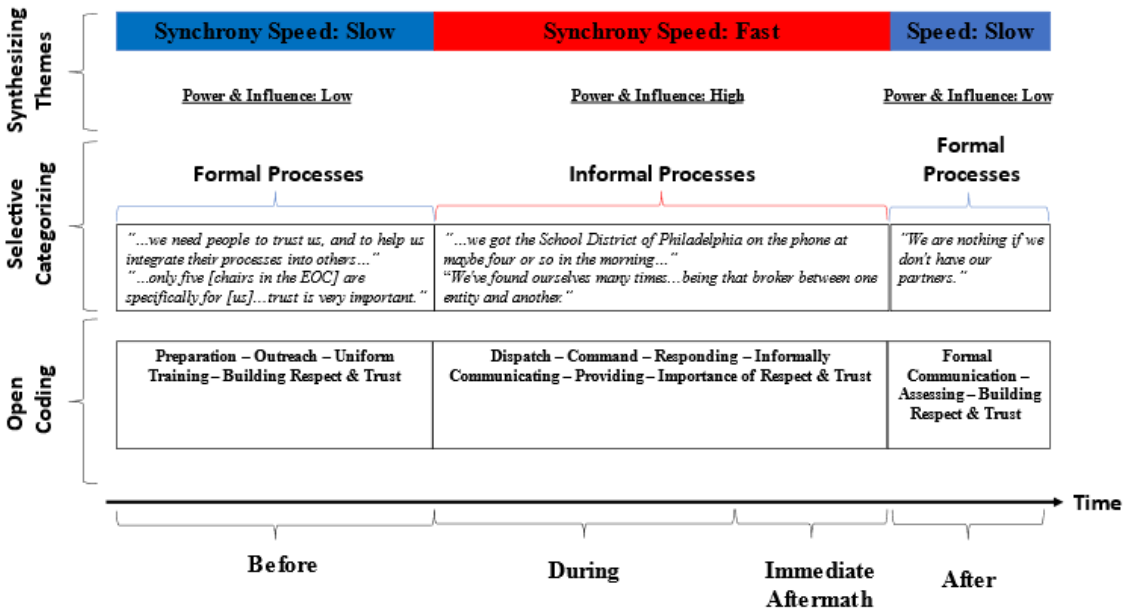

Figure 4. Coding Structure—Synchrony.

Finding Four

The fourth finding is that the power, influence, and importance of the roles of emergency managers will change during the emergency cycle just as the tone and focus of each phase will change. A top official in Philadelphia's Office of Emergency Management carefully pointed out this dilemma in our interview:

> And a lot of times, we are the small voice in the room because…we're an insurance policy that only shows up not in the everyday things but in the few and far between. And a lot of times, I think it's hard for emergency managers to find their voice or to find their footing.

The logic that explains this unfortunate phenomenon is the fact that the operative boundary changes in each phase of the cycle because the environment changes within each phase with different internal and external stakeholders. With each change in environment, the goal of the boundary spanning that is occurring naturally also changes. This change in goal results in changes to the relative importance and influence of an emergency manager's role within the overall system—the manager performing the role that is most useful in attaining the current goal becomes most important. For example, during Grey Skies when an emergency event is occurring, the *gatekeeper* boundary spanner is elevated from a standby position occupied during Blue Skies to what is essentially a leadership position during the emergency response. Conversely, after the emergency event has moved from Response to Recovery and After-Action Review, the *gatekeeper* returns to the less prominent standby position. Figure 5 below illustrates this finding in its delineation of the coding process of analyzing the data.

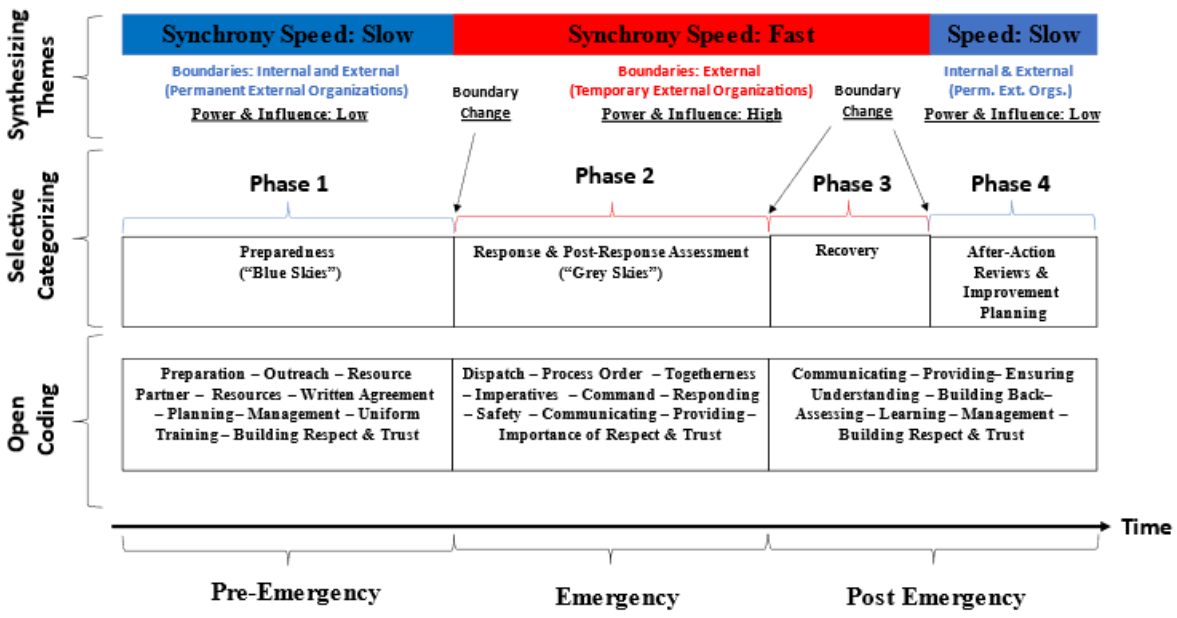

Figure 5. Coding Structure—Power and Influence (Combined Effects)

Finding Five

The fifth finding is that during the emergency cycle, emergency managers interact with external organizations and that can be classified as either temporary or permanent. This diversity of classifications is the primary reason for the changes in boundaries that occur in the different phases of the cycle. Figure 6 below displays the changes in boundaries, the types of organizations involved, and the corresponding stakeholders in each phase of the Cycle.

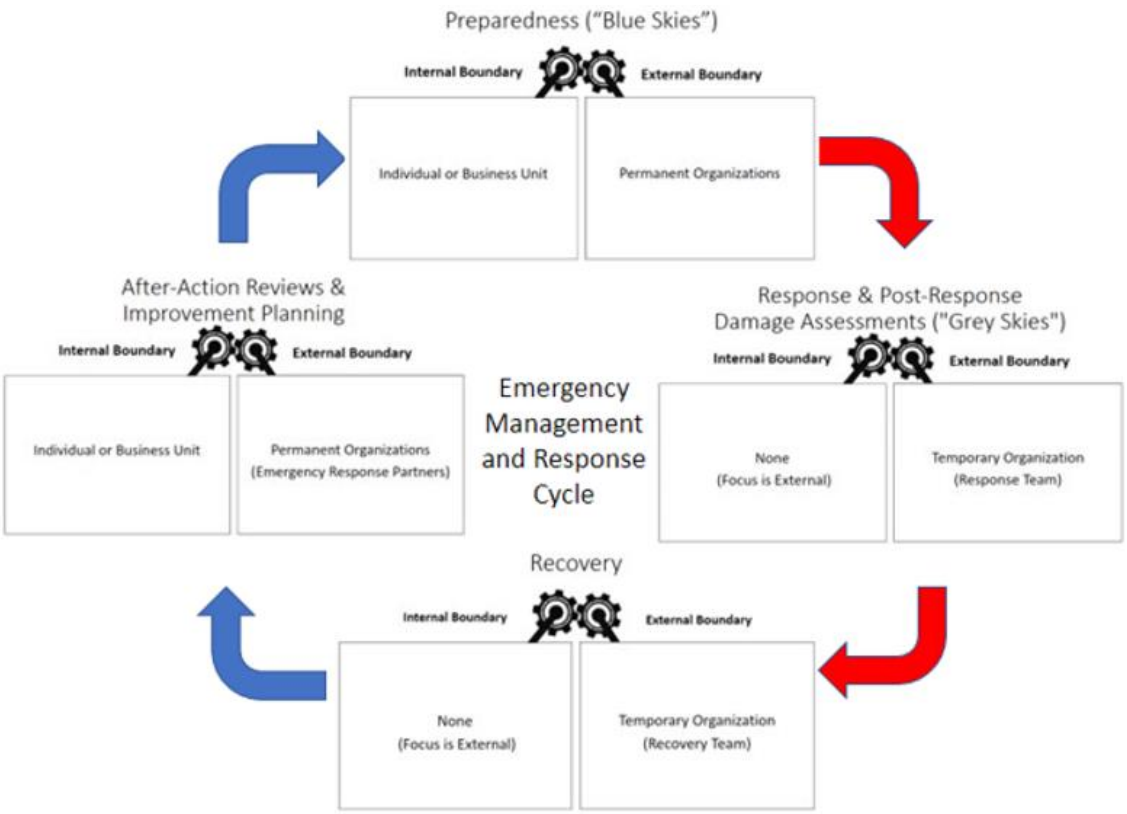

Figure 6. Boundaries of the Emergency Management and Response Cycle.

Contributions and Implications

Practical Contributions

This research provides evidence that boundary spanning in emergency management and emergency response operations can be instrumental in creating and sustaining synchrony that is not only a catalyst for improved organizational performance but is a critical component that enables professionals in those fields to perform their functions successfully. One particular characteristic of the profession is the element of intense collaboration between diverse partners, and this element magnifies the importance of boundary spanning in bringing the varied partners together in a manner that allows optimal cooperation and performance. When boundary spanning is effective,

these partners are aligned in their actions, and even in their physical positioning, in a synchronous way. So, we have seen that boundary spanning leads to synchrony. Emergency professionals have several practical tools at their disposal to exercise effective boundary spanning that will help produce synchrony:

Uniform Training

One emergency first responder pointed out in our interview that an important part of a successful emergency response among varied partners brought together with immediacy is the fact that they were all "trained to the same standards." The uniformity in awareness, skill, and protocol fosters immediate alignment.

Written Procedures

The Incident Command System—a part of the National Incident Management System (NIMS)—which is familiar to firefighting professionals throughout the profession in the United States, provides for a collective understanding and agreement of procedures to be follow on fire grounds during an emergency response. Written procedures and Mutual Aid Agreements between emergency professionals and local response partners, such as NGOs, can prove effective in the same way. Documented procedures help span the boundary between organizations and will help create synchrony by delineating a chain of command, while also providing a mechanism for tracking important assets.

Symbols

Symbols can be used as a means of visually communicating a set of skills that an emergency professional possesses. For example, badges and symbols are a standard feature on firefighting uniforms and helmets to visibly communicate that the professional

is skilled in a certain area. My interviews inform that this helps to allow quick allocation of tasks during urgent moments of an emergency response.

Consistency

The interviews reveal overwhelmingly that trust is the unifying force that enables organizations to effectively cooperate and collaborate. Nowhere is it more important than in the pressurized environment of an emergency. Interviewees have repeatedly expressed how trust also engenders respect, another element of a productive partnership. It is, therefore, evident that consistency underpins both these crucial characteristics. One leader expressed the overall importance of this aspects of professional partnering in emergency management and response:

> We are nothing if we don't have our partners. There's a reason that [in] our Emergency Operations Center, out of the 45 seats that are in there, only five of those are specifically for Emergency Management; the other 40 are for everybody else but us. So, trust is very important.

Versatility and flexibility

Of utmost importance are the abilities of the emergency professionals tasked with performing boundary spanning functions. It is quite obvious that it is practically impossible for boundary spanning to be effective in a dynamic environment unless the boundary spanner has the flexibility to perform different boundary spanning functions. This is a critical necessity because in a dynamic environment the operative boundary—between internal individuals or business units, or between the organization and external entities—is constantly changing. The boundary spanner, therefore, is compelled to change skillsets according to the existing boundary.

Theoretical Contributions

The Aggregation of Synchrony

The first theoretical contribution of this research pertains to the research question that was posed in the beginning: Does synchrony aggregate from the individual level up to the business unit and organizational levels? This research has found that the answer is not only in the affirmative but that in the intense and close connections that are characteristics of the emergency management and response profession, it is necessary that synchrony translates from the individual to the organizational. The interviews show that emergency managers communicate—boundary span—on every level of the organization and externally with outside stakeholders in a manner that is critical to the success of an emergency response. The boundary spanning that is performed allows synchrony at the organization level when the emergency management entity functions as a collective boundary spanning organization with other government and community organizations that themselves may be classified as permanent or temporary organizations. The interactions take place in what is essentially a repeating cycle comprised of four distinct phases, as described earlier.

The Role of Temporary Organizations in Emergency Management and Response

The second theoretical contribution pertains to the role of temporary organizations—important external stakeholders in emergency management and response. Temporary organizations are defined by the temporary nature of their existence, in that they cease to exist once the goal for which they were created is accomplished (Williamson, 2018). Emergency management organizations interact with other traditional permanent organizations during certain phases of the cycle and with what are essentially

temporary organizations in the other phases. During Blue Skies, emergency managers may interact with other permanent organizations that are established with a permanent ongoing specific function, such as providing food or shelter during emergencies. For example, the interviews revealed that communication and planning may occur with The Red Cross and The Salvation Army regarding an action plan to be followed in the event of a specific kind of disaster. During Grey Skies, however, when an emergency has occurred, emergency managers are coordinating with teams of first responders that are established for the temporary purpose of addressing the emergency. When the emergency has been addressed by that team, it ceases to exist. Likewise, during the Recovery phase when teams are assembled for the purpose of rebuilding, providing shelter, medical supplies and similar services: once the recovery is considered complete, the temporary organization is disbanded. Lundin and Soderholm (1995) outline four defining characteristics of temporary organizations: *time*, specifically the temporary nature of the organization; t*ask*, referring to the singular or very few specialized jobs that each member of the organization is hired to perform; *team*, the members of the organization with specialized skills who are brought together for the sole purpose of completing a specific goal; and *transition*, which is the end of the temporary organization when the goal for which is was formed is completed (Williamson, 2018). When emergency managers function in a boundary spanning capacity during Grey Skies and Recovery, it is my belief that additional attention to these features of temporary organizations will help guide the management of relationships and resources. For example, it is clear that trust and respect are of key importance when interacting in newly formed associations—interviewees have

indicated that they can be created and sustained by careful communication. A top official in the Philadelphia OEM commented in our interview:

> A lot of times, we are an outsider, but for our function to work, and for the overall function to work, we need people to trust us, and to help us integrate their processes into others, and vice versa, integrate others processes into their processes. And you don't do that without trust. We've found ourselves many times...being that broker between one entity and another.

The Dynamic Nature of Boundary Spanning and Synchrony

The third theoretical implication—and one of the most intriguing discoveries of this research—pertains to the dynamic nature of boundary spanning and synchrony and how individuals who occupy these privileged broker positions in organizations function in an environment that is *not static*—as may have been portrayed in prior literature—but is one that is fluid with boundaries that are sometimes frequently changing. Consequently, *boundary spanning is most effective when it is applied in a fluid way* by boundary spanners who possess a versatile set of skills that will allow this required flexibility. *The boundary spanner role must change with changes in the boundary* that the boundary spanner faces—internal or external.

The fourth theoretical contribution is that the speed of synchrony can be either fast or slow and can change depending on the type of boundary that is to be crossed—which could encompass considerations regarding whether the organization on the other side of the boundary is a formal or temporary organization. In emergency management and response, we saw that synchrony that is created by boundary spanning occurs at different speeds within each phase of the Emergency Management and Response Cycle. Emergency management and response operate in a very dynamic environment in phases that are heavily influenced by the level of urgency present. Changes in the level of

urgency impose a change in the speed of alignment of emergency personnel and resources (i.e., personnel gathering will occur slower during Blue Skies than during Grey Skies), which shows one of the reasons for the change in the speed of synchrony during the emergency cycle. Another possible reason could be the type of boundary crossed; that is, the type of organization across the boundary. When a temporary organization is on the other side of a boundary, it can contribute to—or be the cause of—a change in the speed of synchrony (when the prior boundary was with a formal permanent organization), as well as the boundary spanning roles operationalized, because individuals in these relatively close-knit organizations tend to be quick to form trust between themselves (Williamson, 2018; Beechy, 2006)—this relative to the traditional formal permanent organization.

Discussion

Two issues emerged from this study which both take a comprehensive look at the overall study of emergency management and response and the themes of "effectiveness" and collaboration of emergency management and emergency response professionals that are present throughout the analyses. These themes present an opportunity for enhancement of the study of both fields by sharpening what is meant by "effectiveness" and by accounting for the frequent collaboration of professionals in both fields in future studies.

A New Proposed Framework for Defining "Effectiveness"

A theoretical implication brought to light by this research is the identification of a plausible framework for defining "effectiveness" in the context of emergency management and response. Bhattacherjee (2001) points out in his research on information

systems continuance that the Expectation-Confirmation Theory (ECT) proposed by Anderson and Sullivan (1993) and Oliver (1980, 1983) posits that consumers' intent to repurchase a product or to reuse a service is determined by prior satisfaction with that product or service. This satisfaction provides a baseline from which to form judgements about future performance. When the performance of the product or service exceeds the expectation set by past experience then a positive confirmation is achieved. This positive confirmation, in turn, leads to repurchase. In the setting of emergency management and response, this "repurchase" would be equivalent to *approval* of the performance of the emergency entity. I would propose that this *approval is a confirmation of the effectiveness* of the emergency entity and that the degree of this confirmation—the positive difference between the performance and the expectation—is equivalent to a measure of the degree of effectiveness. The expectation that a city government and its residents may have of an emergency entity and how they measure its performance is beyond the scope of this research, but one would assume that it would involve a comparison with emergency entities in similar sized and situated cities.

The Necessity of a Unified Study of Emergency Management and Emergency Response

Another theoretical implication is that the demonstrated role of boundary spanning and synchrony between the varied professionals in emergency management and emergency response suggests that there is a strong case that perhaps these two civil functions should always be studied and discussed *together* as complementary units positioned toward a shared goal and not as separate and independent subjects (though they may be distinct professional functions).

Conclusion

This research aimed to discover if boundary spanning functions can lead to synchrony in emergency management and emergency response, and if, thereby, to improved performance; it found that boundary spanning can lead to synchrony at the individual, business unit, and organizational levels and that it also improves effectiveness—for which I provided a possible framework for measuring "effectiveness." This research also showed that the synchronies created by boundary spanning functions form at different speeds depending on the environment in which it is created; the key takeaways underlying this discovery are that boundary spanning happens in a dynamic environment with constantly changing boundaries, and that the boundary spanning role must change according to changes in operative boundary.

Future Research

Future study is warranted to investigate several compelling questions: What does effectiveness mean in different contexts? What is correlated with effectiveness? Which boundary spanning roles are more correlated with effectiveness? The literature contains many studies on effectiveness in various contexts. For example, scholars have discussed the complementarity of communication and coordination networks as a way to measure the effectiveness of emergency management networks (Sienkiewicz-Malyjurek & Owczarek, 2020); the merging of roles between public service organizations as a means to increase efficiency and effectiveness (Vielot & Horney, 2014); a scenario-based model to evaluative earthquake preparedness (Zhang et al., 2017); an agent-based model along with Monte Carlo analysis to estimate effectiveness in life-saving during extreme floods conditions (Lumbroso & Davison, 2016); and a framework for assessing flood emergency

management preparedness in Europe (Gilssen et al., 2016). A comprehensive and synthesized look at these measurement efforts would add to the literature on emergency management, emergency response, boundary spanning, and strategic management.

The many different boundary spanning roles that emergency managers must assume in the process of dealing with an emergency clearly shows that they possess tremendous strategic communication skills. But these skills—exercised during "Grey Skies"—make us wonder how they are or could be used during "Blue Skies" when they would be applied to nonemergency operations in municipal government. What could those skills help to improve or maintain? How could they aid in the launch or guidance of a new initiative? Who would be the prime beneficiaries of their assistance? These questions also warrant future research.

CHAPTER 3

STUDY TWO: CAN EMERGENCY MANAGEMENT LEVERAGE ITS BOUNDARY SPANNING CAPABILITIES TO FACILITATE SYNCHRONY ACROSS THE CITY?

