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**THESIS**

**INTEGRATING THE FIRE SERVICE INTO THE  
DOMESTIC INTELLIGENCE ENTERPRISE:  
A SYSTEMS THINKING APPROACH**

by

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December 2019

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**INTEGRATING THE FIRE SERVICE INTO THE DOMESTIC INTELLIGENCE  
ENTERPRISE: A SYSTEMS THINKING APPROACH**

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## **ABSTRACT**

In the nearly two decades since the attacks on September 11, 2001, there have been numerous attempts to improve fire service integration at virtually all levels of government. While none have succeeded in solving this wicked problem on their own, each has done a great deal to frame the problem of fire service integration while addressing key areas of integration. In merging these individual contributions into a holistic, unified effort, a pathway forward has begun to emerge. The first step in addressing the complex problem of fire service integration is to break from the traditional reductionist problem-solving methodologies commonly found in government in favor of systems thinking to bring about the desired change. Systems thinking provides a framework for understanding the complex interactions that are both internal and external to an organization. Within the systems thinking field, the congruence model best addresses the unique, complex nature of integration efforts. Beyond the central aim of integrating the fire service into the domestic intelligence enterprise, the congruence model and, more broadly, systems thinking show promise in guiding organizations that face changes or seek new and unique ways to tackle today's and tomorrow's wicked problems.

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## LIST OF ACRONYMS AND ABBREVIATIONS

CHDS	Center for Homeland Defense and Security
DOJ	Department of Justice
DSRP	distinctions, systems, relationships, perspectives
FBI	Federal Bureau of Investigation
FDNY	Fire Department of New York
FSLTT	federal, state, local, tribal, territorial
HSE	homeland security enterprise
IAFC	International Association of Fire Chiefs
IC	intelligence community
IT	information technology
JTTF	Joint Terrorism Task Force
NSI	Nationwide SAR Initiative
SAR	suspicious activity report/reporting
TLO	terrorism liaison officer

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## EXECUTIVE SUMMARY

The fire service in the United States largely remains an outsider to the U.S. domestic intelligence enterprise. Despite strong support for fire service integration into the domestic intelligence enterprise and numerous attempts to understand the problem, progress has been sporadic at best.

Over the past two decades, the recurring theme within this nation's homeland security enterprise has been "unity of effort."<sup>1</sup> The National Commission on Terrorist Attacks upon the United States first introduced this concept to the homeland security lexicon in 2004 in the *9/11 Commission Report*.<sup>2</sup> Since then, there have been numerous attempts to improve fire service integration at virtually all levels of government. While none have succeeded in solving this wicked problem on their own, each has done a great deal to frame the problem of fire service integration while addressing key areas of integration such as policy, training, information sharing, and privacy and civil liberties protection. By merging these individual contributions into a holistic, unified effort, a pathway forward begins to emerge.

As society and government adapt to what Mercer Delta describes as "the rapidly accelerating pace of change," many of our greatest challenges move out of the realm of complicated and into the complex.<sup>3</sup> Therefore, we must adapt our mindset and adopt new tools and techniques if we hope to keep up. The task of fully integrating the fire service into the domestic intelligence enterprise is complex. This complexity emerges because of the vast number of interrelated and interdependent factors that must be considered when implementing such a large organizational change. These factors include organizational

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<sup>1</sup> National Commission on Terrorist Attacks upon the United States, "The 9/11 Commission Report: Executive Summary" (Washington, DC: 9/11 Commission, 2004), 20, [http://govinfo.library.unt.edu/911/report/911Report\\_Exec.pdf](http://govinfo.library.unt.edu/911/report/911Report_Exec.pdf).

<sup>2</sup> National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks upon the United States* (New York: Norton, 2004), 399.

<sup>3</sup> Mercer Delta, "The Congruence Model: A Roadmap for Understanding Organizational Performance" (Boston: Mercer Delta, 2003), 2, Semantic Scholar.

culture, history, formal structure, and informal structure. Outside of the organization, there are additional factors such as intra-organizational dynamics, information silos, resource limitations, and socio-cultural issues. The first step in addressing this complexity is to break from the traditional reductionist problem-solving methodologies commonly found in government in favor of those that recognize the system and endeavor to work within it to bring about the desired change.