Introduction

The first study, Understanding Synchrony in Emergency Management and Response, yielded intriguing results that not only revealed the underpinnings of the operations of emergency management and emergency response— mechanisms and motivations that propel the cyclical processes that are employed systematically to address emergencies—but it also provoked intuitive thoughts that inquired beyond these operational dynamics to what seems to be unexplored potential for greater effectiveness on the part of emergency managers that extends beyond the realm of preparing for and responding to emergencies. This unexplored effectiveness would be manifested as an influence that would be a force-multiplier within the greater municipal government ecosystems to assist other agencies with which they correspond and collaborate to perform their individual functions more effectively.

The intuition that envisions and frames this potential influence is grounded in three theories—three theoretical pillars—individually explored in the literature: *structural holes* within organizations which Burt (2004) and Burt and Merluzzi (2014) posit are privileged position from which the brokerage of knowledge and power can operate, *contagion* as framed and explained by Mir et al. (2021) in their examination of 'sustainable supply chain contagion,' and the relatively new concept of *entanglement* which Gloor et al. (2022) propose is the concentration of communications within an organization and an indicator of the level of synchrony within the system. Intuition proposes that if emergency managers were to fully exercise the advantages of the

structural hole that they occupy within municipal government—as evidenced in the findings of the first study, Understanding Synchrony in Emergency Management and Response—employ the proliferating effect of *contagion* in promoting emergency preparedness-related projects and ideas systemwide, and strategically engage in *entanglement* to increase the level of contagion and synchrony within the system—an opportunity which their privileged position makes readily available— then emergency managers would be able to function as "assist leaders" in helping municipal government to function more effectively in addition to their usual emergency preparedness and response duties.

We explored this "assist leader" possibility in this exploratory qualitative study that looks at the operations of the municipal emergency management department of several big cities across the US. For a cross-section of these cities, complementary interviews were conducted with executives working outside of emergency management ("outside executives") to gather their perspective, particularly regarding their affiliation with their city's emergency management department. Our inquiry focused on exploring the types of brokerage and entanglements that exist and the ways in which they seem to work. This, in turn, provided a foundation for speculation and grounds for specific recommendations for how a municipal emergency management department could become an "assist leader" in the city, a force-multiplier of the city's fulfillment efforts of its various obligations and initiatives carried out by its many agencies. This study sought to answer key questions regarding the influence and power of municipal emergency management departments: How can bridging their structural hole through boundary spanning allow emergency management to effectively communicate systemwide in

municipal government? Can the influence of emergency management create widespread beneficial contagion? Will this beneficial contagion lead to synchrony across the municipal system?

Structural Holes

A structural hole in an organizational network is a position situated between separated units of the network and through which entities that occupy this position have access to resources and capabilities such as diverse knowledge (Burt, 1992), the collection of pooled resources and cooperation (Uzzi, 1996), and the advantage of third-party endorsements (Stuart et al., 1999). In addition, innovative entities that bridge a structural hole achieve a boost to their performance (Zaheer & Bell, 2005).

Contagion

Mir et al. (2021) used the setting of supply chains to show how contagion of a sustainability initiative that is initiated downstream and travels upstream can be propagated by network and communication factors. N*etwork factors* are the key features of the supply chain that largely determine *how* the sustainability initiative moves upstream and *communication factors* are *what* is communicated. In addition, they posit that the combination of these factors has the distinct potential to overcome an accompanying weak business case.

Entanglement

Gloor et al. (2022) measure the level of synchrony in an organization by their new metric of entanglement. The measure reflects the concentration of communication within an organization with accompanying implications for individual and organizational performance: individual turnover and organizational performance can be predicted

according to their relative levels; that is, the higher the level of entanglement the lower the expectation of turnover and the better the organizational performance.

Research Question

Can the use of boundary spanning that leverages the advantages of structural holes, the proliferating effect of contagion, and the predictive power of entanglements make emergency managers "assist leaders" in municipal government by creating and increasing synchrony across the municipal system?

Conceptual Foundation (Literature-Grounded)

In exploring the key questions regarding the potential broader influence of emergency managers, it is important to understand more deeply the central topics of the theoretical foundation that emerged as critical, even indispensable to their ability to function in a sustainable manner as "assist leaders."

Theoretical Foundation of the "Assist Leader" Possibility: Three Theories

Structural Holes

Diverse ideas exist more between groups than within them in an organization, and the individuals who occupy positions that lay between groups, called *structure holes*, are exposed to this diversity of ideas that exist in the separate groups (Burt, 2004). From this, Burt (2004) points out that "brokerage across structural holes between groups provides a vision of options otherwise unseen, which is the mechanism by which brokerage becomes social capital" (p. 349). He points out that certain advantages and benefits are derived from this brokerage position, including compensation, positive performance evaluations, promotions, and good ideas—all of which are disproportionately afforded the individuals whose networks encompass a structural hole. In a later work, Burt and Merluzzi (2014)

expanded on the concept explaining that structural holes are the bridging positions between organizational units and are embedded in the formal hierarchy of job rankings. They point out that "people whose networks span these structural holes gain advantages of information breadth, timing, and arbitrage" (p. 163).

Nahapiet and Ghoshal (1998) connected social capital directly to *intellectual capital*. Individuals who occupy a structural hole are attractive to, and have access to, a wide network across the organization and can use resultant interactions and exchanges to create social capital since, as they explain, social capital rests in relationships and is created via exchange. This social capital, in turn, facilitates the development of intellectual capital by fostering conditions that allow exchanges and combinations of knowledge to occur—because they also state that "new intellectual capital is created through the combination and exchange of existing intellectual resources, which may exist in the form of explicit or tacit knowledge and knowing capability" (p. 250).

Contagion

Mir et al. (2021) describe how contagion of a sustainability initiative within a supply chain that is initiated downstream and travels upstream can be fostered by network and communication factors that can overcome a weak accompanying business case. They describe network factors as the key features of the supply chain that largely determine how the sustainability initiative moves upstream and communication factors as what is communicated in the process—that is, the essence or message of the content of the communications. Therefore, network factors include features such as the contagion pathway—of which their discussion of the Cohesion Model that emphasizes the use of repeated communications (of a strong business case) to promote contagion is utilized in

our study—and communication channels, and communication factors include messages regarding the alignment of the initiative with the upstream actors' departmental goals and assurance of continuity of the initiative in the event of personnel changes (Mir et al., 2021).

Emergency managers would use contagion in a manner that centers around the business case. Mir et al. (2021) state that supply chain contagion is likely to occur when the business case is strong. My interviews inform that a "strong business case" in municipal government means that the project holds a promise of beneficial value to both city commerce and the taxpayer (i.e. communities). Emergency Management, logically, therefore has the advantage of an inherently "strong business case" for all its own emergency preparedness projects. As a result, they could serve as "assist leaders" across the municipal system by building up the business case of other agencies' projects by consulting with them to add an emergency preparedness element to their project or to enhance an emergency preparedness element already built into their project. Afterward, emergency managers would work from their structural hole (using boundary spanning) to create contagion for that agency's project—in a manner resembling Burt's Cohesion Model that emphasizes repeated communication of a strong business case (Mir et al. 2021)—while using the emergency preparedness element of the project as justification for its involvement.

Entanglement

Entanglement is a new metric that measures the level of synchrony in the communication between team members of an organization. Gloor et al. (2022) implied that entanglement shows the concentration of communications within an organization and

that this concentration is an indicator of the level of synchrony within the system. They explain that "this measure calculates the Euclidean distance among team members' social network metrics timeseries" (p. 100). In their study, they validate the metric through four case studies: the first used the entanglement of 11 teams to predict team performance and learning behavior; the second looked at the e-mail communications of 113 senior executives to predict employee turnover, indicated by the lack of entanglement of an employee; the third analyzed individual employee performance of 81 managers; and the fourth predicted the performance of 13 customer-dedicated teams by comparing entanglement in the e-mail communications. Importantly, the researchers admit that they "can only speculate about what is causing the entanglement effect", but that the versatile measure "could be used as a powerful predictor of employee and team performance, employee turnover, and customer satisfaction" (p. 100).

Methodology

Overview

This was an exploratory qualitative study that looked at emergency management departments' activities during "Blue Skies." Our inquiries focused on exploring the types of brokerage and entanglements that exist and the ways in which they seem to work. This, in turn, provided a foundation for speculation and grounds for recommendations for how municipal emergency management departments could become "assist leaders" in the city.

More specifically, some of the questions we asked in our interviews included: "How connected is the department to other stakeholders in the city?" "In what ways, if at all, has department collaborations with other agencies encouraged other agencies and departments to also collaborate?" "How does the department strengthen its relationship

with other stakeholders in the city?" The full list of interview questions can be found in Appendix E.

Participants

Interview participants were selected based on their decision-making role within the emergency management department or their senior leadership position within municipal government (or a related outside organization) for interviews with executives outside of the emergency management department. Informants were recruited through directed telephone contact in the case of second interviews with Philadelphia emergency managers who were participants of the first study. Informants from cities around the US were recruited by phone and email through my newly established personal connection with the executive director of the Big City Emergency Managers (BCEM) organization, a coalition of the emergency managers of 15 of the largest jurisdictions in the US. Interviews began in October 2023 with the Philadelphia Office of Emergency Management and continued through February 2024 with emergency managers recruited through BCEM and with several other outside executives. A total of nine senior executives were interviewed. Table 3 below shows a summary of these participants.

Table 3

Interview Participants—Study Two

Title	Location	Population (2021 US Census)
Director (Agency Head)	Northeast US	1,576,000
Director (Agency Head)	South Central US	4, 728,000
Director (Agency Head)	Northeast US	712,816
Director (Agency Head)	Pacific Northwest US	733,919
Director (Agency Head)	Pacific Northwest US	815,201
Duputy Director	South Central US	4,728,000
Deputy Director	Northeast US	1,576,000
Director (Outside Executive)	Multiple US States	66,271,411*
Manager (Outside Executive)	Northeast US	1,576,000
Manager (Outside Executive)	Northeast US	3,500,000

*Org membership covering multiple US States

Questions Asked

The interview questions were constructed based on the critical data that the study sought to gather regarding emergency management's connectivity, aligned interests, and relationships, which according to recommended practice map to the constructs and concepts (three theoretical pillars) that they would be utilized to measure (Wray, 2019), and upon which this study is grounded. For example, data was gathered regarding connectivity, which maps to the theory of structural holes, through questions such as: "How connected is OEM to other stakeholders in the city?" "What is the process like to get connected with the different stakeholders?" "Who usually initiates the connection?" Likewise, data was gathered regarding aligned interests, which maps to the theory of contagion, through questions such as: "What are the shared beliefs and convictions between OEM and Mayor's Office?" "In what ways, if at all, have OEM collaborations

with other agencies encouraged other agencies/departments to also collaborate?" "What other 'currencies' or trades or levers are used to align the interests of the OEM and other stakeholders in the city?" The full list of interview questions can be found in Appendix E.

Data Collection

Data was collected using semi-structured interviews conducted via telephone and video—the latter used only if initiated by the interviewee. The goal of the interviews was to discern patterns in responses that inform regarding the boundary spanning functions that lead to effective communication capable of creating contagion and synchrony. Since semi-structured interviews was the interview format, interview preparation consisted of pre-drafted interview questions that were asked during the interviews. In requesting an interview, informants were only asked for their participation by telephone with no mention of video, according to IRB restrictions. The informant's consent was requested prior to recording the audio of the interview. The attached IRB Protocol (Appendix G) contains pre- and post-interview scripts. Nine interviews were conducted that lasted from 30 minutes to over one hour for a total of more than 7 hours of interviews. Otter.ai was utilized to transcribe the interviews and to aid with data analysis. Data analysis of each transcript took approximately 2 hours.

Data Analysis

Data analysis followed a flexible pattern matching approach in which iterative comparison of relevant theories with empirical evidence from qualitative data allows for grounded theory development (Bouncken et al., 2021). Since the purpose of the interviews was to gather rich qualitative data related to communications by the emergency management department, the focus of the analysis was on discerning patterns

in the responses that informed regarding the boundary spanning functions that foster effective communication across the municipal network that cause contagion that ultimately produces synchrony. Specifically, analyses focused on how boundary spanning is operationalized during "Blue Skies" and whether it creates the kind of communication that can cause contagion at the systemwide level that leads to synchrony (and improved performance).

Coding Process

NVivo software was used for coding, sub-coding, and thematic analysis. Analysis was sharpened by performing it concurrently with data collection and in an iterative process (Miles et al., 2020). The focus of each analysis was on discerning patterns in the responses that informed regarding boundary spanning functions and communications from a structural hole that can lead to contagion and synchrony.

NVivo Word Clouds were used to complement careful analysis of the transcripts to create or confirm open coding that was created for each Step of the timeline. Three criteria were set for each Word Cloud: (1) top 50 words; (2) with stemmed words (i.e., "ing" gerunds); and (3) a minimum length of three letters for each word. Figure 7 below shows a sample of the NVivo Word Clouds that were used. Appendix C contains a detailed sampling of the NVivo Word Clouds used grouped by type of stakeholder.

Figure 7. NVivo Word Cloud Sample—Study Two.

Selective Categorizing. The second level selective categorizing was generated from careful and iterative analyses of the interviews. The coding of the steps relied heavily on jargon, concepts, and operational procedures common among emergency managers but with documented, detailed evidence matching to the progression of the three theories, which allowed for passage to the third level of coding that revealed clear theoretical themes.

Synthesizing Themes. The generation of synthesized theoretical themes flowed from a comprehensive and iterative review of the activities that characterize the selected categories and especially the communication changes occurring over time. Analysis of the changes in the nature of communications in each of the Steps revealed the themes of "connectivity," "shared interests," and "strong relationships," which each play a role in the creation and continuation of contagion (and synchrony). For example, in sending out communications in Step 1 with the aim of creating contagion, it is the emergency manager's connectivity—reflecting their occupation of a structural hole—that makes the communication effective. Likewise, in repeating the communications (of a "strong business case") during Step 2, it is the emergency manager's shared interests with members of his network that serve to create contagion. And during Step 3 when the

emergency manager focuses his communications on members of his network who are also well-connected to accelerate contagion, it is the existence of strong relationships that enables this entanglement. A coding of the progression of the three steps of the "assist leader" framework, each featuring one of the three theories, was created (Figure 8). Glaser's three-step coding process was utilized to achieve theory formation through: (1) open coding, (2) selective categorizing, and (3) synthesizing of themes (Myers, 2020).

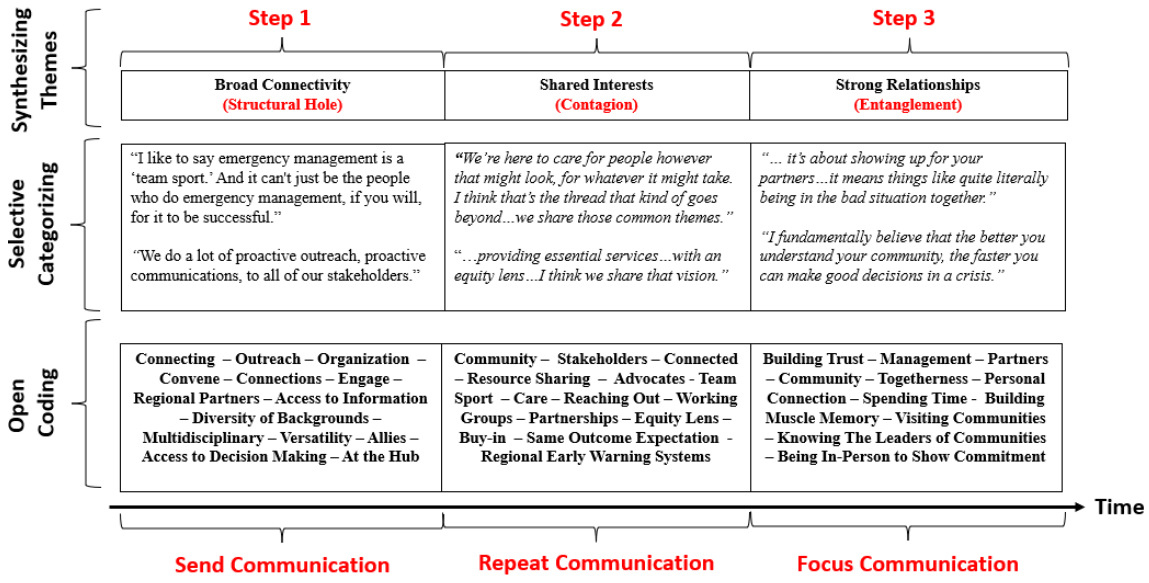

Figure 8. Coding Structure—Progression of the Three Theories.

Findings

Functioning as an Assist Leader

The interviews conducted with emergency managers produced a vast amount of information that informed regarding not only why emergency managers can function within a framework that enables them to be "assist leaders" but also showed how the intricacies of their operations and their mindset position them to be able to balance their competing and varied priorities. The emergency manager functioning as an "assist leader" follows a sequence of behaviors that rests upon the three theoretical pillars of this second study: *structural hole*, *contagion*, and *entanglement*. The emergency manager first operationalizes the inherent advantage of the connectivity of the structural hole that she occupies, then sets in motion the contagion that spreads the synchrony that begins from the structural hole, and finally works to intensify the contagion throughout the system through strategic entanglements throughout her network. The following sections lay out a detailed analysis of this progression, beginning with the series of Figures (9 to 12) that illustrate the progression in practice.

During Blue Skies, Emergency Management resides among other departments in the general government landscape…

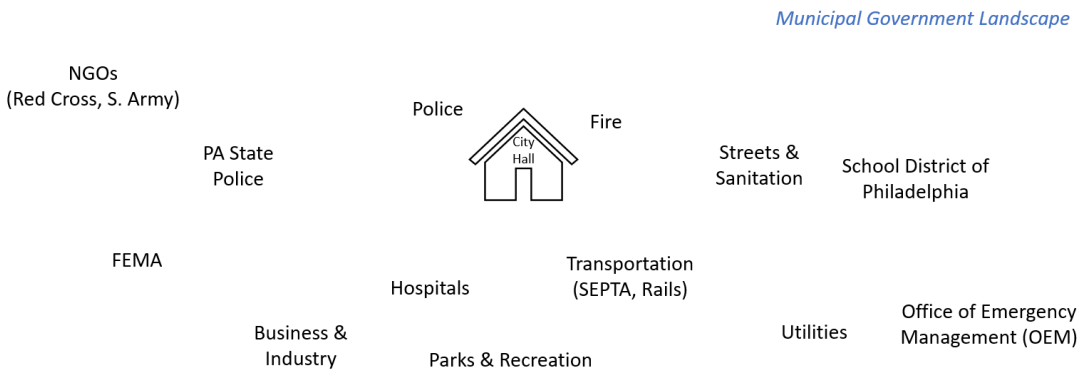

Figure 9. The Municipal Government Landscape During "Blue Skies".

When a major emergency occurs, the Emergency Management department is elevated in power and influence and can convene the entire municipal government; this reveals their occupancy within a *Structural Hole*…

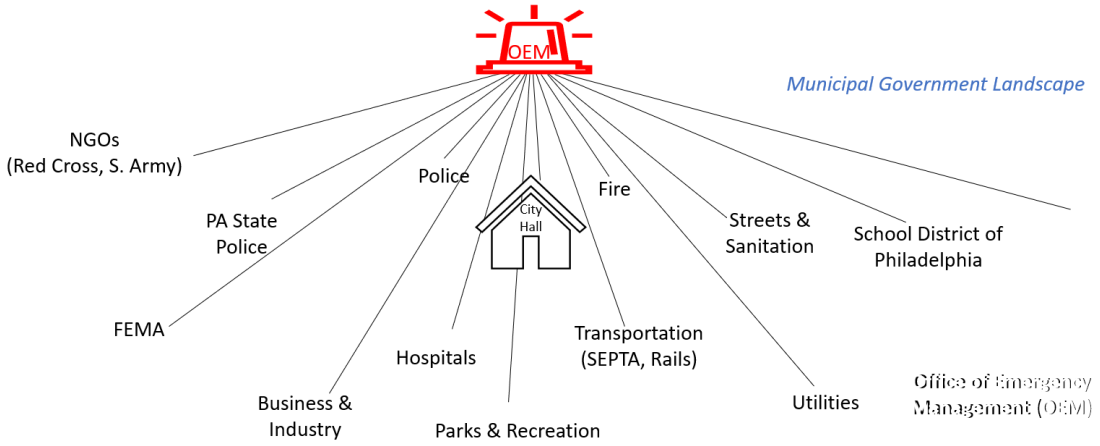

Figure 10. Revelation of a Structural Hole.