Systems thinking provides a framework for understanding complex interactions, both internal and external, that affect an organization. By recognizing that an organization is a sub-system operating within a larger system, the interconnectedness becomes visible. Systems thinking has, therefore, found widespread applicability across a range of disciplines, from its origin through today. More specifically, within the field of organizational development, systems thinking has gained acceptance as a valuable framework for addressing the increasingly complex and fast-paced nature of problems that organizations face. There are notable models used by practitioners in the field of systems thinking and organizational development. Considering the unique, complex nature of integrating the fire service into the domestic intelligence enterprise, the congruence model stands as the appropriate choice.<sup>4</sup> Therefore, this thesis applied systems thinking, through the congruence model, to implement a suspicious activity reporting system within the Fort Worth Fire Department.

The congruence model includes the following steps to achieve fit or congruence: identify the symptoms, specify the input, identify the output, identify the problems, describe the organizational components, assess the congruence, generate hypotheses about the problems' causes, and identify the action steps.<sup>5</sup> The congruence model serves as a lens through which to view an organizational change or program to highlight the interconnectedness and begin to make sense of complexity. One goal of systems thinking is to understand the role of feedback loops within a system, which is critical to a system's

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<sup>4</sup> David A. Nadler and Michael L. Tushman, "A Model for Diagnosing Organizational Behavior," *Organizational Dynamics* 9, no. 2 (September 1980): 39.

<sup>5</sup> Mercer Delta, "The Congruence Model," 9.

ability to perform work sustainably. A unique attribute of feedback loops is that they are inherent in any system. If an organization does not intentionally account for feedback loops within its systems, the feedback loops might undermine the organization's efforts. Notably, many previous attempts at fire service integration have failed to account for feedback loops. It is therefore critical that any effort toward the development of a suspicious activity report (SAR) system within the Fort Worth Fire Department must account for feedback loops during the development and implementation phases of the program. Accounting for and then designing feedback loops will prevent their negative influence on the system's processes and, more importantly, support an effective, sustainable SAR program. Leveraging the congruence model and systems thinking to achieve the final mile of fire service integration—by developing a SAR program at the local level without losing sight of its original purpose—joins the “unity of effort” in protecting the homeland from terrorist attacks.<sup>6</sup> Local-level SAR programs can then act as a springboard to continue integration efforts at the national level. This bottom-up approach to integration brings to bear all the capabilities of the fire service in support of the broader goal of unity of effort in preventing terrorist attacks.

Beyond the central aim of improving fire service integration into the domestic intelligence enterprise, the congruence model and, more broadly, systems thinking show promise for organizations facing change. When mired deep in the struggle to bring a new program or initiative to fruition, it is easy to lose sight of the original strategy and goals that set the organization on its path. One need not search far to find examples in the public and private sectors of projects that upon completion failed to achieve most if not all their original goals. It is the experience of this author that those in the public sector have fallen far behind private-sector counterparts in the areas of project management and organizational development. The private sector has largely embraced the need for agility to remain competitive. In contrast, the very nature of government causes it to resist change

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<sup>6</sup> National Commission on Terrorist Attacks upon the United States, “The 9/11 Commission Report: Executive Summary,” 20.

and avoid risk. The government must eschew the old ways of doing business that are no match for the complex and the wicked.

As long as the fire service remains outside the domestic intelligence enterprise, it fails to contribute to the collective effort to use intelligence to protect the homeland from terrorist attacks. At the same time, it fails as a consumer of intelligence, which increases the risk to personnel and the citizens it has sworn to protect. The fire service must, therefore, continue to tackle persistent problems that stand as barriers to achieving unity as it works daily to protect the homeland from those who wish to do Americans harm.

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## **I. INTRODUCTION**

The fire service in the United States largely remains an outsider to the U.S. domestic intelligence enterprise. Despite strong support for fire service integration into the domestic intelligence enterprise and numerous attempts to understand the problem, progress has been sporadic at best. As long as the fire service remains outside the domestic intelligence enterprise, it fails to contribute to the collective effort to use intelligence to protect the homeland from terrorist attacks. At the same time, it fails as a consumer of intelligence, which increases the risk to personnel and the citizens it has sworn to protect.