The creates pathways for the initial stages of contagion from the structural hole…

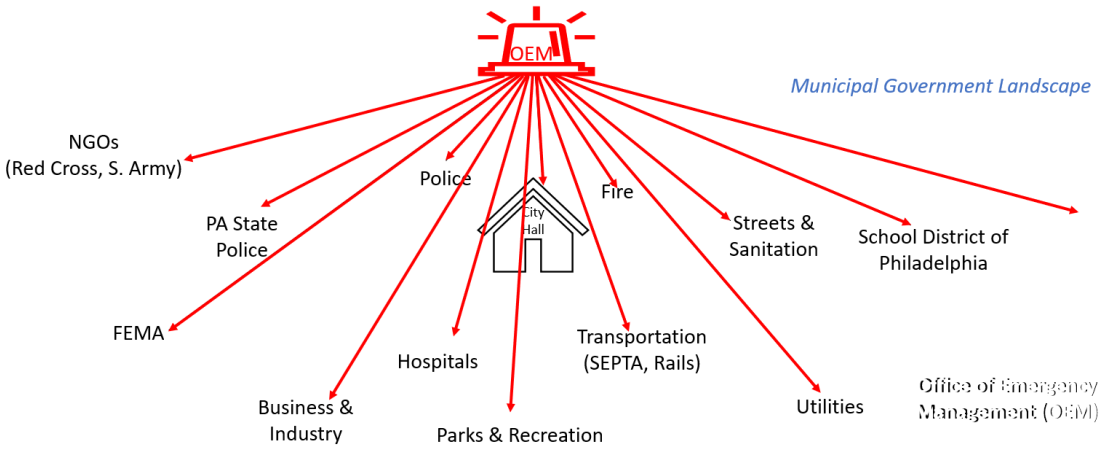

Figure 11. Pathways of Contagion.

After contagion begins, entanglement could help to foster the acceleration of contagion across the entire municipal landscape.

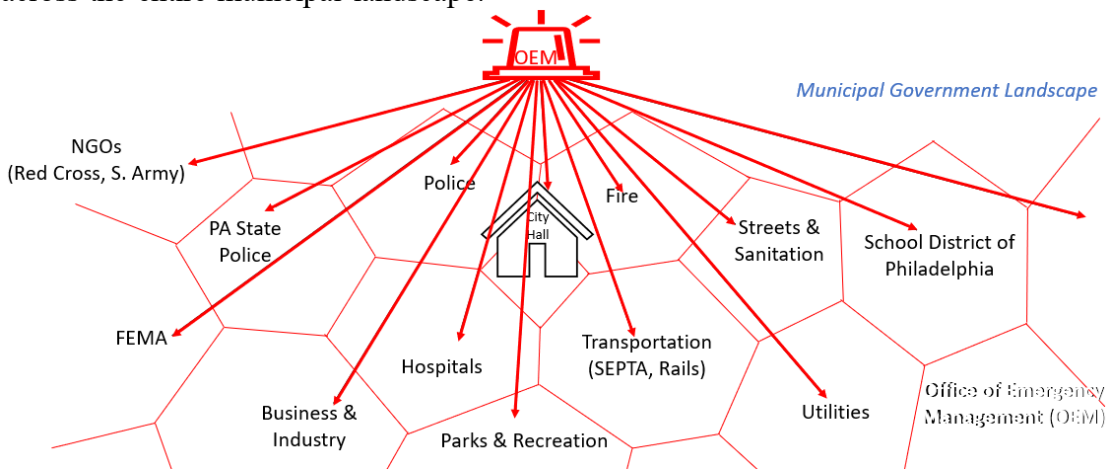

Figure 12. Effect of Entanglement Across the Municipal Landscape.

Structural Hole: The Inherent Advantage

Emergency managers occupy a structural hole in the network in which they operate. This is evident in the fact that one of the most prevalent descriptions that they gave of their essential function is that they operate as "conveners." Indeed, the emergency management department is often the first department that other departments in a jurisdiction contact when they need assistance with tackling a problem. From their structural hole, emergency managers connect with partners in virtually every area of their jurisdiction to address concerns. In examining more deeply the purpose of connecting, the medium by which they make connections, and their overall process of connecting, we can discern how emergency managers are in an advantageous position in their structural hole and we can envision how initiatives and ideas can form and proceed out to their partners.

The emergency management department is multidisciplinary to a degree that likely exceeds all other departments. For this cause, they are eligible to deal with a wide range of topics. Emergency managers sit at the hub of coordination and information

sharing where they operate as conveners. As one emergency manager describes it, "You're a coordinator of a lot of tactical elements; you're not the tactician—you don't tell them how to do their business—but you know what they do, and you ask them to take the mission." From this position, relationships with partners are formed and maintained for the possibility that they can be leveraged in the future. However, in establishing connections with partners, the preferred approach appears to be one that favors needs-based relationships; that is, proactive outreach is made to entities that will be needed when emergencies occur. These types of connections are maintained organically where the emergency manager more or less interacts in the same social and professional circles with the connected party. Other more secondary relationships that are not needs-based, though important, are formed with a lesser degree urgency and effort and are maintained intentionally versus organically—meaning the connection is maintained through intentional efforts such as invitations to events and email blasts. The emergency management department's position in a structural hole makes possible both the flow of information to and from both primary needs-based and secondary partners and allows the effective maintenance of the connection.

Bridging Structural Holes—Mechanisms for Connecting. Connecting with local and regional partners is important to the work of emergency management. Providing assistance through federal grants and similar programs is a way by which managers can establish a local or regional connection. In a related manner, reaching out to communities when the need arises and personally connecting with members of the community also establishes new and important connections. Emergency managers were careful to point out that it is also important to forge these kinds of connections when the community or

entity does *not* need assistance, which is instrumental in engendering goodwill and trust. Finally, referrals to the emergency management department for their assistance naturally create new connections. From a structural hole position, emergency managers can readily make use of these ways of connecting since the position provides access to information and pooled resources that can be used to make the connection (Uzzi, 1996).

Benefiting from the Connectivity of Emergency Management. In the initial stage of connecting with new stakeholders, emergency managers can begin from the "centers of gravity" as described by one manager, when attempting to form a bond with a new connection. Beginning with an in-person meeting, the manager first inquiries regarding what is already available to the connecting party to avoid possible duplication of services before communicating the resources he has available to offer. The structural hole provides access to both information and possible third-party endorsements that can facilitate these kinds of suitable connections (Stuart et al., 1999).

The convening power of emergency management lays in the fact that it is connected to everyone and is able to bring stakeholders together as well as respond to requests from stakeholders regarding joining or supervising activities such as trainings, planning meetings, and tabletop exercises—all of which show the centrally important role that emergency management plays but also provides avenues for bridging ties and opening lines of communication for the flow of innovation and fresh ideas. The types of projects that the emergency management department engages in plays an important role in generating benefits that can aid in how they can operate as "assist leaders." Emergency managers are invited to every kind of stakeholder project, and they, likewise, invite

stakeholders to department-initiated events. Each project has its own defining characteristics and purpose.

Stakeholder Projects:

- Preparedness-Oriented: Training and exercises performed in preparation for Grey Skies events.
- Community Events: Requests from community groups to deliver in-person workshops and trainings that the department may provide as part of an initiative such as a Community Engagement Program.
- Stakeholder Events: In one city, the time dedicated to these events comprised one-quarter as a supporting facilitator, half as a subject matter expert, and a quarter as part of a project team to offer a perspective or other contribution.
- (Invited to act as) Convener: The department may be invited to engage in the problem-solving process of another agency to assemble the appropriate support.
- (Invited to) Inform or Sit-in/Consult: Emergency managers may be invited to provide insights regarding relevant hazards and risks or to observe planning exercises to check for alignment with broader initiatives and provide feedback.

Department-Initiated Projects:

- After-Action Reviews: Performed post-Grey Skies with relevant stakeholders to determine lessons learned and plans for moving forward.
- Planning-Related/Mitigation: Consists of assembling all appropriate partners to write or update a specific plan such as a Hurricane Evacuation Plan.

- Omnibus Outreach and Engagement: The department may assemble several different stakeholders to join in attending a community event so that several services are provided at once.
- Program-Based: In some jurisdictions, the emergency management department may be structured around various programs—as many as 60—both internal and external.

The advantageous position that an emergency management department has in the structural hole that they occupy provides access to the flow of information related to both stakeholder- and department-initiated projects. This access allows for rich data that can inform the operations of its various stakeholders. Table 4 below showcases selected quotes from my interviews that highlight the purpose, medium, and process of forming connections from the structural hole that yield this valuable data.

Table 4

Selected Quotes from Interviews—Connecting with Stakeholders.

	Structural Holes—Connecting
Purpose	"I would say, with our routine stakeholders, [we are] very connected. And what I mean by that is we've developed a liaison list of several dozen key agencies that have emergency preparedness and response and recovery roles. And **they are folks who show up in our plans—in several of our plans**: the Red Cross, the fire department, the police department, the State Emergency Management Agency. So, we're very connected with those folks. And we host meetings, whether virtually or in person [and] folks are not shy about picking up the phone [and] email is endless."
	"…instead of [us] having a relationship with every mosque and every synagogue in the city of Philadelphia, we make sure to have a strong connection with the Mayor's Office for Faith-Based and Interfaith Affairs [which] has those relationships. So, **it's a network effect**…. that network effect—the 'seven degrees of separation'—**you can get to just about anybody within that**."
	"We don't take over…**we're there, we're standing at your shoulder and we're like a good offensive coordinator**—I'm not gonna coach the whole team and tell them what to do, but I'm gonna be whispering in your ear saying 'Hey, Coach, really, we got to run this play.' And I think that helps us when it comes to projects, because we have a reputation [that] these guys aren't going to come in and try to tell us they know the best way to do this [but] where they're going to be really good [is giving] pieces of advice on the side or really good consulting."
Medium	"It can be **a little bit of anything**. If you're **cold calling** or **cold emailing**, it might be an email and hope you get something back. There are various **networking events** that are hosted or professional development events where you take the opportunity—like in any industry: bring your business cards and you go up and find somebody who maybe you want to connect with or you may have similar interests. So, there's some **in-person** work that way. [There are] a lot of folks who may want something from our office, per se, and they might send an email and say, 'Hey, can we connect?'"
	"In a post-COVID environment, a lot of people love **Teams and Zoom**, and you can connect relatively quickly with a lot of people that can't always be in a face-to-face meeting. There are certain meetings that you need people at the table to have open discussions so that you're not looking at a bunch of little black squares with nobody there hoping that everybody's listening."
Process	"I think **the first thing** for me personally, what I like to do is I like to **find the centers of gravity** in whatever community I'm trying to bond with. So, if I were trying to create a relationship with, let's say, Critical Infrastructure, I would find some centers of gravity in that community and I would go **talk to them one-on-one first** about what they need to know how we can fulfill it….I would want to know what they're currently getting, so that we don't duplicate and spam them…what their gaps are and where we could be a unique value proposition."
	"I would **start with a small group** meeting to sort of identify what we're trying to do, set goals and objectives and meeting cadences, and **then maybe do a big kickoff in-person**. And then let the group…define what the best way is to do that. But to me, there's no one size fits all."

Contagion: The Driving Force

Contagion of emergency management initiatives and ideas can be created using several features that help move the initiative or idea forward, including: a "strong business case," shared beliefs and priorities, and various currencies and levers that promote action.

The Role of the "Strong Business Case" in Emergency Management. In describing a strong business case in supply chain management in the context of their focus on sustainability, Mir et al. (2021) lists as defining characteristics: favorable economic outcomes by reduced costs, increased stakeholder appreciation, and opportunities for participation in innovative ideas that result in economic benefits. In emergency management, a "strong business case" is defined by managers almost exclusively in terms of benefit to the community or the factors enhancing their ability to provide such benefits. For example, one manager describes going into communities and asking, "What can I do for you?" and assisting with the everyday needs of families as a "strong business case" in emergency management because immediate enhanced resiliency is given to the community—which should, in turn, render the community more resilient should a major emergency event occur. In my interviews, emergency managers provided several descriptions of what they considered to be the elements of a "strong business case" in emergency management:

- Spillover Value: Additional benefits derived beyond the primary purpose of the initiative, product, or service. As one manger puts it:

  It's definitely the most bang for the buck.

- Efficiency: When an emergency is declared, the emergency management department is often able to cut through red tape and provide more immediate assistance using certain allowances provided in the law.
- Expertise: Emergency managers possess a wide range of skills and come from diverse backgrounds, which enhances overall department versatility.
- Protection and Safety: A product or service that provides protection and safety to families.
- Assistance with "Everyday" Challenges: Moving beyond only preparing against major emergencies to helping with the more frequent "everyday" challenges that community members face.
- Overall Benefits to the Community and Taxpayer: Positive effects on and benefits to the community and taxpayer.
- Risk Reduction: A central underlying consideration with significant ramifications for the outcome of future events.

Table 5 below showcases selected quotes from my interviews that highlight the various perspectives of emergency managers regarding what constitutes a "strong business case" in emergency management.

Table 5

Selected Quotes from Interviews—The "Strong Business Case" in Emergency Management

	The "Strong Business Case" in Emergency Management
Efficiency	"I think it's the efficiency that effective emergency management can bring. A lot of times when you declare an emergency, there's some legal language to allow you to quite literally cut red tape. And that's a mentality that we bring to things."
Expertise	"I'll say that the business case is to have a successful emergency management to manage properly the response to a disaster."
Protection	(Outside Executive) "If I come to you and I say: 'I have this product; this is gonna keep your family safe. It's gonna protect you and yours.' To me, that's a strong business case.
Help with Day-to-Day Challenges	"…[It] strengthens your ability to handle day-to-day challenges, not just when something bad happens."
Benefit to the Community	"…it's what are the effects and the benefits to the community in which you been elected to represent."
Benefit to the Taxpayer	"…if we talked about a business case and a value proposition and what makes it worth it, it would have to be something that's beneficial to commerce, or business activity, and the taxpayer."
Risk Reduction	"The way we like to look at it, as for our agency, it's did we reduce risk? Risk in our business space—and even in the corporate space—you reduce risk to increase profit, or you reduce risk to retain revenues in the nonprofit space, or you improve patient outcomes in the healthcare space, or whatever, right? I think for us, the question is: Did we reduce risk?"

Shared Beliefs and Priorities. The emergency management department shares many features in common with the stakeholders through whom contagion can occur. These commonalities can serve to foster understanding, acceptance and ultimately contagion of emergency management initiatives and ideas:

- Provision of Essential Services Through an Equity Lens: Other departments that provide services to the community, including for "everyday" needs, also seek to equitably provide those services. As one emergency manager describes it, "[we] care for people in the way that they need it and in the way that they tell us that they need it." This approach takes into consideration the differences in resources, hazards, and other important features of a jurisdiction's communities.
- Protection of Responders: Concerns shared with law enforcement, Fire, Public Safey, and Emergency First Responders, who have special consideration for the physical safety of their professionals in the field.
- Continuity of Operations: Avoiding business disruption during both Blue and Grey Skies.

These shared interests can be formed by various means and in a variety of settings:

- Overcommunicating: Ensuring alignment of data and complete understanding of the mission.
- Onsite Training: Bringing in stakeholders to tabletop and training exercises.
- External Training: Going to external stakeholders to conduct training exercises—which can gain their confidence in the abilities of the emergency management department.

- "Just showing up": Being onsite to express concern and offer assistance—which can forge bonds.
- Regional Warning System: Sharing a regional alert system—which creates shared awareness.
- Creating Sense of Ownership: Engendering buy-in—which can forge commitment and dedication to an initiative.
- Close Connection with Communities: Partnering closely with community members to work together as a unified unit.
- Government Directives: Adhering to government mandates and requirements, such as the National Incident Management System (NIMS)—which can impose alignment of stakeholder operations.
- Single "No Fail" Mission: Having an overall established goal set in partnership with jurisdiction leadership—which compels alignment of stakeholder priorities and goals.

Table 6 below showcases selected quotes from my interviews that discuss how shared interests are forged and some of the important benefits that are derived.

Table 6

Selected Quotes from Interviews—Shared Beliefs and Priorities

	Shared Beliefs and Priorities
How Shared Interests are Forged	"…being intentional: sharing information if you have it [and] being responsive to questions; it's finding opportunities to train together or to exercise. And it's just showing up sometimes when one needs the other, or showing up and saying, "Hey, we're here for you. How can we help?"
	"Everybody knows what the mission is."
The Benefits	(Outside Executive) "I have found with external, one of the greatest tools that we have in promoting ourselves as experts in this field is through our emergency response exercises that we hold and ensuring that the businesses are inviting those external partners—those emergency management agencies—to the table, bringing them in. And what happens there … we are building those relationships that we have with them.…the other thing that occurs when we have emergency response exercises in which we bring them in to partner with us, we build the relationships, we share expectations—What is it that they would expect from us during a major incident and what can we expect of them to help support us during a major emergency. The other thing is giving them situational awareness…bringing them into our facilities for those discussions and exercises, we are then able to share with them some hazard awareness. So, if your teams are coming into my plant—and I'm going to use an example—it's a chlorine gas leak and you come in through my gate. Number one, understand what chlorine gas is—it's immediately hazardous to life and health, [that's] number one. Number two, I have other hazards on my site that you have to have awareness of, one of them being high voltage electricity [and] other hazardous chemicals. We have vaults and trenches that may be open. So, it helps to build that awareness for them if they ever do need to respond on to my site."

Currencies and Levers. Certain activities can help to move a project forward. These 'currencies' and 'levers' can have significant value in helping to overcome resistance and obstacles and foster acceptance and ultimately contagion of emergency management initiatives and ideas:

- Making Comparisons: Calling attention to the resources available in another jurisdiction that achieved a desired outcome can build a strong case for the allocation of additional resources for an initiative. One manager explained:

  > To borrow a phrase from the [TV show] *Law and Order* world: it's "ripped from the headlines." If you want to move the needle in my favor, show someone how what I want to do was done somewhere else and saved the day.

- Doing Favors: Providing exceptional attention (or, more specifically, the *return* of such kindness) can be a factor in overcoming stagnancy or reluctance to engage in an initiative.
- Introducing Witnesses: Bringing in witnesses who can speak to how another jurisdiction succeeded can be a convincing factor.
- Showing Synergies: Outlining the alignment of mission, goals, objectives, and expected outcomes with other departments can highlight potential additional benefits.
- Using Past Case Studies: Published accounts of successes or failures and their causes and consequences can build a case for acceptance of the initiative or idea.

When these factors are skillfully managed in and around an emergency management initiative, the emergency manager can work to operationalize the *Cohesion Model* of contagion, which Mir et al. (2021) inform is achieved through "frequent communication highlighting the tradeoff and benefits from adoption (p. 719)." This frequent communication is the third step of entanglement whereby the emergency manager continues to communicate (with relevant well-connected stakeholders) from the structural hole to reiterate the "strong business case" to further intensify or accelerate the level of contagion created. Table 7 below highlights selected quotes from my interviews that illustrate the concept of "currencies" and levers in emergency management.

Table 7

Selected Quotes from Interviews— "Currencies" and Levers.

"Currencies" and Levers	
Making Comparisons	"Some things are just a better draw for money than we are, and that means some [departments] are more resource rich to us. Now, we do use that to our advantage [by saying] 'If you want us to do what so and so is doing, you need to give us more funding.' For the most part, it usually does work out in our favor."
Synergies	(Outside Executive) "…if there's synergy in the mission and visions, and the departmental aims, goals and objectives, and expected outcomes...so the currency would be synergies, synergies of goals and objectives."
Is there quid pro quo?	"No. But I think good work gets rewarded. If you follow the rules and you do good work, you can do good projects and you can do things civilly. In the government, that works fairly well. But I think a lot of people have lost faith in the civil government because of some of the hokey stuff that goes on with government…"

Entanglement: The Accelerating Force

Entanglement is a measure of the concentration of communications within an organization and, by extension, reflects the level of synchrony (Gloor et al., 2022). Naturally, this concentration is increased through repeated communications—which is characteristic of the *Cohesion Model* of contagion. In this study's framework, whereby the emergency manager communicates from a structural hole to create contagion that can be accelerated by entanglement, this entanglement (i.e. repeated communication) is regarding the "strong business case" that the emergency management-supported initiative holds. But because the level of concentration and synchrony are increased through repeated communications, the relationships through which these communications occur become of even greater importance for the purpose of accelerating contagion.

The Importance of Relationships. In emergency management, relationships are *extremely* important. Every emergency manager interviewed mentioned the value of the various kinds of relationships that they form, build, and work to maintain. Central to every good relationship is the *trust* that must be earned and maintained. The initial stage of creating and building a good relationship can be dependent on the connecting factors, such as friends in common, whether the partners previously worked together, and first impressions. However, the process of *strengthening* the relationship rests on effective dialogue and commitments that are later supported by actions that prove the good character and sincerity of the parties involved. Strengthening the relationship also rests on various other discretionary—or some may say *mandatory*—activities that are within the abilities of practically every emergency management department.