### **A. RESEARCH QUESTION**

How can the concept of systems thinking be utilized to achieve the “final mile” of fire service integration into the domestic intelligence enterprise?

### **B. LITERATURE REVIEW**

The role of the fire service in domestic intelligence remains a lingering question within the homeland security enterprise. This literature review evaluates relevant literature to provide context with which to understand previous attempts at fire service intelligence integration. Additionally, this review highlights the role of the Nationwide Suspicious Activity Report (SAR) Initiative as a starting point for fire service integration. This review examines key sources such as academic papers, federal government documents and websites, training material, and experts in the domestic intelligence field.

#### **1. Fire Service Intelligence Integration**

For the better part of the past two decades, the call for the fire service to become better integrated into the domestic intelligence enterprise has ebbed and flowed. One of the earliest of these calls for fire service integration is found in the 2004 *9/11 Commission Report*. The report outlines a path forward for the nation as it seeks to avoid repeating the mistakes of the past. All of the recommendations of the commission attempt “to build unity

of effort across the U.S. government.”<sup>1</sup> The report specifically recommends “unity of effort” in how the intelligence community (IC) shares intelligence.<sup>2</sup> The 9/11 Commission opened the door to fire service intelligence integration when it concluded, “No agency can solve the problems on its own—to build the network requires an effort that transcends old divides.”<sup>3</sup> Thus, the problem of preventing terrorist attacks in the homeland is too big for any one entity to manage; therefore, it requires a unified, all-hands-on-deck approach that calls on the nation’s fire service to become a full participant in the domestic intelligence enterprise. This unity-of-effort concept is further defined in Jerome D. Hagen’s 2006 thesis: “Since 9/11, terror attacks at home and abroad have forced the realization throughout the first responder community that no single discipline is capable of successfully managing a significant terror attack single-handedly.”<sup>4</sup> Hagen links the need for collaboration in planning for responses to an attack and sharing intelligence when he states that these preparedness efforts “highlighted the need for information sharing and a re-examination of intelligence collection, analysis, and dissemination.”<sup>5</sup> In what could be a prediction of the difficulties to come, Hagen admits that of the many aspects of improving interagency collaboration, “some of the most challenging collaboration issues concern sharing information and intelligence.”<sup>6</sup>

In the next decade, the homeland security enterprise grappled with the implications of opening the historically closed IC to the fire service. During this period, the role of the fire service in domestic intelligence fell into three areas of operation: intelligence gatherers, consumers, and analysts. Each of these roles brings with it a different set of requirements,

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<sup>1</sup> National Commission on Terrorist Attacks upon the United States, “The 9/11 Commission Report: Executive Summary” (Washington, DC: 9/11 Commission, 2004), 20, [http://govinfo.library.unt.edu/911/report/911Report\\_Exec.pdf](http://govinfo.library.unt.edu/911/report/911Report_Exec.pdf).

<sup>2</sup> National Commission on Terrorist Attacks upon the United States, 24.

<sup>3</sup> National Commission on Terrorist Attacks upon the United States, 25.

<sup>4</sup> Jerome D. Hagen, “Interagency Collaboration Challenges among Homeland Security Disciplines in Urban Areas” (master’s thesis, Naval Postgraduate School, 2006), 88, <https://www.hsdl.org/?view&did=461580>.

<sup>5</sup> Hagen, 88.