Strengthening Relationships. During my interviews, in discussing securing good relationships—which are of paramount importance to the function of the three-theory framework—the most important elements for strengthening a relationship were uncovered, including constant communication: keeping in touch throughout the various stages of Blue and Grey Skies, meetings and trainings: connecting in person to align understanding and operations, communicating and sharing: sharing lessons learned/best practices as well as personal interest stories that stakeholders may simply find interesting to help build the relationship and strengthen bonds, close communication: communicating at a level where partners know the details of your expertise and activities to forge a stronger relationship, and keeping communities informed: sharing information with community groups to "keep them in the loop" and build goodwill and trust with community members.

In addition, certain soft skills that are carefully applied can also strengthen key relationships: attention to detail which involves paying attention to the "little things" that are a part of a relationship (setting suitable meeting times, early notifications, canceling unnecessary meetings—respecting partners' time and limitations) to engender respect, appreciation, and trust; building "muscle memory:" educating communities on self-sufficiency skills to provide ways that they can be more self-sustaining and resilient; in-person connections: spending time in the community with community members to show commitment and establish and ensure understanding; being helpful during Blue Skies: being helpful when there is no emergency to strengthen bonds and build goodwill; meeting expectations: performing at a high level in addressing incidents by bringing

value when it is needed most and solving stakeholders' problems to build trust and confidence in the relationship—especially with respect to communities.

There are also the relationship building activities of sharing resources such offering equipment, services, and other resources which can show alignment of interests and goals and build goodwill, and keeping promises by following through quickly, which can help to instill trust in the relationship. Finally, there is the concept of building durable trust by achieving such a high level of trust that it is essentially maintained only by continuing to be considerate and ethical. Table 8 below highlights selected quotes from my interviews that discuss tactics for strengthening relationships; it is followed by Table 9 that summarizes these important activities.

Table 8

Selected Quotes from Interviews—Strengthening Relationships

	Strengthening Relationships
Tactics	"You got to build the muscle memory. You have to build the value. You have to convene them. You have to talk to them, and you have to give them things that are valuable."
	"I think that the only thing you can do, outside of solving problems and bringing value when they need it most, is you cannot waste people's time. You absolutely have to make every 'ask' of people's time valuable. For me, it's little things: Don't call a meeting if you don't need a meeting; put a standing meeting on [and] cancel it as soon as possible when you realize you don't need it; having good strong agendas; making sure that when we bring people together there are work outcomes that means something to them—where they can see themselves as part of the district success if we do that. And I think if you do that, everything else is a nice 'to have.' If you don't do that stuff, nothing can save you."
	"…there's nothing going on in the world, but we're still going to sit down and talk. So, for example, our PIOs (Public Information Officers) are always talking with the mayor's office, regardless of what's going on, weighing in on things that aren't crises just to be a helpful hand. And that really builds and strengthens the relationships for when we do need them…"
(with communities)	"You have to invest in spending time with them."
	(Outside Executive) "…[having] common aims and goals strengthens relationships…and resource sharing."

Table 9

Activities for Strengthening Emergency Management Relationships

Activity	Function
Constant Communication	Keeping in touch throughout the year to ensure continual understanding and agreement.
Meetings & Trainings	Connecting in person to align interests and ensure understanding.
Communicating & Sharing	Sharing lessons learned and best practices to build a stronger relationship with increased goodwill and trust.
Close Communication	Communicating with partners in detail so that they know the intricacies of your work to build a stronger bond.
Keeping Communities Informed	Sharing information with community groups to build goodwill and trust.
Attention to Detail	Paying attention to "the little things" to engender respect, appreciation, and trust.
Building "Muscle Memory"	Educating communities to give them a self-sustaining and resilient mindset.
In-Person Connections	Spending time in communities to show commitment and ensure understanding.
Being Helpful During Blue Skies	Showing care during quiet period to strengthen relationship bonds.
Meeting Expectations	Performing satisfactorily to instill trust and confidence.
Sharing Resources	Offering equipment, services, and other resources to align interests, goals, and build goodwill.
Keeping Promises	Following though quickly on a promise to instill trust.
Building Durable Trust	Achieving an exceptionally high level of trust to create a low-maintenance enduring relationship.

Staying Connected. Emergency management department relationships can be maintained through various actions related to the activities that strengthen its relationships:

- Touching Base: Reaching out to a partner when smaller incidents occur to let them know that you are aware and are monitoring the incident.
- Planning Meetings: Arranging Planning meetings that generally require that all appropriate stakeholders be at the table to have the opportunity to build rapport and bond with partners.
- Working Groups: Attending working groups to have the opportunity to perform marketing and branding activities with partners, as well as communicate with partners in-person.
- Information Sharing: Reaching out partners to keep information flowing to them to reinforce the connection with them.

Advocates and Allies. An important group with which emergency managers can build important relationships that are ideal for the creation of contagion—and for its acceleration through entanglement—are advocates and allies of the emergency management department. One emergency manager estimated that the general public's understanding of the function of the emergency management department falls into three categories: 1) People who know fairly specifically what the department does and why it takes the approaches that it does, and who also know how to engage with it—probably the smallest population of people, both publicly and partner-wise, 2) People who have an idea of what is done or an ideal picture of what can be done and think the department's

resources, capabilities, and capacity is much greater than what it actually is—probably the largest populations, and 3) People who have no idea.

Advocates and allies may be the smallest community of people among those who are the most familiar with the department in terms of why it exists and what it does. Within this special group, there are distinguishable sub-groups who can be characterized as *token advocates,* who do not have the resources to show their support and *silent advocates,* who support the department only to the extent of having an appreciation for the work of emergency managers. Advocates and allies are comprised of a diverse collection of stakeholders who are potentially very instrumental to the work of the emergency management department:

- Former Employees—individuals who previously worked for the emergency management department can become "spokespersons" for the capabilities and work of the department. A manager explained to me this possibility:

  > There's a couple of places in the city where we have people who have moved on and work for them now instead of us. And that's always good… [they will say] "Hey, my colleague's over there and they can do this for you,"… they get it, they remember what we do, and they stand up for us and advocate for us.

- Regulators—these professionals can become advocates upon the condition that emergency managers are consistently open, honest, and factual in communications with them.
- Media—as with regulators, media personnel can become allies as a result of communications (with emergency managers) that are consistently open, honest, and factual.

- Faith-Based and Community Groups—groups with which emergency managers have established a close relationship through a special arrangement—such as their leaders serving as interpreters or proxies for the emergency management department to their communities—can become advocates and allies.
- Elected Leadership—elected leaders can become natural advocates when they set the direction of emergency management. One emergency manager remarked:

> We all understand that we have one mission. [Our] one goal is to be able to get back to a new state of normal as quickly and as effectively as possible.

- Individuals Positively Impacted—people who have had a good experience with the work of emergency management can become ardent supporters.
- Tangential Departments—other municipal departments that do related or similar work can become strong advocates. One leader explained the reciprocal dynamics:

> … [They will think] "let's help these guys out, because they're gonna come through for us next year or the year after that. And that kind of keeps that advocacy strong for us…"they really, really could help us one day."

- Assisted Groups—entities that receive assistance in gaining federal grants or similar assistance and who witness the emergency management department's skill and efficiency at obtaining such funds can become strong supporters.

Through further analysis, we can discern that several important factors can be key to the emergency manager's ability to create advocates and allies:

- Giving Credit—acknowledgement of the critical work of partners shows advocacy for the success of partners which can be reciprocated. It also reflects a team approach to the overall work of emergency management. An emergency managers summarized the concept:

  > …it's not just my office staff, it is the entire organization and the partnerships that help us to be successful, because I cannot put out a fire…

- Providing Direct Value—individuals who are directly impacted by the work of emergency managers or who see firsthand the benefits provided can become allies as a result.
- Knowing Community Leadership—knowing who to speak to in the community or in a community-based group can create advocates in the community through perceived interest and commitment.
- Reputation—building a reputation for being a mission-driven, hardworking, dedicated, and sharp solution-provider creates advocates and allies.
- Clarifying the Department's Domain—when partners have a clear understanding of the types of work that are appropriate for the emergency management department, they can become allies in redirecting inquires for the department's help to a more suitable entity (i.e. "They can help, but it's not a good use of their time.") These advocates can serve to prevent mission creep that can occur when the emergency management department becomes entrenched in ongoing local incidents outside of its appropriate area of work. Table 10 below highlights selected quotes from my interviews that discuss

some of the reasons that individuals become advocates and allies and an important function that they perform.

Table 10

Selected Quotes from Interviews—Allies and Advocates.

	Allies and Advocates
The Reasons (for becoming advocates/allies)	"You have a public official who lives through the thick of a thing and they say they vow 'This will never happen again. I'm going to resource or I'm going to fund this certain capability so that this never happens again.' And I think that that's where some of our advocates come from—they've lived through whatever that event was and have made their own kind of personal commitment to how they plan to support and engage Emergency Management going forward."
	"I think it's because we've either provided a direct value, or they've seen the value in other circumstances. So, they worked in another jurisdiction, and they said, 'Yeah, I was there when Hurricane Katrina happened,' or 'I was there on 9/11 and I saw all of these things happening and I heard it was the emergency management agency.'"
Reason and Function	"I'd like to think it's just all the stuff I talked to you about: I think we're responsive; I think that we don't generally turn down taskings. But as we've created a reputation for being both mission-oriented, hardworking, dedicated, and sharp, I think we've also been able to make the case for what's out of our wheelhouse and what happens if we have too much tasking on our plate for the size of our agency. And so, I think we have folks around the government who—they definitely consider us as a solution provider, especially anytime anything requires interagency coordination. I think that, at the same time, some of those same advocates will also say, "Yeah, [our department] could do that, but it's not a good use of their time."

Outside Stakeholders. Outside stakeholders can be a third to one-half of the emergency department's formal liaisons outside of city government. They include nonprofit organizations, federal agencies, state agencies, and private companies. Emergency managers rely on vendors for certain goods and services and look to private companies to have open lines of communication and to hold up their responsibilities when certain incidents occur. Outside stakeholders often need the emergency department

to convene help and to point out various types of gaps or deficiencies before they proceed to address a problem. They can be outside champions of the department and instrumental in getting things done when they are aware of the potential value of the initiative to them—that is, they may be able and willing to expediate a process because they are aware of how it will be beneficial to them. Table 11 below highlights selected quotes from my interviews that discuss emergency management's interactions with outside stakeholders.

Table 11

Selected Quotes from Interviews—Outside Stakeholders.

	Outside Stakeholders
Who They Are	**"**I think probably a third to half of our formal liaisons are outside of city government, outside the city of Philadelphia. And so that's nonprofit organizations, that is federal agencies, state agencies; it is private companies, as well. We rely on vendors for certain things, or we rely on relationships with private companies to have those open lines of communication and to hold up their responsibilities in certain incidents."
Nature of Interactions	"A lot of times, all they need is [for] us to convene—they need us to point out the gap, and then they'll handle it. It's just the identification of the gap—what needs to be done—and then not try to get in their way and tell them how to go do it; that is probably the most paramount."
Limitation of Interactions	"If you don't need to do something fast and at scale, and for a sustained period with pace [then] you don't really need us; you just need the project management skills, or the program management skills, that we bring to the table."

The Case for Emergency Management as an "Assist Leader"

Based on these preceding research findings regarding the roles and functions that Emergency Management plays during Blue Skies combined with the scholarly literature on the three theoretical pillars of structural holes, contagion, and entanglement, I make the case for the possibility that Emergency Management could become even more influential as conveners and knowledge brokers resulting in becoming "assist leaders" more generally in public administration.

Emergency management has extraordinary convening power and an exceptionally strong network of connections—this compared to any other departments in its jurisdiction. In addition, the staff of these departments come from diverse backgrounds carrying with them diverse skillsets that enable the department to effectively address a wide range of public concerns. The value of these strengths is magnified by the forecasted increase in natural disasters and geopolitical-related hazards that will undoubtably elevate the role of emergency management in the efforts of cities working to deal with these sometimes perplexing always consequential developments. This combination forms the solid foundation of a scenario—or expected reality—that readily supports the "assist leader" possibility.

In analyzing the emergency manager's ability to operate as an "assist leader," it is important to take a comprehensive look at the department's main strengths that support its many operations; but it is also important to consider the weaknesses that can limit its ability to operate efficiently. The emergency management department's strengths and weaknesses have implications for moderating how effectively emergency managers can

execute the task of assisting others while standing ready to fulfill its expected function of addressing major disasters.

Supporting Strengths

The supporting strengths of the emergency management department include project management: the department is exceptionally skilled at convening the appropriate stakeholders to tackle a variety of issues; a vast network: emergency managers are connected to a very wide range of individuals and organizations that can be instrumental in their operation during both Blue and Grey Skies; a rich diversity of backgrounds: the wide range of backgrounds from which emergency managers enter the field allows the department to know a great deal about the different disciplines of city government—this broad knowledge enables the department to know who they should convene to collaborate on a problem; elite staff: one leader commented that he often describes his staff as "strong coordinating humans" who are consistently flexible, committed, and driven; a trusted partner: the emergency management department has earned the confidence and trust of partners. One emergency manager remarked regarding trust:

> Just because you have the title [of Emergency Management] you don't [automatically] get that: you have to earn it, and build it, and sustain it. Without that, really, you can't do the other things we've been talking about.

Another strength of the department is a clear understanding of the mission: an emergency management department that is aligned with the leadership of the jurisdiction tends to reap the benefits of the trust and efficiencies that can result. One emergency management leader summarized the streamlining of tasks and relationships that a clear understanding orchestrates:

> We're here to manage incidents. And we don't directly operate resources in those incidents, so we're an extension of the mayor's office, the City

> Administrator's office, and our job is to bring people together to solve problems.

Finally, another key strength is the department's organizational skills: related to its project management skills, emergency management is able to bring organization to a problem. One manager commended, "We bring the ability to ask tough questions, like: 'What are we trying to achieve?' 'What is the outcome that we want?'" Table 12 below summarizes the moderating effects of these emergency management strengths, and Table 13 highlights selected quotes from my interviews that provide related insights.

Table 12

Moderating Effects of Emergency Management Strengths

Strength	Effect
Project Management	The department is exceptionally skilled at convening appropriate stakeholders to tackle a problem.
Vast Network	Emergency managers are connected to a very wide range of individuals and organizations.
Diversity of Backgrounds	The wide range of backgrounds from which emergency managers enter the field brings knowledge of many disciplines.
Elite Staff	Emergency managers excel at being consistently flexible, committed, and driven.
Trusted Partner	The emergency management department has earned the confidence and trust of partners.
Clear Understanding of Mission	Being aligned with the leadership of the jurisdiction, the emergency management department reaps the benefits of trust and operational efficiencies.
Organizational Skills	The emergency management department is able to bring organization to a problem-solving operation.

Table 13

Selected Quotes from Interviews—Supporting Strengths

	Supporting Strengths
Diversity of Background	"I think the strength is diversity of backgrounds in our organization in particular. We have folks who are prior military, prior first responders…we have folks who have more like planning backgrounds, who have education or community engagement backgrounds. And so, we have people who bring different perspectives to these things, which ultimately makes it stronger."
	"Mine would be my past experience. My background is in operations. So, I have that operational background to bring with me into an emergency response scenario. So, I understand the ICS NIMS principles. I understand the emergency response."
	"I think some of the strengths are that we know a little bit about a lot of the different disciplines in city government, and that who would be a good collaborator to work on a problem. So, in order to be good at this, you have to know a little bit about: what does transportation do, and what do utilities do? What are their real capabilities, and what is the knowledge that they have? We're really good at collaborating, bringing the right people together to solve problems. Thinking of really creative solutions within those boundaries of government that can be super annoying and seem restrictive. But if you're good at this profession, and you've been doing it for a while, then you know how to like wiggle through that so that you don't break any rules, and you don't get in trouble, but you're able to come up with creative solutions."
Broad Perspective	"I also think there's—I guess I'll call it a strength—we're almost intentionally a step back; we're not really first responders. And what that allows us to do is to see the bigger picture a little bit more clearly. And to not only see secondary and tertiary impacts of incidents, but to also future planning, what's going to be needed or what is this going to look like tomorrow…or how does what the response agency is doing on the ground impact this community and how do we communicate that to the community so that they're less impacted. And I think that's a strength [knowing] how we're situated."
Elite Staff	"We have great people doing great work in a time when government is kind of not looked at as being competent. And I say that truthfully, because some of the things we do, the work comes out amazing. And it's all very important work."
Size	(Outside Executive) "One of our biggest strengths is size. We are not a small water utility; we are across the nation—6,500 employees…in 14 states. I think that's a huge strength that we bring to the table."
Trusted Partner	"Well, I think that, in general, OEM has to build their strengths. So, from our office, our strength is that we're a trusted agent, a trusted partner…make sure that we build those relationships."

Limiting Weaknesses

The limiting weakness of the department include inconsistent staffing and funding: across the tapestry of emergency management departments in the US, there is no established and enforced level of staffing and funding that is based on the size of the jurisdiction—this inconsistency can lead to differences in performance due to administrative factors and policy; limited capacity: the level of staffing and funding can render the department unable to attend to all the initiatives that it otherwise would engage in; scope: departments can be "spread thin" as they are expected to attend to an increasing number and variety of hazards, including natural disasters, mass migrant care, cybersecurity, and counterterrorism; lack of standardization: incidents may be handled differently in different jurisdictions—this lack of standardization can blur knowledge related to lessons learned and best practices; absence of top-level government appreciation: the lack of expressed appreciation by the jurisdiction's top leadership can lead to low morale among department staff; low public awareness: because the general public is not as knowledgeable about the function and work of emergency management as they are of law enforcement and fire departments whom they observe in the community on a daily basis, the work of the department can be easily overshadowed—which can lead to unfortunate and consequential misguided actions at the leadership level of the jurisdiction.

Additional fundamental weaknesses are in features of the department such as no unified name and brand: complicating the public's low awareness of the work of emergency management is the fact that the name of the department is not uniform across the US—this inconsistency hampers the establishment of the department's brand and its

marketing efforts; mission creep proneness: especially with respect to smaller incidents or smaller communities, the department can be drawn into protracted incidents that are more suited to other departments; and potentially disorienting enthusiasm: the best and most senior emergency managers are admittedly "nerdy" and enthusiastic about working in the profession. One manager (with appreciated humor) admitted: "We're a bunch of happy nerds who are even happier during a crisis."

However, aside from the obvious positive aspects of this mindset and approach to the serious work involved, this enthusiasm could give way to the unintended consequences of a blindness or numbness to overworking and overextending and the resulting impairments that can occur related to both physical and mental health. Table 14 below summarizes the moderating effects of these emergency management weaknesses, and Table 15 highlights selected quotes from my interviews that provide related insights.

Table 14

Moderating Effects of Emergency Management Weaknesses

Weakness	Effect
Inconsistent Staffing and Funding	No established and enforced level of staffing and funding that is based on the size of the jurisdiction.
Limited Capacity	The level of staffing and funding can render the department unable to participate in all desired initiatives.
Restricted Scope	Departments can be "spread thin" when expected to attend to an increasing number and variety of hazards and emergencies
Lack of Standardization	Incidents may be handled differently in different jurisdictions, which can blur important lessons learned and best practices.
Absence of Top-Level Appreciation	Lack of expressed appreciation by the jurisdiction's top leadership can lead to low morale.
Low Public Awareness	The public is not as knowledgeable about the function of emergency management as they are of more visible agencies.
No Unified Name and Brand	The name of the department is not uniform across the country, which hampers the department's branding.
Mission Creep Proneness	The department can be drawn into protracted incidents that are more suited to other departments.
Potentially Disorienting Enthusiasm	Enthusiasm for working in the profession could silently lead to occupational health complications.

Table 15

Selected Quotes from Interviews—Limiting Weaknesses

	Limiting Weaknesses
Restricted Scope	"Emergency management is, I think, looked at to be a bit of everything. And I think, frankly, is spread very thin at the local level [and] at the federal level to do natural hazards, to do mass care, to support cybersecurity…to support counterterrorism…just being involved in the midst of all of these things, it can be really challenging to stay current, stay fresh, stay trained and exercised on your plans—even if you write your plans, to train and exercise is a whole other task. And the scope is just very broad compared to the amount of resources that are made available."
Lack of Operational Standardization	"…emergency management is still not well-known. I think a lot of folks still consider it kind of a young profession. I think it's trying to find its footing. And there are some accreditation and standards programs out there, but they're not widely adopted…you have emergency management that does one thing in one city or town, and you have [another] emergency management and it does it another way in another city or town."
Lack of Staffing Standardization/ Inconsistent Staffing	"I think across the country emergency management is not a consistent office based on the size of a jurisdiction. Everybody knows how many law enforcement personnel are necessary for a community of 25,000 to 50,000 to a million...everybody knows that on a Type-1 fire engine, you require this many staff. In emergency management, it's not. Do you have a PIO? Do you have enough planning personnel? Do you have a logistics section? Do you have recovery specialists? Do you have grant specialists and finance and admin? Do you have the amount of people necessary in order to meet the expectation? Or is it only you and you have to build and establish all of these relationships we've been talking about in order to accomplish that mission—which creates a huge failure point! Because at any given moment when a partner doesn't step up puts a huge burden on the jurisdiction. So, I think that standardization of staffing parameters—and this is something I've talked to FEMA about and others—is if you're a jurisdiction of 250,000 or less, how many emergency management staff does it take in order to accomplish its mission?"
Absence of Top-Level Appreciation	"You're gonna think this is strange but...not being appreciated by leadership within the county…and that's hard.... it's hard to maintain morale when you never hear anything from your leadership. Nothing. Zip. No "Thank you." No "You're doing a great job." No nothing…you just gotta hear [that] you're doing a good job sometimes. So, [we, the Emergency Department leaders) have to do a lot to build morale."
Low Public Awareness/ Name	"I think one of the weaknesses is that people still don't know what we do. And partly, that's—I mean, even in the name. We're not managing emergencies, right? That's a dumb name! We're managing the consequences."