<sup>6</sup> Hagen, 96.

concerns, and barriers to implementation. Fully integrating these three components of the fire service involves significant complexity. Joshua M. Dennis recognizes the complex nature of fire service integration when he concludes that implementation would require “a new system for fire service integration into domestic information/intelligence sharing.”<sup>7</sup> Recognizing that a system of fire service intelligence would need to be incorporated into the larger system of the domestic intelligence enterprise suggests that systems thinking could provide a framework for successful integration. Systems thinking is described by Peter M. Senge in his book *The Fifth Discipline* as “a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static snapshots.”<sup>8</sup> Finally, in 2016, the Office of the Director of National Intelligence in its report titled *Domestic Approach to National Intelligence* states, “The effective integration of national intelligence with relevant information from FSLTT [federal, state, local, tribal, territorial] partners is essential to protecting the nation.”<sup>9</sup>

## 2. Intelligence Gatherer

The idea of using firefighters to gather intelligence seems at first to be the most accessible area for implementation. However, changing the roles of the fire service brings with it some complex issues that must be addressed. In her 2008 Naval Postgraduate School thesis, Rosemary Cloud states that the fire service “is in a unique position to assist the IC through increased situation [al] awareness and the detection of precursors to terrorist activities while performing ordinary duties.”<sup>10</sup> This concept is commonly referred to as

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<sup>7</sup> Joshua M. Dennis, “Standing on the Shoulders of Giants: Where Do We Go from Here to Bring the Fire Service into the Domestic Intelligence Community?” (master’s thesis, Naval Postgraduate School, 2012), 41, <https://www.hsdl.org/?view&did=725830>.

<sup>8</sup> Peter M. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday/Currency, 2006), 68.

<sup>9</sup> Office of the Director of National Intelligence, *Domestic Approach to National Intelligence* (Washington, DC: National Counterterrorism Center, 2017), 10, <https://www.dni.gov/files/documents/Newsroom/DomesticApproachtoNationalIntelligence.PDF>.

<sup>10</sup> Rosemary R. Cloud, “Future Role of Fire Service in Homeland Security” (master’s thesis, Naval Postgraduate School, 2008), 75, <https://www.hsdl.org/?view&did=234718>. Cloud refers here to the “intelligence community,” or IC, expressed more accurately now as the domestic intelligence enterprise.

“firefighters as sensors,” whereby during daily activities, fire service personnel observe and report anything that may indicate terrorist activity. Bryan Heirston made this potential role clear in his 2010 article for *Homeland Security Affairs*:

The United States has over one million firefighters serving in over thirty thousand fire departments that respond to over twenty-four million emergencies annually. In their efforts to prevent and respond to life and property loss, firefighters enter homes, businesses, vehicles, and other assets, without a search warrant, thousands of times each day. This access has allowed firefighters to identify potential terrorist activities, oftentimes unexpectedly for both the firefighters and the potential terrorists. U.S. firefighters may be in a unique position to positively or negatively impact our current homeland security information-sharing efforts.<sup>11</sup>

The prospect of this exponential increase in the number of “eyes and ears” supporting intelligence gathering is the primary incentive driving the domestic intelligence enterprise’s support of fire service integration.<sup>12</sup>

Nevertheless, Hagen points out the downside of the firefighters-as-sensors concept: “As fire departments seek inclusion in intelligence operations they should be careful not to violate the trust of the public.”<sup>13</sup> Asking firefighters to begin reporting their observations in the course of normal duties brings with it concerns about the violation of civil liberties. While most relevant literature argues for fire service integration, some anecdotal sources point to civil liberties as the primary reason for denying the fire service the role of intelligence gatherer. In recognizing this concern, the Department of Justice (DOJ)’s Global Justice Information Sharing Initiative calls for developing specialized training for fire service personnel in the area of “privacy and civil rights/civil liberties protection.”<sup>14</sup> This lack of training on the part of the fire service and other “hometown security partners”

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<sup>11</sup> Bryan Heirston, “Firefighters and Information Sharing: Smart Practice or Bad Idea?,” *Homeland Security Affairs* 6, no. 2 (May 2010): 1, <https://www.hsaj.org/articles/84>.

<sup>12</sup> Cloud, “Future Role of Fire Service in Homeland Security,” 75.

<sup>13</sup> Hagen, “Interagency Collaboration Challenges,” 89.

<sup>14</sup> Global Justice Information Sharing Initiative, “Fire Service Integration for Fusion Centers: An Appendix to the *Baseline Capabilities for State and Major Urban Area Fusion Centers*” (Washington, DC: Department of Justice, April 2010), 5, <https://it.ojp.gov/documents/d/Fire%20service%20integration%20for%20Fusion%20Centers.pdf>.

is used to justify the Nationwide SAR Initiative (NSI)'s policy that requires non-law enforcement personnel to contact their local law enforcement agency to report suspicious activity.<sup>15</sup> This NSI policy is recognized by the International Association of Fire Chiefs (IAFC) when it states, "Fire Departments should report suspicious activity to their local law enforcement authorities."<sup>16</sup>

If policies such as this, which keep the fire service at arm's length, are allowed to continue, the goal of complete fire service intelligence integration will not be possible. Dennis confirms this in his 2012 thesis: "In order to be a full partner in disseminating and receiving information/intelligence, SAR usage in the fire service will need to be addressed."<sup>17</sup> Given this barrier to fire service integration, Cloud suggests that the fire service should

lobby legislators to create policy directing the IC to establish process [es] to include the fire service in the intelligence cycle . . . [and convene] a meeting with members of the IC and other stakeholders to determine the fire service role as a vital customer and as a vital partner in the intelligence collection and information sharing.<sup>18</sup>

The fire service as a vital customer leads to the second area of operations, the consumer of intelligence.

### **3. Consumer of Intelligence**

The IAFC defines the need for the fire service to be a consumer of intelligence as follows:

Since the terrorist attacks of September 11, 2001, fire chiefs across the United States have been seeking intelligence and information about the terrorism threat to their communities in order to assist in eliminating or reducing the element of strategic surprise in their operations. Fire chiefs

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<sup>15</sup> International Association of Fire Chiefs, *Homeland Security: Intelligence Guide for Fire Chiefs* (Fairfax, VA: International Association of Fire Chiefs, 2012), 14, <https://www.iafc.org/topics-and-tools/resources/resource/homeland-security-intelligence-guide-for-fire-chiefs>.

<sup>16</sup> International Association of Fire Chiefs, 15.

<sup>17</sup> Dennis, "Standing on the Shoulders of Giants," 53.

<sup>18</sup> Cloud, "Future Role of Fire Service in Homeland Security," 77.

have been primarily interested in receiving intelligence on terrorism trends and targeting related to critical infrastructure and special events in their jurisdictions.<sup>19</sup>

The IAFC goes on to say, “This intelligence has been sought to enhance the situational awareness and safety of first responders, incident commanders, and field operators.”<sup>20</sup> The fire service will primarily use both raw and finished intelligence to improve situational awareness, which affects how the fire service prepares for terrorist incidents, as well as how it responds to an attack. In its document, “Fire Service Integration for Fusion Centers,” the DOJ highlights the use of intelligence for preparedness: “Though once thought of as relating only to prevention, protection, and investigation missions, information and intelligence are now also recognized as important elements in support of the preparedness for and execution of response and recovery missions.”<sup>21</sup> The intelligence needs of the fire service are different from those of law enforcement and more traditional consumers. The fire service’s mission does not normally include the requirement to develop a criminal case for prosecution. The fire service, therefore, does not need access to some of the more sensitive details of an investigation. Hagen describes the fire service’s need for intelligence as follows: “Any information received about intended targets, dissemination devices, or methods of attack could result in a valuable head start for planning an effective response.”<sup>22</sup> He goes on to say, “Firefighters need generic information, gleaned from intelligence, about the nature of credible threats.”<sup>23</sup>

The fire service has not developed a unified effort to advocate for its needs as an intelligence consumer. Furthermore, not clearly defining its needs, nor differentiating them from those of law enforcement, has halted all efforts toward progress. Hagen offers an example of this problem: “Realistically, the vast majority of the fire service has little need

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<sup>19</sup> International Association of Fire Chiefs, *Intelligence Guide for Fire Chiefs*, 3.

<sup>20</sup> International Association of Fire Chiefs, 3.

<sup>21</sup> Global Justice Information Sharing Initiative, “Fire Service Integration for Fusion Centers,” 1.

<sup>22</sup> Hagen, “Interagency Collaboration Challenges,” 89.