Table 15.

(continued)

Limited Capacity	"For us, it's also a staffing thing. And what I mean by that is, our staff, for better or worse—like right now the Phillies are on a playoff streak or there could be a storm coming…our staff's gonna stop what they're doing. And that's a weakness for us.... we never really let a project fail, or we never really back out of our commitments. But it does make us cautious. I might have 25% capacity left in my day, and someone comes to me—say you can come to me and you're like, 'Hey, we want you to be on a panel' or 'we want you to be on our working group.' It might take 10 or 15% of my day, but I need to keep that strategic reserve for when things go south. So, I need to keep some administrative free time in my day for things going south or other stuff getting delayed because something else went south elsewhere. So, that limits our involvement a smidge and limits our capacity."

Proposition 1. When the emergency management department leverages its strengths and works to minimize its weaknesses, it is likely to function more effectively to the degree of becoming an "assist leader."

The Related Characteristics of Crisis Management

Crisis management has several striking similarities to the Emergency Management and Response Cycle outlined in the first study. The literature covering crisis management spans exploring its internal and external ramifications within an organizational setting (Bundy et al., 2017) to a review of approaches used on a global scale (Coombs & Laufer, 2018) to its recent role in the management of communications complications that arose with the COVID-19 pandemic (Christensen & Laegreid, 2020).

Bundy et al., (2017) analyzed the three stages of the *Crisis Process*, which, like the emergency Cycle, progresses from prevention to management to finally an analysis of post-event outcomes. In separating each stage into their internal and external perspectives, they described how, during the *Crisis Process*, *Stage One: Crisis Prevention* is concerned with internal considerations pertaining to organizational preparedness and external issues related to stakeholder relationships; *Stage Two: Crisis Management* has internal concerns around crisis leadership and external concerns related to stakeholder perceptions; and *Stage Three: Postcrisis Outcome* focuses on internal issues around organizational learning and external issues around social evaluations. They went further to integrate the main concerns of each stage and uncovered their similarities: in *Stage One,* both perspectives centered on identifying behavioral and social restrictions that could hamper the establishment of relationships and organizing priorities; in *Stage Two*, both perspectives are similar in the way that they approach the management of the crisis—for example, both perspective take into account the reduced cognitive abilities and emotional impact on managers during the crisis and how these complications increase the difficulty of responding to the crisis; in *Stage Three*, both perspectives focus

on evaluations and understanding lessons learned and the social impact on the organization.

The Critical Role of Priority Setting

The literature on priority setting is plentiful and covers a wide range of topics and domains in which priorities play a critical role for managers. For example, scholars focused on the management of multiple accountabilities within the domain of civil service (Aleksovska et al., 2021), priority setting in the public sector using decision support tools (Mabin et al., 2001), and have also reimagined in a conceptualization the art of priority-setting in a medical setting (Goetghebeur et al., 2017). The consensus in the literature appears to be that 1) priority setting is a participative process performed by individuals chosen for their expertise on the subject matter and task at hand, 2) the criteria used is based on their objective and values, and 3) the decision made is considered legitimate based on these factors (Mabin et al. 2001; Goetghebeur et al., 2017). Since the task of the emergency management department assisting other departments is an activity among other activities that rightfully take precedence, this study's inclusion of lessons taken from the literature on priority setting is inarguably fitting.

Contributions and Implications

The contributions to the profession of emergency management consists of the practical which could immediately take form in practice, such as tools and measurements that enhance operations, and theoretical considerations that are more open to interpretation, such as how the "assist leader" idea could be implemented and realized.

Practical Contributions

The practical idea of the "assist leader" can be supported by several practical contributions presented here: a method of priority setting captured in a proposed new *Priority Pyramid*; assessments and recommendations regarding relationship management, uniformity of brand, and operational and professional consistency; and considerations regarding strengths and weakness as they relate to the important tenets of the professions such as trust building, versatility, and flexibility. The result comprises additional *Propositions* for emergency managers that can both overcome operational obstacles and foster contagion of emergency management-sponsored initiatives across the jurisdiction—which can significantly advance the practice of emergency management.

Setting Limits, Boundaries, and Priorities

Crisis management scholars describe a three-step process by which organizations prepare for and respond to a crisis. It takes into account the internal and external factors that are important to an organization's efforts to mitigate, cope and recover from a significantly disruptive event. Emergency management organizations should also set in place strategies that will build and reinforce resiliency before, during, and after an emergency.

The emergency management department occupies a structural hole that functions as a hub of coordination and information sharing in the municipal system. From this position, when utilizing the strengths associated with their vast network and project management skills, emergency managers are exceptionally instrumental at providing value beyond those commonly associated with disaster preparedness and response: peace of mind in the community knowing that the department is in place to address

emergencies; a sense of calm when a potential disaster situation can be seen approaching; resources to communities in the form of information, guidance, and 'How to' instructions, and funding that can increase everyday resilience. The department also contributes to future planning in providing input on issues related to climate change and the environment, boundary spanning against future Grey Skies, and by being a force-multiplier in assisting primary agencies during significant events by helping to lead or support communication to the public or by finding and managing resources. Table 16 below highlights selected quotes from my interviews that provide additional insights into the contributions of emergency management that extend beyond the realm of emergency preparedness and response.

Table 16

Selected Quotes from Interviews—Contributions Beyond Expectations

	Contributions Beyond Emergency Management
Peace of Mind	**"**It allows the people in the county—both in and out of emergency management—it tells them that we have the capability of managing strategically to do just about anything: any problem that needs to be solved, they come to emergency management to convene the right people to help them get the right answers."
Sense of Calm	"I think that in one area is that you can create a sense of calm when there's a crisis on the horizon. So, if you have done your job as an emergency manager well, people don't panic."
Enriching Communities	(Outside Executive) "In some communities that haven't traditionally received resources—whether that's in the form of funding or real hard resources—beautifying their neighborhoods, their parks and recreations, things of that nature. That's something that goes beyond what it is our mission and vision is as a department. And, then begin to teach them some of the basics that they need to do to do it for themselves."

However, the department's resources are finite and the provision of these valuable services—especially as they are realized and increasingly expected—exposes the department to becoming over-extended, side-tracked, or even derailed from the primary mission established by leadership of the jurisdiction of addressing major emergencies. One very experienced emergency manager recounted in our interview how he uses actual colored poker chips to represent available staff time, or "man-hours" (different colors represent a man-day, man-week, man-month, and man-year) and a bucket where he deposits the chips as staff hours are dedicated to a project and become unavailable. He uses this device in planning meetings to demonstrate the feasibility of proposed projects. He explained how it works:

> We use that when we're in here talking about things that we're going to do. And they always know that I'm getting serious when I reach for my bucket. They say: "You want to go do this work, this amount of work, and you want to do this." And I say, "Well, how long is that going to take? How many man-hours are you going to devote to that?" And then in the bucket is the man-hours that are already dedicated, and then this little pouch over here, here's all the man hours that are left. How are we going to get that three man-months to do this project if it doesn't exist?

This manual device reflects the importance of tracking and staying within the reality of the limited capacity of the emergency management department. This can undoubtably be difficult given the many initiatives and ongoing projects in a city that serve a very worthy purpose. Another senior emergency manager in a different part of the country mentioned how he sometimes must be "ruthless" with the use of his department's time, which shows that the allocation and tracking of emergency management department resources requires a serious and continuous effort. Therefore, this study introduces and proposes the use of a new *Emergency Management Priority Pyramid* that can serve as a

dashboard or visible measurement tool to protect against the kind of potentially debilitating mission creep that assisting other entities can impose.

The Emergency Management Priority Pyramid. The Pyramid (Figure 10 below) represents the total assets of the department. The base of the Pyramid consists of the assets that are required to stand up a sustained response to a major emergency, as expected by jurisdiction leadership and the communities of the jurisdiction. Above this base of assets are the portion of the total assets of the department that can be prudently allocated to assisting other entities.

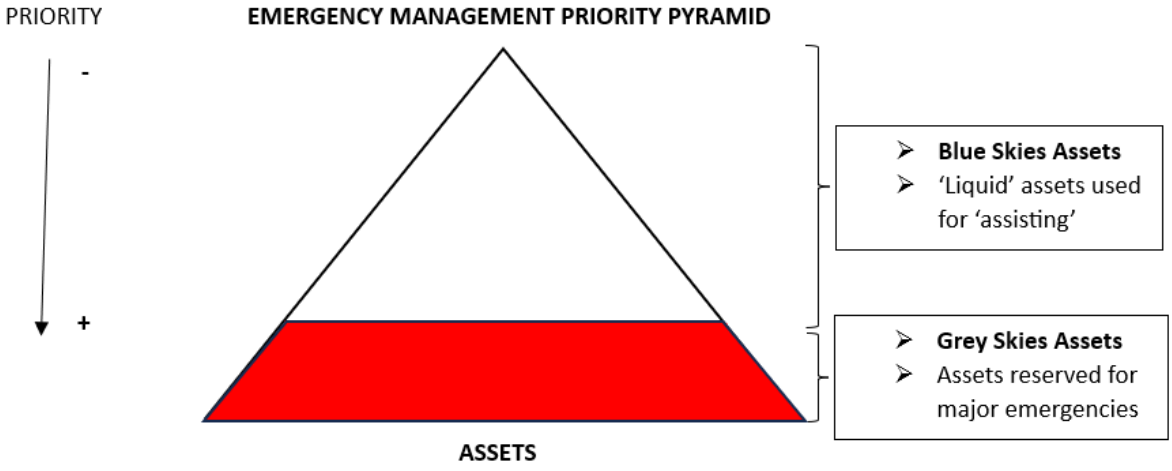

Figure 13. Emergency Management Priority Pyramid.

Above the base of the *Priority Pyramid* is the Blue Skies section of the Emergency Management and Response Cycle described in the first study, and the base of the *Pyramid* (in red) depicts the Grey Skies period. Above the Base, during Blue Skies, emergency managers can safely use 'liquid' assets—those resources that can be *immediately* redirected to address a major emergency in a large scale and sustainable manner. At the base of the pyramid are the assets reserved to be able to execute the "No

Fail" mission of satisfactorily responding to a major emergency. These are both 'liquid' and 'illiquid' assets reserved for a response. The priority of Blue Skies projects should increase as the amount of assets allocated to them increases (i.e. going down the pyramid).

Proposition 2. When the emergency management department works 'above the base' of the *Priority Pyramid* during Blue Skies, it is more likely to function more securely and effectively and become an "assist leader."

Quantifying A Minimum Level of Assets

At the border between Blue and Grey Skies (the upper portion and the base) of the Pyramid is a line that is essentially the cutoff point between the two kinds of assets. The line represents a minimum quantity of assets that can include a combination of all the resources utilized by the department (man-hours, equipment, services, etc.). Quantifying the amount needed to address a representative major emergency is necessary to reliably allocate assets to Blue and Grey Skies activities—like the poker chips and bucket system described earlier. Thus:

Proposition 3: When the emergency management department quantifies the minimum level of assets necessary to fulfill the 'No Fail' mission of responding to a major emergency, it will be able to more reliably allocate assets to Blue Skies activities and is, thereby, more likely to function more effectively and become an "assist leader."

Establishing A Common Name and Unique Brand

The formal name of the emergency management department is not uniform around the US and has been recognized as a fundamental weakness by emergency managers. A common name across all departments in the US would help to distinguish the department and would be instrumental in establishing the brand. The name should include some reference to the fact that the US Department of Homeland Security sits at the head of all federal, regional, and local departments in the country and that it outlined and established the overall structure and purpose for their insertion into government after the terror attacks of September 11, 2001 (Monroe, 2009). The brand of the department should reflect the unique combination of strengths that emergency managers possess—which could mean even a reconsideration of the term "emergency management" to capture more elements of the assisting, coordinating, and connecting work that is done during both Blue and Grey Skies.

Proposition 4. When the municipal emergency management function in the US adopts a common name (that is reflective of the unique abilities of its emergency managers to convene, coordinate, and connect during Blue and Grey Skies periods) to support the establishment of its brand, it is more likely to function more effectively and become an "assist leader."

Performing More Formal and Consistent Marketing

There is a compounding benefit to the marketing of the abilities, work, and overall brand of the emergency management department. As one senior emergency manager commented:

> Everything we do is marketing. We have to keep and continue to market why we exist, or we walked. Because we're not big red or big blue, where the community always knows because they see them on a daily basis on the roads. Emergency Management only gets recognized or is allowed to speak, so to speak, at a press conference when there's something bad that occurred...you can't just show up in a crisis and then expect everybody to be a partner.

Marketing, therefore, creates critical links to the relationships that will be needed during a crisis. Furthermore, in assisting other agencies during Blue Skies, emergency managers, in effect, reinforce the brand of the department and market the department's capabilities (which can begin to inspire trust) with potential future partners.

Proposition 5: When the emergency management department engages in purposeful marketing of its capabilities through assisting other agencies, it can create the compounding benefits of the reinforcement of its brand and the opportunity for the creation of valuable new partnerships by which it is more likely to function more effectively and become an "assist leader."

Attending to Mental Health

The critical role of mental health in the efficacy of professionals across various fields is evident in the plethora of literature that covers many aspects of the topic, including the influence of authentic leadership style and work environment on burnout among emergency nurses (Mudallal et al., 2017), the consequences of occupational stress on correctional officers (Ghaddar et al., 2008), and the effects of police culture on their mental health (Hakik & Langlois, 2020). Indeed, scholars have examined the antecedents and consequences of stressors on professionals and have focused what appears to be a large portion of their research on burnout as a major consequence. However, most of the literature on mental health in the emergency management and response profession is

based on samples taken from first responders with a resulting lack of focus specifically on emergency managers (Monroe, J., 2009). Though beyond the scope of this research in terms of detailed analysis and the formulation of specific recommendations, mental health as it relates to emergency managers' ability to perform at a sustainably high level is an underlying factor deserving further consideration.

Emergency managers often face extraordinary situations. It is, therefore, possible that the toll that such encounters can take on managers can be gradual and unrecognizable. Attention to the mental health of emergency managers is worth serious consideration. Indeed, the provision of dedicated in-house or external professional monitoring or assistance could be within the scope of services available to emergency management departments. The specific details of how such services could or should be implemented is not a part of this study, but evidence collected from leaders in the field regarding the nature of the work performed combined with recent scholarly literature on occupation mental health very clearly indicate a very high probability of the need for such programming.

Research Question. To strengthen the foundation of their functions during both Blue and Grey Skies, how should emergency management departments formally attend to the mental health of their staff?

Theoretical Contributions

Theoretical contributions include a new proposed framework to produce widescale improvements via synchrony through the sequential combination of the three theories of structural holes, contagion, and synchrony. Furthermore, these theories are applied within the parameters of the key features of a relatively new, growing, and important profession. This could have implications related to the state and operation of organizations in the modern business environment in terms of technology and business reorganization which consider organizational strengths, weaknesses, and the general features that accommodate or do not support technological advances.

Conclusion

The goal of this study was to explore the ways in which municipal emergency management departments can leverage the advantages of their occupancy of a structural hole, their capability to create contagion, and their relationships magnified through entanglement to become "assist leaders" fostering widescale improvements in the operations of their jurisdiction.

My research into my intuition of untapped potential existing at the organizational level of municipal emergency management is both timely and practical given that the field is emerging and still in the process of establishing its footing in municipal government and because it is still proving its efficacy against major disasters. Emergency triggers, such as increased global volatility reflected in geopolitical, climate, and social concerns, means that the work of emergency managers will only increase in depth and complexity in coming years. This presents more opportunities for emergency managers to become "assist leaders" in the city because municipal government must, consequently,

itself become ever more versatile, efficient, and effective in its operations. In my interviews with emergency managers and business executives working in various capacities in and around emergency management and municipal government, the idea of emergency managers becoming "assist leaders" through the three pillars of this second study has been well-received as a reasonable intuition.

This second study contributes to emergency management practitioners' understanding of the role of structural holes, contagion, and entanglements when they are operationalized using boundary spanning functions to create synchrony across a municipal system. Its findings have practical implications as they provide practitioners with valuable insights regarding the optimal positioning, effects, and uses of relationships, strengths, and other resources operationalized during Blue Skies. The study's suggestion and provision of a *Priority Pyramid* could also contribute to emergency managers' ability to effectively allocate and track the use of valuable finite resources. In addition, emergency managers' practice of convening stakeholders through the sequence of the three theories would suggests a mechanism for preserving the flow of innovation and new ideas through the *structural hole* while preserving the trust established in relationships by striking a dynamic balance in the amount of reinforcing *entanglement* communications performed—that is, the number of entanglement communications is not too much as to close the structural hole and inhibit the flow of innovation and not too little as to weaken or lose trust already established in the relationship. The implications of this study reveal the need for further research to determine how practical implications could or should be implemented and how the theoretical implications could be further developed and clarified.

CHAPTER 4

FUTURE RESEARCH

Further research is needed to address the mental health implications, specific to emergency managers, of working in the field of emergency management and response. Most of the literature on mental health in the emergency management and response profession is based on samples taken from emergency first responders (Monroe, 2009). Emergency response is widely discussed in the literature in the context of the overall wellbeing of the EFRs. EFRs suffer high turnover due to the nature of the incidents that they continually face which makes them acutely susceptible to work-related stress, massive workloads, fatigue, and an overall decline in their professional and personal wellbeing (Bevan et al., 2022). Resilience programs put in place to counter this decline have experienced limited success leading to the need for further research into ways to improve the wellbeing of EFRs.

The aim of a literature review performed by Bevan et al., (2022) was to cull research on EFRs to identify the underlying factors that affect their wellbeing. The theme that emerged from their review of five articles (chosen from an extracted and examined pool of 984 articles) is that although EFRs constantly face traumatic events as a part of their daily work, it is the organizational environment that most contributes to a decline in their wellbeing rather than the traumatic event itself. Their review concluded that organizational and team dynamics greatly contribute to EFRs' ability to cope with the stress of the profession and that organizational policy should evolve to prioritize team relations over resilience programs. We can extrapolate the possible consequences of mental health complications for emergency managers based on this research, which

should demonstrate the need for focused scholarly study on the implications of mental health in emergency management.

The results of this study also provide conclusive evidence regarding the need for future research into the implications of the "assist leader" concept in terms of the prudent adoption of parameters and gauges to safeguard the operations of the emergency management department against over-extension so that the fundamental purpose for which it was established will be continuously preserved. For example, an area of future study could include quantifying the level of assets necessary for a standard large scale emergency response and the amount of staffing and funding that should be standardized across emergency management departments according to the size of the population served or other appropriate metrics.

CHAPTER 5

CONCLUSION

Comprised of two qualitive studies, this dissertation presented analyses that provided a greater understanding of the role and function of emergency management and response and the influence of key operational forces including boundary spanning and synchrony that can improve their operations. The first study, which asked: What are the roles of boundary spanning and synchrony in emergency management and emergency response? examined the mechanism behind synchrony in emergency management and response with contributions that included assessments and recommendations regarding uniform training, written procedures, the use of symbols for enhanced communication and coordination, and the importance of operational and professional consistency as it relates to trust building. The second study, focused more closely on emergency management and motivated by intuition gathered from the findings of the first study, asked, Can the use of boundary spanning that leverages the advantages of structural holes, the proliferating effect of contagion, and the predictive power of entanglements make emergency managers "assist leaders" in municipal government by creating and increasing synchrony across the municipal system? It explored how synchrony could be applied more broadly with practical contributions that included assessments and recommendations regarding relationship management, brand management, and the use of a new proposed Priority Pyramid for the careful allocation of resources during nonemergency periods; theoretical implications included a new proposed framework for creating widescale synchrony and accompanying improvements through the sequential combination of the three theories of structural holes, contagion, and entanglement.

The overall research question of this dissertation asks: How can emergency managers improve effectiveness in emergency management and response through synchrony created by boundary spanning functions? The collective theoretical contribution includes delineations and explanations regarding the aggregation of synchrony, the dynamic nature of boundary spanning related to synchrony, and the sequential combination of structural holes, contagion, and entanglement to produce widescale improvements through synchrony. The collective practical contribution of the combined study presents practitioners with tools and insights that can enhance, elevate, and broaden their effectiveness, such as methods for improving coordination and collaboration during Grey Skies and propositions for operating more effectively as "assist leaders" within their jurisdiction during Blue Skies.

Further serious consideration is needed regarding the health implications specifically for professionals working in the field of emergency management with all its exceedingly serious responsibilities and potential exposure to extreme circumstances and emotional experiences. In addition, further reflection may be warranted regarding the power and governance of the role of emergency managers as "assist leaders" if the idea is adopted on a broad scale.

My hope for this dissertation is that emergency managers will come away with a renewed love and appreciation for the profession and for the incredible work that they perform as shown by the intricacies reviewed in this study. I also hope that the practical and theoretical contributions proposed will prove instrumental and enduring in enhancing the effectiveness to the critically important work that they perform on a daily basis.

REFERENCES

Aleksovska, M., Schillemans, T., & Grimmellkhuijsen, S. (2021). Management of multiple accountabilities setting priorities: Evidence from a cross-national conjoint experiment, *Public Administration Review*, 82 (1), 132-146.

Anderson, E. W., & Sullivan, M. W. (1993). The antecedents and consequences of customer satisfaction for firms, *Marketing Science*, 12:2, 125-143.

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation-confirmation model, *MIS Quarterly*, 3 (25), 351-370.

Bechky, B. A. (2006). Gaffers, gofers, and grips: Role-based coordination in temporary organizations. *Organization Science*, 17(1), 3-21.

Berman, S., Wicks, A., Kotha, S., & Jones, T. (1999). Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance. *Academy of Management Journal*, *42 (5), 488-506.*

Bevan, M., Priest, S., Plume, R., & Wilson, E., (2022). Emergency first responders and professional wellbeing: A qualitative systemic Review. *International Journal of Environmental Research and Public Health*, 19 (22), 14649.

Bouncken, R. B., Qiu, Y., & García, F. J. S. (2021). Flexible pattern matching approach: Suggestions for augmenting theory evolvement. *Technological Forecasting and Social Change*, *167*, 120685.

Branzei, O., & Abdelnour, S. (2010). Another day, another dollar: Enterprise resilience under terrorism in developing countries. *Journal of International Business Studies*, *41*(5), 804-825.

Bundy, J., Pfarrer, M., Short, C., & Coombs, W. (2017). Crises and crisis management: Integration, interpretation, and research development, *Journal of Management, 43*(6), 1661-1692.

Burt, R. (1992). *Structural Holes: The Social Structure of Competition,* Harvard University Press.

Burt, R. (2004). Structural holes and good ideas, *The American Journal of Sociology*, *110* (2), 349-399.

Burt, R., & Merluzzi, J, (2014). Embedded brokerage: Hubs versus locals, *Contemporary Perspectives on Organizational Social Networks*, *40*,161-177.

Coombs, W., & Laufer, D. (2018). Global crisis management: Current research and future directions, *Journal of International Management, 24*(3), 199-203.

Christensen, T., & Laegreid, P. (2020). The coronavirus crisis: Crisis communication, meaning-making, and reputation management, *International Public Management Journal, 23*(5), 713-729.

Dennis, A., Valacich, J., & Fuller, R. (2008). Media, tasks, and communication processes: A theory of media synchronicity, *MIS quarterly, 32*(3), 575-600.

Gal, R. (2014). Resilience in times of protracted crises: An Israeli case study, *Armed Forces and Society, 40*(3), 452-475.

Ghaddar, A., Mateo, I., Sanchez, P., (2008). Occupational stress and mental health among correctional officers: A cross-sectional study, *Journal of Occupational Health, 50*(1), 92-98.

Gilissen, H., Alexander, M., Matczak, P., Pettersson, M., & Bruzzone, S. (2016). A framework for evaluating the effectiveness of flood emergency management systems in Europe, *Ecology and Society, 21*(4), 27.

Gittell, J. H., Cameron, K., Lim, S., & Rivas, V. (2006). Relationships, layoffs, and organizational resilience, *The Journal of Applied Behavioral Science*, *42*(3), 300-329.

Gloor, P., Zylka, M., Calladon, A., & Makai, M. (2022). 'Entanglement': A new dynamic metric to measure team flow, *Social Networks*, *70*(2022), 100-111.

Goetghebeur, M., Castro-Jaramillo, H., Baltussen, R., & Daniels, N. (2017). The art of priority setting, *The Lancet (British edition), 389*(10087), 2368-2369.

Hakik, S., & Langlois, K., (2020). "To serve and protect their mental health": The effects of police occupational culture on police officers' mental health, *Salus Journal, 8*(2), 117-151.

Helquist, J., Krus, J., & Nunamaker, J. (2009). Synchronicity and group ability to autonomously cluster brainstorming ideas, *International Journal of e-collaboration, 5*(4), 67-81.

Henry, D., & Ramirez-Marquez, J. (2016). On the impacts of power outages during hurricane sandy-A resilience-based analysis, *Systems Engineering*, *19*(1), 59-75.

Hoehl, S., Fairhurst, M., & Schirmer, A. (2020). Interpersonal synchrony special issue interactional synchrony: Signals, mechanisms and benefits, *Social Cognitive and Affective Neuroscience, 16*(1), 5.

Hsiao, R., Tsai, D., & Lee, C. (2012). Collaborative knowing: The adaptive nature of cross-boundary spanning. *Journal of Management Studies*, *49*(3), 463-491.

Kapucu, N., Augustin, M., & Garayev, V. (2009). Interstate partnerships in emergence management: Emergency management assistance compact in response to catastrophic disasters, *Public Administration Review*, *69*(2), 297-313.

Levina, N., & Vaast, E. (2006). Turning a community into a market: A practice perspective on information technology use in boundary spanning. *Journal of Management Information Systems*, *22*(4), 13-37.

Lumbroso, D., & Davison, M. (2018). Use of an agent-based model and Monte Carlo analysis to estimate the effectiveness of emergency management interventions to reduce loss of life during extreme floods, *Journal of Flood Risk Management*, *11*(S1), S419-S433.

Lundin, R. A., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of management*, *11*(4), 437-455.

Mabin, V., Menzies, M., King, G., & Joyce, K. (2001). Public sector priority setting using decision support tools, *Australian Journal of Public Administration*, *60*(2), p.44-59.

Madej, P., & Bryan, A. (2001, September 2). A timeline of Ida's Philly destruction. *The Philadelphia Inquirer*. https://www.inquirer.com/news/inq2/philadelphia-hurricane-ida-timeline-20210902.html

Miles, M., Huberman, A., & Saldana, J. (2020). *Qualitative data analysis: A methods sourcebook*, Sage.

Miles, L., Nind, L., & Macrae, C. (2009). The rhythm of rapport: Interpersonal synchrony and social perception, *Journal of Experimental Social Psychology*, *45*(3), 585-589.

Mir S., Fugate, B., Johnson, J., & Blessley, M. (2021). What should you be talking about? The communication pathway to sustainable supply chain contagion, *International Journal of Physical Distribution & Logistics Management*, *51*(7), 711-737.

McWilliams, D., Torrance, C., Massey, M., & Taylor, P. (2021). Emergency management agents value assessment of public private partnerships. *International Management Review*, *17*(2), 5-145.

Monroe, J. (2009). Clinical and organizational predictors or burnout and secondary traumatic stress in emergency management professionals, *A Dissertation submitted to the University of South Dakota Graduate School.*

Mudallal, R., Othman, W., & Hassan, N. (2017). Nurses' Burnout: The influence of leader empowering behaviors, work conditions, and demographic traits, *Inquiry (Chicago)*, 54, 1-10.

Müller, R., Andersen, E. S., Kvalnes, Ø., Shao, J., Sankaran, S., Rodney Turner, J., ... & Gudergan, S. (2013). The interrelationship of governance, trust, and ethics in temporary Organizations, *Project Management Journal*, *44*(4), 26-44.

Myers, M. (2020). *Qualitative research in business and management,* Sage.

Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage, *The Academy of Management Review*, *23*(2), 242-266.

Oliver, R. L. (1980). A cognitive model for the antecedents and consequences of satisfaction, *Journal of Marketing Research,* (17), 460-469.

Pawlowski, S., & Robey, D. (2004). Bridging user organizations: Knowledge brokering and the work of information technology professionals. *MIS Quarterly*, *28*(4), 645-672.

Pereira, V., Temouri, Y., Patnaik, S., & Mellahi, K. (2020). Managing and preparing for emerging infectious diseases: Avoiding a catastrophe. *Academy of Management Perspectives*, 34(4), 480-492.

Ramamurti, R. (2000). A multilevel model of privatization in emerging economies. *The Academy of Management Review*, *25*(3), 525-550.

Reay, T., Golden-Biddle, K., & Germann, K. (2006). Legitimizing a new role: Small wins and microprocesses of change, *Academy of Management Journal*, *49*(5), 977-998.

Roberts, M., & Beamish, P. (2017). The scaffolding activities of international returnee executives: A learning-based perspective of global boundary spanning. *Journal of Management Studies*, *54*(4), 511-539.

Sahebjamnia, N., Torabi, S.A., & Mansouri, S.A., (2015). Integrated business continuity and disaster recovery planning: Towards organizational resilience, *European Journal of Operational Research*, *242*(1), 261-273.

Schotter, A., Mudambi, R., Doz, Y., & Gaur, A. (2017). Boundary spanning in global organizations. *Journal of management studies*, *54*(4), 403-421.

Seawright, J. (2016). The case for selecting cases that are deviant or extreme on the independent variable, *Sociological Methods & Research*, *45*(3), 493-525.

Sienkiewicz-Malyjurek, K., & Owczarek, T. (2021). Complementarity of communication and coordination in ensuring effectiveness of emergency management networks, *Sustainability (Basel, Switzerland*), *13*(1), p. 221.

Sriram, V., Gururaj, G., & Hyder, A. (2017). Public–private implementation of integrated emergency response services: Case study of GVK Emergency Management and Research Institute in Karnataka, India, *Surgery*, 162 (6), S63-S76.

Stuart, T., Hoang, H., & Hybels, R. (1999). Interorganizational endorsements and the performance of entrepreneurial ventures, *Administrative Science Quarterly*, *44*, 315-349.

Sunaoshi, Y., Kotabe, M., & Murray, J. (2005). How technology transfer really occurs on the factory floor: a case of a major Japanese automotive die manufacturer in the United States, *Journal of World Business,* (1), 57-70.

Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect, *American Sociological Review, 61*, 674-698.

Vielot, N., & Horney, J. (2014). Can merging the roles of public health preparedness and emergency management increase the efficiency and effectiveness of emergency planning and response, *International Journal of Environmental Research and Public Health, 11*(3), 2911-2921.

Vogus, T.J., & Sutcliffe, K.M. (2007). Organizational resilience: Towards a theory and research agenda, *2007 IEEE International Conference on Systems, Man and Cybernetics*, 3418-3422.

Weick, K. (1993). The collapse of sensemaking in organizations: The mann gulch disaster. *Administrative Science Quarterly*, *38*(1993), 628-692.

Williamson, D. (2018). Please tell me what to do: Exploring the effects of operating procedures on occupational stress and performance outcomes in temporary organizations, *A Dissertation submitted to the Temple University Graduate Board.*

Wray, M. (2019). A proposal checklist: A dozen questions for any research proposal, Fox DBA class, Fall 2022.

York, J., Sarasvathy, S., & Wicks, A. (2013). An entrepreneurial perspective on value creation in public-private ventures. *The Academy of Management Review, 38*(2), 307-309.

Zaheer, A., & Bell, G., (2005). Benefitting from network position: Firm capabilities. Structural holes, and performance, *Strategic Management Journal*, *26*(9), p.809-825.

Zhang, Y., Weng, W., & Huang, Z. (2018). A scenario-based model for earthquake emergency management effectiveness evaluation, *Technological Forecasting & Social Change*, 128, 197-207.

Zhihong, C. (2009). A little more civic spirit, a few less tears: A discussion of public-private partnerships in emergency management based on the book Disaster Management: Earthquakes, *China Nonprofit Review*, *1*(2), 303-312.

Zollo, M., & Winter, S. (2002). Deliberate learning and the evolution of dynamic capabilities, *Organization Science (Providence, R.I.), 13*(3), 339-351.

APPENDIX A

LITERATURE REVIEW SUMMARY

Topic	Authors & Year	Summary
Public-Private Partnerships (PPPs)	York, Sarasvathy & Wicks, 2013	The framework of docility enables private enterprises (entrepreneurs) to overcome the traditional fear of opportunism and stakeholder activism and see value in joining resources in a PPP.
	Berman, Wicks, Kotha & Jones, 1999	When there are multiple stakeholders, relationships are important. Under the Strategic Stakeholder Management Model, it is shown that the two most important relationships that enhance financial performance are with employees and product safety/quality (customers).
	Pereira, Temouri, Patnaik & Mellahi, 2020	A multistakeholder approach is necessary to adequately address the challenges of global health. The formation of public health PPPs, a strategy of the WHO, is critical to delivering the drugs and services needed to avoid catastrophes.
	Ramamurti, 2000	Privatization in emerging economies—which can lead to partial ownership retained by the government—is a dynamic process that must be viewed from the three levels involved: firm, industry, and country. Each round of privatization and the regulatory and industry changes it introduces impacts future rounds.
Emergency Management	Weick, 1993	Groups are more resilient and less vulnerable to a disruption in sensemaking when they adopt the ability to improvise, exercise flexibility to assume virtual roles, embrace an "attitude of wisdom," and when they engage in "respectful interaction."
	McWilliams, Torrance, Massey & Taylor, 2021	Emergency Management PPPs maximize their value when the partners combine complementary resources, which will increase collaboration and enhance the idiosyncratic resources of the EMA.
Emergency Response	Bevan, Priest, Plume & Wilson, 2022	Although emergency first responders (EFRs) constantly face traumatic events, it is the organizational environment that most contributes to a decline in their wellbeing. Organizational and team dynamics greatly contributes to EFRs' ability to cope with stress and organizational

		policy should evolve to prioritize team relations over resilience programs
Boundary Spanning	Schotter, Mudambi, Doz, Gaur, 2017	Boundary spanning is the facilitation of cooperation and collaboration of business units separated by cultural, organizational, or institutional differences.
	Roberts and Beamish, 2017	The boundary spanner can act as an active change agent within an organization.
	Schotter et al., 2017	The boundary spanner can be a gatekeeper who oversee boundary objects—mechanisms that enable sharing of knowledge between groups.
	Pawlowski and Robey 2004	The boundary spanner can be a knowledge broker who facilities the transfer of knowledge across an entire organization via an enterprise network such as an IT system.
	Hsiao, Tsai, and Lee, 2012	The boundary spanner can be a collaborator in a process in which knowledge must be shared across disciplinary boundaries in an iterative troubleshooting process.
	Levina and Vaast, 2006	The boundary spanner can be a collaborator when an enterprise-wide IT system is implemented and requires careful interpersonal transfer of knowledge (training) on the proper and efficient use of the system.
	Sriram, Gururaj, & Hyder, 2017	The boundary spanner can be a community organizer who coordinates necessary education opportunities (such as first responder training) and awareness regarding acceptable public responses to emergency response activities (i.e., giving way to ambulances).
Interactional Synchrony	Hoehl, Fairhurst and Schirmer, 2020	Synchrony is commonly defined in neuroscience as an instance in which individuals temporally align with one another.
	Hoehl et al., 2020	At both the dyad and large group levels, synchronizing, or interpersonal synchrony, brings a wide range of benefits that have always been cause for its occurrence whenever humans come together.
	Luanay et al., 2016, Hoehl et al., 2020	Synchrony can be viewed as a way to facilitate group cohesion instead of the traditional and time-consuming grooming.

APPENDIX B

ANTECEDENTS AND CONSEQUENCES OF EMERGENCY MANAGEMENT PUBLIC PRIVATE PARTNERSHIPS

Authors and Year	Antecedents	Consequences
McWilliams, Torrance, Massey & Taylor, 2021	Complementary and idiosyncratic resources.	Increased value of combined resources, increased collaborations, sustained effectiveness.
Pereira, Temouri, Patnaik & Mellahi, 2020	WHO mandate, neglected and new diseases, needed technologies and service delivery.	Faster response to emerging diseases, wider population receiving needed medicines and services.
York, Sarasvathy & Wicks, 2013	Private owners' new perception of value via docility.	Mutually beneficial collaborations, increased resource value, sustained effectiveness.
Berman, Wicks, Kotha & Jones, 1999	Perceived value in stakeholder relationships.	Effective stakeholder management, productive relationships, enhanced and sustained effectiveness.
Ramamurti, 2000	Change in government's perception of state vs. private governance, past successful privatizations.	Greater cost-efficiency in addressing public concerns.

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APPENDIX C

WORD CLOUD SAMPLES (STUDY ONE)

Emergency Management Agency (Top Two Executives)

Municipal Agency Executives (Emergency Operations & Administration)

NGO Top Executives (Regional Heads: The Red Cross & The Salvation Army)

Utility Company Executives (Water & Gas)

Emergency First Responders (Firefighter Captain &

Emergency Medical Technician)

APPENDIX D

STUDY ONE INTERVIEW QUESTIONS

ROLE

1. Please describe what your role is in emergency management/response?
2. Can you take me through how your role is activated in an emergency response? (I am particularly interested in how you connect with external organizations).

COMMUNICATION

3. What specifically do you do to make sure others understand clearly what you have to offer and/or what you need from them?

SYNCHRONY (ORG LEVEL)

4. Can you tell me about a time during an emergency response when you noticed that all the different departments were working together in sync and seamlessly?
5. Can you describe an emergency response somewhere in the world in which you noticed that the emergency responders worked together exceptionally well? What stood out to you about that response that made it exceptional?
6. Can you describe an emergency response that you thought was overall <u>not</u> successful. What in particular made it unsuccessful?

LEARNING

7. What teachable moments have you experienced during emergency responses?
8. In what ways do you feel you stay prepared for future emergencies?
9. Is there anything special that you look to learn from each emergency response that you are a part of?
10. What is your most memorable experience?
11. What was your worst experience?

SYNCHRONY (INDIVIDUAL/BUSINESS UNIT LEVEL)

12. What role does trust play in emergency management/response?

13. What role does respect play?
14. What role does timing play?

PROFESSIONAL DEVELOPMENT

15. What are the incentives that drive you and others in this profession?
16. How has changing roles during your career in emergency management/emergency response changed your views on past emergency responses?

SYNCHRONY (ORG LEVEL)

17. Can you describe which entity usually takes the lead and which ones usually follow in the big picture of an emergency response?

    If a major incident, like a natural disaster, occurred and impacted a large part of a city, can you describe what a perfect emergency response would look like?

APPENDIX E

STUDY TWO INTERVIEW QUESTIONS

(for Emergency Management executives)

INTERVIEW QUESTIONS

I'd like to talk with you about how OEM interacts with the rest of the municipality during "Blue Skies" periods. I understand that during an emergency, the OEM is the central node in the response. I'm interested in what happens during quiet periods – and especially about how you connect with, work with and possibly influence other agencies when there is no pressing emergency…

CONNECTIVITY

How would you describe your connections with other parts of the city?

1. How connected is OEM to other stakeholders in the city?
    - By what medium are those connections usually formed (in-person, phone, email, etc.)?
2. What is the process like to get connected with the different stakeholders? Who usually initiates the connection?
    - What kind of effort is involved?
    - How about staying connected?
3. What kinds of projects do other stakeholders invite the OEM to join during non-emergency periods?
    - What roles do you fill when invited?

4. Describe the kinds of projects that OEM initiates with stakeholders in the city?
    - How does OEM initiate the process? How do you typically reach out to the stakeholder regarding a project?

ALIGNED INTERESTS

Thinking about the various parts of the City and City programs, how aligned are OEMs interests with the interests of each of the stakeholders involved in city operations?

- Think about the types of stakeholders and their interests.

5. What are the shared beliefs and convictions between OEM and Mayor's Office?
    - Between OEM and other parts of the city (Council, budget office, police, fire, streets, social services, environmental, education, parks and rec, etc…)
6. In what ways, if at all, has OEM collaborations with other agencies encouraged other agencies/departments to also collaborate?
7. In for-profit businesses, a strong business case is a product or project that shows promise of being very profitable. What is the equivalent "strong business case" in municipal government and emergency management projects?
    - Is a "business case" even expected when communicating with various parts of the city?