<sup>23</sup> Hagen, 89.

to know the sources and methods resulting in a piece of intelligence, thereby, negating the need for TOP SECRET clearances.”<sup>24</sup> The DOJ recognizes that the issue of security clearances poses a barrier to fire service integration and, therefore, has added this caveat to its management and administrative capabilities guidance concerning security:

Fire service constituents should collaborate with the fusion center to identify appropriate fire service members to include in the center’s dissemination of Secret-level information; the center should aid in facilitating acquisition of the appropriate clearances, policies, procedures, and training to receive and safeguard Secret-level information.<sup>25</sup>

In addition to the fire service’s role as a consumer of intelligence, it has a role in supporting the domestic intelligence enterprise as intelligence analysts.

#### **4. Intelligence Analyst**

Fire service personnel can support the intelligence cycle by contributing their unique knowledge, skills, and abilities to the process. The following appears in the DOJ’s 2010 “Fire Service Integration for Fusion Centers” and offers a clear outline for their support:

[Prevention:] Fire service personnel can contribute to the identification and reporting of threats that may lead to accidental, criminal, or terrorist incidents and can serve as an information and analytical resource for the production of intelligence to support incident prevention efforts. . . .

[Protection:] Fire service personnel can provide a valuable perspective to the identification and reporting of critical infrastructure and key resource vulnerabilities and the identification of potential consequences of threats exploiting those vulnerabilities. . . .

[Response:] Fire service personnel can contribute to, receive, and share information and intelligence to support the effective response operations of all emergency service providers. . . .

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<sup>24</sup> Hagen, 38.

<sup>25</sup> Global Justice Information Sharing Initiative, “Fire Service Integration for Fusion Centers,” 13.

[Recovery:] Fire service personnel can contribute to, receive, and share information and intelligence to support the continuity of government and reconstitution of critical infrastructure operations. . . .

[Safety:] Fire service personnel can contribute to and receive information and intelligence on terrorism techniques, target hazards, and natural disaster trends, to enhance situational awareness and proactive measures for protecting the health and safety of all emergency responders.<sup>26</sup>

The literature demonstrates that the fire service has a significant role in the nation's domestic intelligence enterprise. Less clear are the reasons for the fire service's failure to achieve complete integration after nearly two decades. This leaves open the issue of how the fire service has continued to operate largely outside the domestic intelligence enterprise, despite the strong justification and numerous attempts to bring it into the fold.

## **5. Participation in the Nationwide Suspicious Activity Report Initiative**

The domestic intelligence enterprise, when viewed from the local level, primarily encompasses the three main groups of participants. These participants are citizens, SLTT public safety agencies, and fusion centers. The information between these groups is transmitted primarily through the NSI. The NSI provides a pathway for capturing information related to suspicious activities at the local level and transferring it to fusion centers. SARs are the starting point for gathering intelligence within the NSI. Much of the literature calls for the fire service to participate in the NSI by submitting SARs based on observed activity with a nexus to terrorism. In "A Call to Action," the NSI calls on the fire service—which is included among homeland and FSLTT security partners—to participate when it says,

You are responsible to ensure the public you serve understands how to report suspicious activity and your agency or organizational members support the collection, analysis, and submission of suspicious activity

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<sup>26</sup> Global Justice Information Sharing Initiative, 2.

reports to your fusion center or FBI [Federal Bureau of Investigation] JTTFs [Joint Terrorism Task Forces].<sup>27</sup>

The NSI offers training for fire service personnel on the SAR process as well as a list of activities to watch for that may indicate terrorist activity. The National Counterterrorism Center's online guide describes the training as "a multifaceted approach designed to increase the effectiveness of state, local, and tribal law enforcement and public safety professionals and other frontline partners in identifying, reporting, evaluating, and sharing pre-incident terrorism indicators to prevent acts of terrorism."<sup>28</sup>