- What other "currencies" or trades or levers are used to align the interests of the OEM and other stakeholders in the city?
    i. (e.g., quid pro quo support, political favors or political case, career advancement (helping OEM helps them advance), friendship, PR, lobbying…?)

RELATIONSHIPS

What sustains OEMs long-term relationships with stakeholders in the city?

8. How does OEM strengthen its relationship with other stakeholders in the city?
    - What are the important features of a good relationship?
    - How long does it take to build a solid relationship with a stakeholder? Could you describe the timeline.
    - How do you maintain?
9. Are there allies or advocates for OEM in the City?
    - Tell me more: Why they are your advocates or allies? How did they become advocates or allies?
        i. Shared interests? Shared values? Shared personality/approach? Friendship? Other…
        ii. In what ways have you noticed that there are project champions at City Hall and in other agencies in the city—people who do not hesitate to support OEM?
10. So far, we've been talking a lot about relationships within the city government. Are there relationships between the OEM and outside

stakeholders (residents, suppliers, other OEMs, etc.) that enhance (or hinder) your ability to work with other parts of the city.

- e.g., Listening sessions, trust building, lobbying, etc.

STRENGTHS AND WEAKNESSES

11. What are the strengths and advantages that the OEM possesses when it comes to *initiating and leading* projects in the city?
12. What strengths would you say OEM brings to the table when it comes to *assisting and supporting* other stakeholders in the city?
    - What would you say are OEM's weaknesses?
13. In what way does OEM add value to the city beyond emergency management?
    - What kinds of improvements or progress have you observed that are solely, or mostly, attributable to OEM's participation?

THANK YOU!

INTERVIEW QUESTIONS

(for Municipal executives)

I'd like to talk with you about how your department interacts and collaborates with the rest of the municipality, especially the Office of Emergency Management, if at all. I'm interested in how you connect with, work with and possibly influence other agencies.

CONNECTIVITY

How would you describe your connections with other parts of the city?

1. How connected is your department to other stakeholders in the city?
    - By what medium are those connections usually formed (in-person, phone, email, etc.)?
2. What is the process like to get connected with the different stakeholders? Who usually initiates the connection?
    - What kind of effort is involved?
    - How about staying connected?
3. What kinds of projects do other stakeholders invite your department to join?
    - What roles do you fill when invited?
4. Describe the kinds of projects that your department initiates with stakeholders in the city?
    - How does your department initiate the process? How do you typically reach out to the stakeholder regarding a project?

ALIGNED INTERESTS

Thinking about the various parts of the City and City programs, how aligned are your department's interests with the interests of each of the stakeholders involved in city operations?

- Think about the types of stakeholders and their interests.

5. What are the shared beliefs and convictions between your department and the Mayor's Office?
    - Between your department and other parts of the city (Council, budget office, police, fire, streets, social services, environmental, education, parks and rec, etc....)
6. In what ways, if at all, has your department collaborations with other agencies encouraged other agencies/departments to also collaborate?
7. In for-profit businesses, a strong business case is a product or project that shows promise of being very profitable. What do you think is the equivalent "strong business case" in municipal government?
    - Is a strong "business case" expected when communicating with various parts of the city?
    - What other "currencies" or trades or levers are used to align the interests of your department and other stakeholders in the city?
        i. (e.g., quid pro quo support, political favors or political case, career advancement (helping your department helps them advance), friendship, PR, lobbying…?)

RELATIONSHIPS

What sustains your department's long-term relationships with stakeholders in the city?

8. How does your department strengthen its relationship with other stakeholders in the city?
    - What are the important features of a good relationship?
    - How long does it take to build a solid relationship with a stakeholder? Could you describe the timeline.
    - How do you maintain?
9. Are there allies or advocates for your department in the city?
    - Tell me more: Why are they your advocates or allies? How did they become advocates or allies?
        i. Shared interests? Shared values? Shared personality/approach? Friendship? Other…
        ii. In what ways have you noticed that there are project champions at City Hall and in other agencies in the city—people who do not hesitate to support your department?
10. So far, we've been talking a lot about relationships within the city government. Are there relationships between your department and outside stakeholders (residents, suppliers, departments of other cities, etc.) that enhance (or hinder) your ability to work with other parts of the city.
    - e.g., listening sessions, trust building, lobbying, etc.

STRENGTHS & WEAKNESSES

11. What are the strengths and advantages that your department possesses when it comes to *initiating and leading* projects in the city?
12. What strengths would you say your department brings to the table when it comes to *assisting and supporting* other stakeholders in the city?
    - What would you say are your department's weaknesses?
13. In what way does your department add value to the city beyond its usual function?
    - What kinds of improvements or progress have you observed that are solely, or mostly, attributable to your department's participation?

THANK YOU!

APPENDIX F

FINDINGS—SELECTED INTERVIEW QUOTES

	Structural Holes—Connecting
Purpose	"I would say, with our routine stakeholders, [we are] very connected. And what I mean by that is we've developed a liaison list of several dozen key agencies that have emergency preparedness and response and recovery roles. And **they are folks who show up in our plans—in several of our plans**: the Red Cross, the fire department, the police department, the State Emergency Management Agency. So, we're very connected with those folks. And we host meetings, whether virtually or in person [and] folks are not shy about picking up the phone [and] email is endless."
	"…instead of [us] having a relationship with every mosque and every synagogue in the city of Philadelphia, we make sure to have a strong connection with the Mayor's Office for Faith-Based and Interfaith Affairs [which] has those relationships. So, **it's a network effect**…. that network effect—the 'seven degrees of separation'—**you can get to just about anybody within that**."
	"We don't take over…**we're there, we're standing at your shoulder and we're like a good offensive coordinator**—I'm not gonna coach the whole team and tell them what to do, but I'm gonna be whispering in your ear saying 'Hey, Coach, really, we got to run this play.' And I think that helps us when it comes to projects, because we have a reputation [that] these guys aren't going to come in and try to tell us they know the best way to do this [but] where they're going to be really good [is giving] pieces of advice on the side or really good consulting."
Mediums	"It can be **a little bit of anything**. If you're **cold calling** or **cold emailing**, it might be an email and hope you get something back. There are various **networking events** that are hosted or professional development events where you take the opportunity—like in any industry: bring your business cards and you go up and find somebody who maybe you want to connect with or you may have similar interests. So, there's some **in-person** work that way. [There are] a lot of folks who may want something from our office, per se, and they might send an email and say, 'Hey, can we connect?'"
	"In a post-COVID environment, a lot of people love **Teams and Zoom**, and you can connect relatively quickly with a lot of people that can't always be in a face-to-face meeting. There are certain meetings that you need people at the table to have open discussions so that you're not looking at a bunch of little black squares with nobody there hoping that everybody's listening."
Process	"I think **the first thing** for me personally, what I like to do is I like to **find the centers of gravity** in whatever community I'm trying to bond with. So, if I were trying to create a relationship with, let's say, Critical Infrastructure, I would find some centers of gravity in that community and I would go **talk to them one-on-one first** about what they need to know how we can fulfill it….I would want to know what they're currently getting, so that we don't duplicate and spam them…what their gaps are and where we could be a unique value proposition."
	"I would **start with a small group** meeting to sort of identify what we're trying to do, set goals and objectives and meeting cadences, and **then maybe do a big kickoff in-person**. And then let the group…define what the best way is to do that. But to me, there's no one size fits all."

	Supporting Strengths
Diversity of Backgrounds	"I think the strength is diversity of backgrounds in our organization in particular. We have folks who are prior military, prior first responders…we have folks who have more like planning backgrounds, who have education or community engagement backgrounds. And so, we have people who bring different perspectives to these things, which ultimately makes it stronger."
	"Mine would be my past experience. My background is in operations. So, I have that operational background to bring with me into an emergency response scenario. So, I understand the ICS NIMS principles. I understand the emergency response."
	"I think some of the strengths are that we know a little bit about a lot of the different disciplines in city government, and that who would be a good collaborator to work on a problem. So, in order to be good at this, you have to know a little bit about: what does transportation do, and what do utilities do? What are their real capabilities, and what is the knowledge that they have? We're really good at collaborating, bringing the right people together to solve problems. Thinking of really creative solutions within those boundaries of government that can be super annoying and seem restrictive. But if you're good at this profession, and you've been doing it for a while, then you know how to like wiggle through that so that you don't break any rules, and you don't get in trouble, but you're able to come up with creative solutions."
Broad Perspective	"I also think there's—I guess I'll call it a strength—we're almost intentionally a step back; we're not really first responders. And what that allows us to do is to see the bigger picture a little bit more clearly. And to not only see secondary and tertiary impacts of incidents, but to also future planning, what's going to be needed or what is this going to look like tomorrow…or how does what the response agency is doing on the ground impact this community and how do we communicate that to the community so that they're less impacted. And I think that's a strength [knowing] how we're situated."
Elite Staff	"We have great people doing great work in a time when government is kind of not looked at as being competent. And I say that truthfully, because some of the things we do, the work comes out amazing. And it's all very important work."
Size	(Outside Executive) "One of our biggest strengths is size. We are not a small water utility; we are across the nation—6,500 employees…in 14 states. I think that's a huge strength that we bring to the table."
Trusted Partner	"Well, I think that, in the general, OEM has to build their strengths. So, from our office, our strength is that we're a trusted agent, a trusted partner…make sure that we build those relationships."

	Weaknesses
Restricted Scope	"Emergency management is, I think, looked at to be a bit of everything. And I think, frankly, is spread very thin at the local level [and] at the federal level to do natural hazards, to do mass care, to support cybersecurity…to support counterterrorism…just being involved in the midst of all of these things, it can be really challenging to stay current, stay fresh, stay trained and exercised on your plans—even if you write your plans, to train and exercise is a whole other task. And the scope is just very broad compared to the amount of resources that are made available."
Lack of <u>Operational</u> Standardization	"…emergency management is still not well-known. I think a lot of folks still consider it kind of a young profession. I think it's trying to find its footing. And there are some accreditation and standards programs out there, but they're not widely adopted…you have emergency management that does one thing in one city or town, and you have emergency management and it does it another way in another city or town."
Lack of <u>Staffing</u> Standardization/ Inconsistent Staffing	"I think across the country emergency management is not a consistent office based on the size of a jurisdiction. Everybody knows how many law enforcement personnel are necessary for a community of 25,000 to 50,000 to a million...everybody knows that on a Type-1 fire engine, you require this many staff. In emergency management, it's not. Do you have a PIO? Do you have enough planning personnel? Do you have a logistics section? Do you have recovery specialists? Do you have grant specialists and finance and admin? Do you have the amount of people necessary in order to meet the expectation? Or is it only you and you have to build and establish all of these relationships we've been talking about in order to accomplish that mission—which creates a huge failure point! Because at any given moment when a partner doesn't step up puts a huge burden on the jurisdiction. So, I think that standardization of staffing parameters—and this is something I've talked to FEMA about and others—is if you're a jurisdiction of 250,000 or less, how many emergency management staff does it take in order to accomplish its mission?"
Absence of Top-Level Appreciation	"You're gonna think this is strange but...not being appreciated by leadership within the county…and that's hard.... it's hard to maintain morale when you never hear anything from your leadership. Nothing. Zip. No "Thank you." No "You're doing a great job." No nothing…you just gotta hear [that] you're doing a good job sometimes. So, [we, the Emergency Department leaders) have to do a lot to build morale."
Low Public Awareness/ Name	"I think one of the weaknesses is that people still don't know what we do. And partly, that's—I mean, even in the name. We're not managing emergencies, right? That's a dumb name! We're managing the consequences."
Limited Capacity	"For us, it's also a staffing thing. And what I mean by that is, our staff, for better or worse—like right now the Phillies are on a playoff streak or there could be a storm coming…our staff's gonna stop what they're doing. And that's a weakness for us.... we never really let a project fail, or we never really back out of our commitments. But it does make us cautious. I might have 25% capacity left in my day, and someone

	comes to me—say you can come to me and you're like, 'Hey, we want you to be on a panel' or 'we want you to be on our working group.' It might take 10 or 15% of my day, but I need to keep that strategic reserve for when things go south. So, I need to keep some administrative free time in my day for things going south or other stuff getting delayed because something else went south elsewhere. So, that limits our involvement a smidge and limits our capacity."

	Allies and Advocates
Reasons (why people become advocates/allies)	"You have a public official who lives through the thick of a thing and they say they vow 'This will never happen again. I'm going to resource or I'm going to fund this certain capability so that this never happens again.' And I think that that's where some of our advocates come from—they've lived through whatever that event was and have made their own kind of personal commitment to how they plan to support and engage Emergency Management going forward."
	"I think it's because we've either provided a direct value, or they've seen the value in other circumstances. So, they worked in another jurisdiction, and they said, 'Yeah, I was there when Hurricane Katrina happened,' or 'I was there on 9/11 and I saw all of these things happening and I heard it was the emergency management agency.'"
Reason and Function	"I'd like to think it's just all the stuff I talked to you about: I think we're responsive; I think that we don't generally turn down taskings. But as we've created a reputation for being both mission-oriented, hardworking, dedicated, and sharp, I think we've also been able to make the case for what's out of our wheelhouse and what happens if we have too much tasking on our plate for the size of our agency. And so, I think we have folks around the government who—they definitely consider us as a solution provider, especially anytime anything requires interagency coordination. I think that, at the same time, some of those same advocates will also say, "Yeah, [our department] could do that, but it's not a good use of their time."

	"Currencies" and Levers
Making Comparisons	"Some things are just a better draw for money than we are, and that means some [departments] are more resource rich to us. Now, we do use that to our advantage [by saying] 'If you want us to do what so and so is doing, you need to give us more funding.' For the most part, it usually does work out in our favor."
Synergies	(Outside Executive) "…if there's synergy in the mission and visions, and the departmental aims, goals and objectives, and expected outcomes...so the currency would be synergies, synergies of goals and objectives."
Is there quid pro quo?	"No. But I think good work gets rewarded. If you follow the rules and you do good work, you can do good projects and you can do things civilly. In the government, that works fairly well. But I think a lot of people have lost faith in the civil government because of some of the hokey stuff that goes on with government…"

Shared Beliefs and Priorities	
How Shared Interests are Forged	"…being intentional: sharing information if you have it [and] being responsive to questions; it's finding opportunities to train together or to exercise. And it's just showing up sometimes when one needs the other, or showing up and saying, "Hey, we're here for you. How can we help?"
	"Everybody knows what the mission is."
The Benefits	(Outside Executive) "I have found with external, one of the greatest tools that we have in promoting ourselves as experts in this field is through our emergency response exercises that we hold and ensuring that the businesses are inviting those external partners—those emergency management agencies—to the table, bringing them in. And what happens there … we are building those relationships that we have with them.…the other thing that occurs when we have emergency response exercises in which we bring them in to partner with us, we build the relationships, we share expectations—What is it that they would expect from us during a major incident and what can we expect of them to help support us during a major emergency. The other thing is giving them situational awareness…bringing them into our facilities for those discussions and exercises, we are then able to share with them some hazard awareness. So, if your teams are coming into my plant—and I'm going to use an example—it's a chlorine gas leak and you come in through my gate. Number one, understand what chlorine gas is—it's immediately hazardous to life and health, [that's] number one. Number two, I have other hazards on my site that you have to have awareness of, one of them being high voltage electricity [and] other hazardous chemicals. We have vaults and trenches that may be open. So, it helps to build that awareness for them if they ever do need to respond on to my site."

Contributions Beyond Emergency Management	
Peace of Mind	**"**It allows the people in the county—both in and out of emergency management—it tells them that we have the capability of managing strategically to do just about anything: any problem that needs to be solved, they come to emergency management to convene the right people to help them get the right answers."
Sense of Calm	"I think that in one area is that you can create a sense of calm when there's a crisis on the horizon. So, if you have done your job as an emergency manager well, people don't panic."
Enriching Communities	(Outside Executive) "In some communities that haven't traditionally received resources—whether that's in the form of funding or real hard resources—beautifying their neighborhoods, their parks and recreations, things of that nature. That's something that goes beyond what it is our mission and vision is as a department. And, then begin to teach them some of the basics that they need to do to do it for themselves."

	The "Strong Business Case" in Emergency Management
Efficiency	"I think it's the efficiency that effective emergency management can bring. A lot of times when you declare an emergency, there's some legal language to allow you to quite literally cut red tape. And that's a mentality that we bring to things."
Expertise	"I'll say that the business case is to have a successful emergency management to manage properly the response to a disaster."
Protection	(Outside Executive) "If I come to you and I say: 'I have this product; this is gonna keep your family safe. It's gonna protect you and yours.' To me, that's a strong business case.
Help with Day-to-Day Challenges	"…[It] strengthens your ability to handle day-to-day challenges, not just when something bad happens."
Benefit to the Community	"…it's what are the effects and the benefits to the community in which you been elected to represent."
Benefit to the Taxpayer	"…if we talked about a business case and a value proposition and what makes it worth it, it would have to be something that's beneficial to commerce, or business activity, and the taxpayer."
Risk Reduction	"The way we like to look at it, as for our agency, it's did we reduce risk? Risk in our business space—and even in the corporate space—you reduce risk to increase profit, or you reduce risk to retain revenues in the nonprofit space, or you improve patient outcomes in the healthcare space, or whatever, right? I think for us, the question is: Did we reduce risk?"

	Outside Stakeholders
Who They Are	**"**I think probably a third to half of our formal liaisons are outside of city government, outside the city of Philadelphia. And so that's nonprofit organizations, that is federal agencies, state agencies; it is private companies, as well. We rely on vendors for certain things, or we rely on relationships with private companies to have those open lines of communication and to hold up their responsibilities in certain incidents."
Nature of Interactions	"A lot of times, all they need is [for] us to convene—they need us to point out the gap, and then they'll handle it. It's just the identification of the gap—what needs to be done—and then not try to get in their way and tell them how to go do it; that is probably the most paramount."
Limitation of Interactions	"If you don't need to do something fast and at scale, and for a sustained period with pace [then] you don't really need us; you just need the project management skills, or the program management skills, that we bring to the table."

	Tactics for Strengthening Relationships
	"You got to build the muscle memory. You have to build the value. You have to convene them. You have to talk to them, and you have to give them things that are valuable."
	"I think that the only thing you can do, outside of solving problems and bringing value when they need it most, is you cannot waste people's time. You absolutely have to make every 'ask' of people's time valuable. For me, it's little things: Don't call a meeting if you don't need a meeting; put a standing meeting on [and] cancel it as soon as possible when you realize you don't need it; having good strong agendas; making sure that when we bring people together there are work outcomes that means something to them—where they can see themselves as part of the district success if we do that. And I think if you do that, everything else is a nice 'to have.' If you don't do that stuff, nothing can save you."
	"…there's nothing going on in the world, but we're still going to sit down and talk. So, for example, our PIOs (Public Information Officers) are always talking with the mayor's office, regardless of what's going on, weighing in on things that aren't crises just to be a helpful hand. And that really builds and strengthens the relationships for when we do need them…"
(with communities)	"You have to invest in spending time with them."
	(Outside Executive) "…[having] common aims and goals strengthens relationships…and resource sharing."

APPENDIX G

IRB DETERMINATION & PROTOCOL

Temple University
Office of the Vice President for Research

Research Integrity & Compliance
Student Faculty Center
3340 N. Broad Street, Suite 304
Philadelphia PA 19140

Institutional Review Board
Phone: (215) 707-3390
Fax: (215) 204-4609
e-mail: irb@temple.edu

Approval for a Project Involving Human Subjects Research that is Approved as Exempt

Date: 04-Jan-2023

Protocol Number:	30186
PI:	THEODORE L. HILL
Review Type:	EXEMPT
Approved On:	03-Jan-2023
Risk:	Minimal risk
Committee:	A1
Sponsor:	NO EXTERNAL SPONSOR
Project Title:	Improving the Effectiveness of Emergency Management Through Synchrony Created by Boundary Spanning Functions

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The IRB approved the protocol 30186.

The study was approved under Exempt review. The IRB determined that the research **does not require a continuing review**, consequently there is not an IRB approval period.

As this research was approved as Exempt, the IRB will not stamp the consent or assent form(s).

Note that all applicable Institutional approvals must also be secured before study implementation. These approvals include, but are not limited to, Medical Radiation Committee ("MRC"); Radiation Safety Committee ("RSC"); Institutional Biosafety Committee ("IBC"); and Temple University Survey Coordinating Committee ("TUSCC"). Please visit these Committees' websites for further information.

Finally, in conducting this research, you are obligated to submit the following:

- **Amendments - Any changes to the research that may change the Exempt status of this study must be reviewed and approved by the IRB prior to implementation.** Examples of such changes are: including new, sensitive questions to a survey or interview, changing data collection such that de-identified data will now be identifiable, including an intervention in the methods, changing variables to be collected from medical charts, decreasing confidentiality measures, including minors or adults lacking capacity to consent as subjects when previously only adults with capacity to consent were to be enrolled, no longer collecting signed HIPAA Authorization, etc. Please reach out to the IRB Staff with any questions about if a change to the study warrants an Amendment.
- **Reportable New Information** - Using the Reportable New Information e-form, report new information items such as those described in HRP-071 Policy - Prompt Reporting Requirements to the IRB **within 5 days**.
- **Closure report** - Using a closure e-form, submit when the study is permanently closed to enrollment; all subjects have completed all protocol related interventions and interactions; collection of private identifiable information is complete; and analysis of private identifiable information is complete.

For the complete list of investigator responsibilities, please see the HRP–070 Policy – Investigator Obligations, the Investigator Manual (HRP-910), and other Policies and Procedures found on the Temple University IRB website: https://research.temple.edu/irb-forms-standard-operating-procedures.

Please contact the IRB at (215) 707-3390 if you have any questions.

Improving the Effectiveness of Emergency Management and Emergency Response Through Synchrony Created by Boundary Spanning Functions

1) Abstract of the study

This two-part study aims to investigate the function and impact of boundary spanning on the creation and maintenance synchrony within organizations and on overall organizational performance using emergency management and emergency response as a research site. Specifically, the study examines how boundary spanning is operationalized in emergency management and emergency response and whether, in the process, it creates or maintains business unit or organizational synchrony that leads to improved performance.

The study takes a flexible pattern matching approach and draws data from archival sources and interviews with business and government professionals about their roles in emergency management and emergency response.

Study two, planned to commence in 2023, scaffolds atop study one's findings. It will take the performance-improving boundary spanning functions that study one shows are instrumental in creating or maintaining business unit or organizational synchrony and apply them to other organizational settings in a survey to test the possible generalization of their significance in improving business unit and organizational performance.

Study two will involve quantitative surveys administered via Qualtrics and distributed to emergency management and emergency response professionals as well as other professionals working in various industries and professional compacities.

2) Protocol Title

Improving the Effectiveness of Emergency Management and Emergency Response Through Synchrony Created by Boundary Spanning Functions

3) Sponsor / Funding

N/A

4) IRB Review History

None

5) Principal Investigator

Dr. TL Hill, Professor

6) Objectives

This research examines the impact of boundary spanning and synchrony on organizational performance and whether boundary spanning creates or maintains synchrony to enhance that performance. The literature on synchrony clearly points to its importance in improving interactional productivity, and this study seeks to add to the literature by analyzing the potential role of boundary spanning in creating synchrony and the increase in performance that results. The study's essential contribution is the provision of a strategic management tool that can be implemented to improve organizational cooperation, collaboration, and, thereby, performance. It analyzes key drivers that impact communication and the timing of operations and explores the functional role of the boundary spanner within the organization. The goals are to add to theory about boundary spanning and synchrony in strategic management and to provide practical tools for managers as they navigate the complexities of business and especially the new and varied demands imposed by globalization.

The central research question is: **What is the effect, if any, of boundary spanning and synchrony on performance in emergency management and emergency response and**

how do they interact, if at all? The research contributes to and expands the boundary spanning, synchrony and strategic management literature.

The study takes a flexible pattern matching approach and draws data from archival sources and interviews with business and government professionals about their roles in emergency management and emergency response.

The quantitative second half of the research will feature hypotheses regarding the role and impact of the boundary spanning function discovered in the prior qualitative study. The operationalization of boundary spanning through communication will organize the interview questions. The topic areas are the activation of roles during an emergency response, the perception of successful and unsuccessful emergency performance, and emergency preparedness and professional development.

7) Background

Following Seawright's advice that "deviant cases and extreme cases…are the best ways to choose cases for close analysis when the goal is discovery" (2016: 520), this research draws on the details of emergency preparedness and response to explore the processes that support effective organizational responses to emergencies. Emergency operations introduce stress situations that test the effectiveness of systems and relationships and provide insight into which systems and relationships work, and which unravel, under pressure. In other words, the extreme conditions of emergencies test the integrity of the organizational structure and reveal weaknesses that would remain hidden in ordinary conditions. In particular, emergency situations can highlight the role and value of subtle but important mechanisms,

such as boundary spanning, that facilitate operational cooperation, collaboration and cohesion.

Study one employs an interview approach and will also focus archival record data collection on one local (Philadelphia) major emergency case to capture multiple perspectives and deepen understanding of a comprehensive emergency plan and response. Documents collected will include public utilities' records, newspapers, press conferences, media reports, social media, and recorded interviews.

In study two, I intend to test the generalizability of boundary spanning functions and the impact of synchrony across business industries. I intend to continue to engage interview participants from study one but will initiate contact with professionals from many other industries for a quantitative survey.

8) Setting of the Human Subjects Research

The research team consists of the principal investigator and the doctoral student researcher. The principal investigator will oversee the research project; the doctoral student will perform the researcher from his home office (research site), relying on Zoom and telephone for interviews.

Subject recruitment will take place by phone and via email using a recruitment email/recruitment script. The recruitment email/script language is attached (see Appendix A).

The doctoral student researcher is the only person who will have access to the home office and its equipment (computers, printers, file cabinets, flash drives, etc.) The principal researcher and doctoral student researcher are the only individuals with access to the data. Since semi-structured interviews are the interview format, interview preparation will consist of pre-drafting interview questions to be asked during interviews. This protocol has attached pre- and post-interview scripts and the list of questions to be asked (see Appendix B).

No other persons will oversee this research or have access to the interview data.

9) Resources Available to Conduct the Human Research

The principal investigator will oversee the research and the doctoral student researcher will conduct research. No other persons will supervise the project or have access to the interview data.

Interviews will be conducted via telephone or Zoom from the researcher's home-office-based, password-protected computer. Interviews will be 1-on 1 with no other participants present. The doctoral student researcher is the only person with access to the password-protected Zoom account.

The interviews will start with a simple consent process in which the interviewees are informed of the purpose of the project, the nature of the questions, and the process. They will be given the option of stopping the interview at any point with no penalty. They will be assured that their words will be kept confidential, stored on a secure computer and shared with others only as excerpts or in aggregate, with no personally identified data shared. Finally, they will be asked for permission to record to ease analysis. If permission

is granted, a password-protected recording device or, for Zoom interviews, Zoom's recording and transcription features will be activated along with a second password-protected recording device for backup purposes only; if not, hand notes will be taken for later analysis via NVivo.

The doctoral student researcher projects completing 15-20 interviews as part of this research process. It is anticipated that each interview will take approximately 30 minutes to one hour for a total of up to **20 hours**. In addition, if permission is granted, the Zoom recording and transcription features will be utilized to memorialize the interviews and to aid with data analysis—or, for phone interviews, a password-protected recording device will be utilized and transcribed via Trint. Analysis of each transcript is anticipated to take 1.5 hours for up to **30 hours**.

To date, the researcher has identified 19 potential respondents with deep experience in emergency management and/or emergency response. The remaining one respondent will be identified via snowball sampling.

10) Prior Approvals

None.

11) Study Design

a) Recruitment Methods

The doctoral student researcher has been introduced to two individuals with senior-level extensive experience in emergency management and emergency response: one is a former Fire Chief with many years of experience in firefighting and the other has extensive

experience in coordinating and deploying teams to respond to natural disasters. The doctoral student also has access to a classmate working within Philadelphia municipal government who can provide introductions to professionals working in an emergency management capacity in Philadelphia. Additionally, the doctoral student lives within walking distance of both a fire and a police station and plans to seek in-person visits to introduce this research and recruit potential interviewees active in or retired from the emergency response profession.

Potential subjects will be approached in-person, emailed and/or called by the doctoral student researcher to request their participation in the study. Interviewee selection for in-person approaches will still draw upon Miles et al. (2021) recommendation that sampling be purposive instead of random because initial contact will be to screen the individual for appropriateness, in terms of job function and level of experience, for inclusion in the study.

The researcher has identified 19 potential respondents with deep expertise in emergency management or emergency response. Snowball sampling, which according to Patton (1990 p. 176), involves posing the following questions to well-situated people: *"who knows a lot about ____, and who should I talk to?"*, will be used to increase the eligible respondent pool. If the respondent suggests additional contact(s), the doctoral student researcher will request that the respondent obtain permission from the contact before the researcher will reach out to arrange any interview.

b) Inclusion and Exclusion Criteria

Potential respondents include firefighters; police officers; Federal, Pennsylvania and Philadelphia Emergency Management personnel; municipal department personnel (Streets

and Sanitation); the head of the Greater Philadelphia Salvation Army; executives of The American Red Cross; and utility (electric, gas, water, phone) company executives. Recruitment emails will only be sent to people with professional experience responding to emergencies.

Interview participation will be voluntary. Participants will be provided with an overview of the research from a script approved by IRB and an informed consent letter. The letter outlines the research purpose, procedures, risks and benefits, and confidentiality protocol (see Appendix C). Informants will be required to read the letter before study participation and will be given a copy of the study design and its ground rules for reference purposes (Miles et al., 2021). Since semi-structured interviews are the interview format, the interview protocol will consist of interview questions to be asked during interviews (see Appendix B). They will be given the option of stopping the interview at any point with no penalty. They will be assured that their words will be kept confidential, stored on a secure computer, and shared with others only as excerpts or in aggregate, with no personally identified data shared. Finally, they will be asked for permission to record to ease analysis. If permission is granted, a password-protected recording device or, for Zoom interviews, Zoom's recording and transcription features will be activated along with a second password-protected recording device for backup purposes only.

Individuals belonging to a group recognized in the Belmont Report as entitled to special protection will not be included in the study.

c) Local Number of Subjects

Of the 15-20 anticipated respondents, all will be accrued locally.

d) Study-Wide Number of Subjects

This is not a multi-center study.

e) Study Timelines

It is projected that interviews will commence in January 2023 (pending IRB approval) and end in late February 2023. Interview participants will be engaged in 1-on-1 interviews for 30 minutes to one hour. The 30–60-minute interview comprises the entire duration of each subject's participation in the study.

f) Study Endpoints

The study endpoint is once the target number of interviews has been completed, and concept saturation achieved. 15-20 interviews is the current target number.

g) Procedures Involved in the Human Research

Since semi-structured interviews are the interview format, the interview protocol will consist of questions to be asked during the interviews (see Appendix B).

Interview participation will be voluntary. Participants will be provided with an overview of the research from a script approved by IRB and an informed consent letter. The letter outlines the research purpose, procedures, risks and benefits, and confidentiality protocol (see Appendix C). Informants will be required to read the letter before study participation and will be given a copy of the study design and its ground rules for reference purposes (Miles et al., 2021). Since semi-structured interviews are the interview format, the interview protocol will consist of questions to be asked during the interviews (see Appendix B). They will be given the option of stopping the interview at any point with no penalty. They will be assured that their words will be kept confidential, stored on a secure computer, and shared with others only as excerpts or in aggregate, with no personally identified data shared. Finally, they will be asked for permission to record to ease analysis.

If permission is granted, a password-protected recording device or, for Zoom interviews, Zoom's recording and transcription features will be activated along with a second password-protected recording device for backup purposes only.

Interviews will take place via phone or over Zoom. To facilitate accurate memorialization of information, the interviewer will take notes. In addition, if permission to record interviews is granted, interviews will be audio recorded via the recording feature of a password-protected cell phone or audio and video recorded via Zoom's recording feature. Zoom interview data will also be transcribed via Zoom's transcription feature and phone interview data will be transcribed via Trint and cleaned after each interview. Following each interview, the doctoral student researcher will store the cleaned transcriptions on a private-password protected computer, and he will delete recordings. Only the doctoral student researcher has access to the private-password protected computer. NVivo software will also be used for coding, sub-coding, and thematic analysis.

All data will remain anonymous, and no names will be associated with any data resulting from this study. Data will be deleted three months after the research has been published.

h) Data and Specimen Banking

Data will not be banked for future use.

i) Data Management

All research data will be stored on the doctoral student's private-password-protected computer, which only the doctoral student researcher will have access to. A copy of the consent form that respondents will be required to read will be filed in a locked cabinet in the doctoral student's office. Any handwritten notes taken during the interviews will be

stored and locked in a different file cabinet. Only the doctoral student researcher will have access to these files. Handwritten notes will be shredded three months after the research has been published.

12) Risks to Subjects

The risk to subjects is minimal. The risk of participation in this study is a breach of confidentiality. The doctoral student researcher will follow steps outlined in this protocol to minimize the possibility of confidentiality breaches. Topic areas to be explored focus on emergency preparedness and response. Questions will be tailored around the roles and actions of professionals working in emergency management or emergency response, focusing especially on actions taken during an emergency response.

13) Potential Benefits to Subjects

There is no financial benefit to individual subjects. Researchers will share aggregated insights with participants. Care will be taken to ensure no personally identifiable data is shared.

14) Privacy and Confidentiality

The study will not use or disclose subjects' Protected Health Information (PHI). The data associated with this study is not subject to HIPPA regulations. All research data will be stored on the doctoral student's private-password-protected computer, which only the doctoral student researcher has access to. Any handwritten notes taken during the interviews will be stored and locked in a different file cabinet. Only the doctoral student

researcher will have access to private-password protected computer files and the locked cabinet.

Since the study will collect contact information as a way to set up interviews, data will be separated into two data sets, specifically the "identifiers" data set and the "analysis" data set. The locked or password protected identifiers data set will be kept separate from the locked or password protected analysis data set at all times.

All identifier set data will be deleted as soon as the research is published.

All data to be analyzed will remain anonymous, and no names, identifiers or codes will be associated with any data resulting from this study. Only the principal investigator and the doctoral student researcher will have access to this anonymized data.

All researched data will be deleted and shredded three months after it has been published.

15) Economic Burden to Subjects

Subjects will not be responsible for any costs because of participation in the research.

16) Subject Compensation

Subjects will not be compensated for study participation.

17) Consent Process

Participants will receive informed consent information before interviews. Anyone who reads the informed consent information and declines participation can opt out of the interview. The informed consent form is attached to this protocol (see Appendix C).

Non-English Speaking Subjects

All interviews will take place in English.

Waiver or Alteration of the Consent Process (consent will not be obtained, required information will not be disclosed, or the research involves deception)

N/A

Subjects who are not yet adults (infants, children, teenagers)

All subjects will be adults.

Cognitively Impaired Adults

N/A

Adults Unable to Consent

N/A

Process to Document Consent in Writing

The research presents no more than minimal risk.

18) Vulnerable Populations

N/A

19) Multi-Site Human Research

N/A

20) Sharing of Results or Incidental Findings with Subjects

N/A

21) Research Conducted in a Foreign Country

N/A

22) Community-Based Participatory Research

N/A

APPENDIX A

Recruitment Script

Hello [insert name]

I am calling to let you know about an opportunity to participate in a research study that investigates how emergency management and emergency response organizations could operate more smoothly and effectively. My name is Peter Thompson and I am conducting this study under the direction of the principal investigator, Dr. TL Hill, at Temple University, Fox School of Business.

Based on your position in an emergency management/emergency response organization, I would like to interview you. Through your participation, you will be helping to advance business research and possibly the fields of Emergency Management and Emergency Response. Would you like to help? Interview participation will take between 30 minutes and one hour. If you are interested in being interviewed about this topic, further instructions will follow in a separate email.

Please note participation in this study is voluntary. In addition, there are no known risks involved in this research. If you have any questions about study participation, please contact me at peter.thompson0005@temple.edu or 445-232-0988 or my colleague, Dr. TL Hill, Professor of Management, Temple University, tl.hill@temple.edu or 215-833-3424.

Best,

Peter Thompson

DBA Student

Temple University

Appendix B

Interview Protocol

Aligned with its obvious potential for capturing rich detail, interviews will consist of prepared open-ended questions with some planned probing questions in the event that it is necessary to delve deeper into an interviewee's response.

The purpose of the interviews is to gather rich qualitative data related to communication and coordination in emergency planning and response. The focus of the analysis will be on discerning patterns in the responses that will inform regarding the boundary spanning functions that led to improved performance (in operation and outcome) and to synchrony, if any, in the Hurricane Ian emergency planning and response (and other emergency responses, if the informant chooses to discuss them).

Pre-Interview Script (In-person Interview):

Thank you, again, for granting this interview. So, as I mentioned, based on your position in emergency management/emergency response I want to interview you regarding your work and how you interact with your colleagues and any outside organizations that you work with during emergency planning and an emergency response. The questions are all open-ended (no "yes/no" questions) which will allow you to provide details in your

answers. Do I have your permission to record this interview for my records only? Do you have any questions before we get started?

Interview Questions:

1. Please describe your role in emergency management or emergency response.
2. Can you take me through how your role was operationalized in a recent emergency response? (Optional): I am particularly interested in how you connected with the external organizations that you work with in an emergency response.
3. What specifically do you do to make sure others understand clearly what you have to offer and/or what you need from them?
4. Can you tell me about a time during an emergency response when you noticed that all the different departments were working together in sync and seamlessly?
5. Can you describe an emergency response somewhere in the world where you noticed that the emergency responders worked together exceptionally well? (Optional): What stood out to you about that response that made it exceptional ?
6. Can you describe an emergency response that you thought was overall <u>not</u> successful. (Optional) What in particular made it unsuccessful?
7. What teachable moments have you experienced during emergency responses? (Optional): Any related to [insert emergency] in particular?
8. In what ways do you feel you stay prepared for future emergencies?
9. Is there anything special that you look to learn from each emergency response that you are a part of?
10. What is your most memorable experience?
11. What was your worst experience?
12. What role does trust play in emergency management and emergency response?
13. What role does respect play?
14. What role does timing play?
15. What are the incentives that drive you and others in this profession?
16. How has changing roles in your career in emergency management/emergency response changed your views on past emergency responses?
17. Can you describe which entity usually takes the lead and which ones usually follow in the big picture of an emergency plan/emergency response?
18. Final question: If a major incident, like a natural disaster, occurred and impacted a large part of the city, can you describe what a perfect emergency response would look like?

Post-Interview Script:

Thank you so much for sharing your insights and experiences. I really appreciate your time.

Appendix C

Informed Consent Form | Interview

Title of Research: Improving the Effectiveness of Emergency Management and Emergency Response Through Synchrony Created by Boundary Spanning Functions

Principal Investigator: Dr. TL Hill

Protocol Number: 30186

Market Focus: Emergency management and emergency response

Introduction:

Peter Thompson, a doctoral student at Temple University, is conducting this study under the direction of the principal investigator, Dr. TL Hill, at Temple University, Fox School of Business. We are inviting you to participate in the study because you indicated that you would participate in a one-on-one interview. Before agreeing to participate in this research study, it is essential that you read the following explanation of this study. This statement describes the purpose, procedures, benefits, risks, discomforts, and precautions of the program. Also described are the alternative procedures available to you, as well as your

right to withdraw from the study at any time. No guarantees or assurances can be made as to the results of the study.

Explanation of Procedures: This research is designed to obtain your feedback on the operations of emergency management or emergency response. Participation in the study involves one individual interview, which will last about 30 minutes to one hour. The interviewer will ask you if the interview can be video and audio taped. If you grant permission for recording, interviews will be video and audio-taped. You will be able to opt out of being recorded at any time during the interview. If the interview is recorded, the researcher will transcribe the recording into written transcripts for analysis. The interviews will occur via telephone or Zoom.

Risks and Discomforts: Although questions are generalizable, discomforts could include emotional feelings when asked questions about your past experiences during emergency responses.

Benefits: The anticipated benefit of participation is the opportunity to discuss thoughts, perceptions, and concerns about the fields of emergency management and emergency response broadly and emergency preparedness and response specifically.

Confidentiality: The information gathered during this study will remain confidential. Only the researcher and the Temple University IRB will have access to the raw study data and information. There will not be any identifying names on the tapes, and participants' names

will not be available to anyone. The tapes will be destroyed at the completion of the study. The research results will be published in the form of a paper and may be published in a professional journal or presented at professional meetings. The information will help others better understand the fields of emergency management and emergency response and the steps taken during emergency preparation and responses.

Withdrawal without Prejudice: Participation in this study is voluntary; refusal to participate will involve no penalty. Each participant is free to withdraw consent and discontinue participation in this project at any time without prejudice from this institution.

Payment: You will not be compensated in any way for participation in this study.

Who can answer my questions about this research: Any questions concerning the research project and/or in the case of injury due to the project, participants can call Dr. TL Hill (faculty advisor for this project) at 215-204-3079.

If you have questions, concerns, or complaints, or think this research has hurt you or made you sick, please talk to the research team at the phone number or email listed above.

This research is being overseen by an Institutional Review Board ("IRB"). An IRB is a group of people who perform independent review of research studies. You may talk to them at (215) 707-3390 or irb@temple.edu if:

- You have questions, concerns, or complaints that are not being answered by the research team.
- You have questions about your rights as a research subject.

Agreement: This agreement states that you have received a copy of this informed consent.