The domestic intelligence enterprise has established SARs as the starting point for intelligence gathering at the local level. It could, therefore, be argued that if the fire service seeks to better integrate into the domestic intelligence enterprise, SARs would be the place to start. Dennis astutely makes this point when he says, "Regardless of ones [*sic*] feeling on the issue, in order to be a full partner in disseminating and receiving information/intelligence SAR usage in the fire service will need to be addressed."<sup>29</sup> Within current NSI policies, fire service personnel are not allowed to enter a SAR into the NSI system directly. The policy directs non-law enforcement personnel to contact local law enforcement to enter a SAR. This policy presents a barrier to fire service integration at the lowest level of the system. An additional barrier appears in another NSI policy: the local fusion center is not required to follow up with a non-law enforcement agency regarding the disposition of a SAR. This failure to establish a feedback loop between fire service personnel and fusion centers may arguably be the cause of the fire service's low participation in the NSI. The role of feedback loops within a system was first proposed by W. Ross Ashby in his 1960 book *Design for the Brain*; Stuart A. Umpleby offers a

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<sup>27</sup> Nationwide SAR Initiative, "A Call to Action-A Unified Message Regarding the Need to Support Suspicious Activity Reporting and Training" (Washington, DC: Department of Homeland Security, June 2014), 1, [https://www.dhs.gov/sites/default/files/publications/14\\_0610\\_NSI\\_A-Call-to-Action.pdf](https://www.dhs.gov/sites/default/files/publications/14_0610_NSI_A-Call-to-Action.pdf).

<sup>28</sup> "Counter Terrorism Guide for Public Safety Personnel," Office of the Director of National Intelligence, accessed July 5, 2018, <https://www.dni.gov/nctc/jcat/index.html>.

<sup>29</sup> Dennis, "Standing on the Shoulders of Giants," 53.

contemporary explanation of Ashby's theory when he says; "In his [Ashby's] theory of adaptation two feedback loops are required for a machine to be considered adaptive."<sup>30</sup>

The lack of feedback related to SARs reduces participation because fire service personnel do not have visibility into the system to determine the value of the SAR on their own. This may be viewed as a lost opportunity for the fusion center to improve the quality of SARs submitted by fire service personnel. Given that SARs and the NSI represent the lowest level of entry into the domestic intelligence enterprise, it follows that fire service integration into the community should begin with the development of a local SAR program.

### C. RESEARCH DESIGN

This thesis uses the congruence model to guide the implementation of a suspicious activity reporting system into the Fort Worth Fire Department. The congruence model provides a conceptual framework to guide organizational change. Consulting firm Mercer Delta describes the congruence model as "a simple, pragmatic approach to organization dynamics based on systems theory."<sup>31</sup> The congruence model was first proposed by David A. Nadler and Michael L. Tushman in their article, "A Model for Diagnosing Organizational Behavior." Nadler and Tushman describe the model as putting "its greatest emphasis on the transformation process and specifically reflects the critical system property of interdependence."<sup>32</sup> This model ensures that the components of organizational changes "fit" within the organization.<sup>33</sup> The congruence model includes the following steps to achieve fit or congruence:

Identify the Symptoms: Identify commonalities among previous attempts at Fire Service Integration that have impeded progress.

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<sup>30</sup> W. R. Ashby, *Design for a Brain: The Origin of Adaptive Behavior* (London: Chapman and Hall, 1960), quoted in Stuart A. Umpleby, "Ross Ashby's General Theory of Adaptive Systems," *International Journal of General Systems* 38, no. 2 (February 2009): 5, <https://doi.org/10.1080/03081070802601509>.

<sup>31</sup> Mercer Delta, "The Congruence Model: A Roadmap for Understanding Organizational Performance" (Boston: Mercer Delta, 2003), 2, Semantic Scholar.

<sup>32</sup> David A. Nadler and Michael L. Tushman, "A Model for Diagnosing Organizational Behavior," *Organizational Dynamics* 9, no. 2 (September 1980): 39.

<sup>33</sup> Nadler and Tushman, 39.

Specify the Input: Identify the core mission and strategies of the fire service that affect intelligence integration.

Identify the output: Identify the desired outputs at each level of the organization with regard to intelligence integration.

Identify the problems: Identify the current gaps within the organization that would prevent intelligence integration.

Describe the organizational components: Analyze the four key organizational components; informal organization, work, people, and formal organization.

Assess the congruence: Determine the level of congruence within the key organizational components.

Generate hypotheses about problem causes: Develop solutions to correct areas of poor congruence that are affecting output.

Identify the action steps: Implement actions that improve organizational output to ensure that the overall process fits with the organizational environment.<sup>34</sup>

#### **D. CHAPTER OUTLINE**

Chapter II examines the fire service's role in the domestic intelligence enterprise and suggests how to begin the process of integration. The chapter also describes how the fire service can serve as intelligence gatherers, consumers, and analysts in the enterprise, making the case for why fire service integration should begin with a SAR program at the local level. Chapter III offers a clear explanation of the origins, science, and practice of systems thinking. It explores the use of systems thinking in the fields of organizational development and change management and shows how the congruence model best addresses the complex problem of fire service integration.

Chapter IV outlines the step-by-step application of the congruence model to guide the development of a SAR program for the Fort Worth Fire Department. The key steps are described individually to show how each would affect the successful development of an efficient, sustainable SAR program. Chapter V presents key findings, limitations, and

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<sup>34</sup> Mercer Delta, "The Congruence Model," 9.

recommendations. This chapter discusses the use of the congruence model to continue integration efforts beyond SAR and recommends further research to examine how the congruence model could be applied to other areas of government.

## II. FIRE SERVICE INTELLIGENCE INTEGRATION

Over the past two decades, the recurring theme within this nation's homeland security enterprise (HSE) has been "unity of effort." The National Commission on Terrorist Attacks upon the United States first introduced this concept into the HSE lexicon in 2004 with the *9/11 Commission Report*. In the 9/11 Commission's call for unity of effort across all aspects of the HSE, the commission specifically highlighted the need for unity of effort in the nation's domestic intelligence enterprise. The 9/11 Commission gave a glimpse into how this would look when it said, "A 'smart' government would integrate all sources of information to see the enemy as a whole. Integrated all-source analysis should also inform and shape strategies to collect more intelligence."<sup>35</sup> It follows, then, that this "all-source" approach to intelligence would and should include the fire service at the national, state, and local levels. Despite this arguably clear mandate for fire service integration into the domestic intelligence enterprise, progress toward this goal has been sporadic at best. There are notable successes in this endeavor; however, these relative few stand somewhat as outliers within the U.S. fire service.

Most often, departments that have successfully integrated intelligence into their operations can trace their evolution back to a significant event in their history. James W. Kiesling provides an example of this in his 2016 thesis for the Center for Homeland Defense and Security (CHDS): "Many of the FDNY's [Fire Department of New York's] post 9/11 rebuilding efforts were directed toward developing the FDNY's intelligence capabilities."<sup>36</sup> Alicia L. Welch in her 2006 CHDS applied this same framework: "Since there has not yet been a successful significant attack in Los Angeles, funding for prevention

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<sup>35</sup> National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report*, 401.

<sup>36</sup> James W. Kiesling, "Establishing the Intelligence Required by the Fire Department City of New York for Tactical and Strategic Decision Making" (master's thesis, Naval Postgraduate School, 2016), 13, <https://www.hsdl.org/?view&did=792231>.

has not been a priority.”<sup>37</sup> The impact of historical events on an organization and its ability to adapt to change is further explored in Chapter IV. As noted in Chapter I, most of the fire service has continued to operate outside the domestic intelligence enterprise even as the United States approaches the twentieth anniversary of the 9/11 attacks.

While the domestic intelligence enterprise has benefited from a great deal of academic research, the study of fire service integration has been much more limited. This gap in research was noted by Robert M. Covert II in his December 2012 thesis: “The primary source of academic research related to fire service involvement with the intelligence enterprise comes from the CHDS at the Naval Postgraduate School.”<sup>38</sup> Despite this limitation, the research has accomplished much concerning the fundamental question of whether the fire service should be involved and has explored the key components of fire service integration.<sup>39</sup> These individual components fall within three areas of operations, which define how the fire service will participate in the domestic intelligence enterprise as intelligence gatherers, consumers, and analysts. These CHDS theses, when viewed alongside key documents from the domestic intelligence enterprise, offer a robust framework for further efforts toward fire service integration.

#### **A. INTELLIGENCE GATHERER**

Given the significant number of fire service personnel on duty every day standing ready to protect this nation, the concept of using them as intelligence gatherers offers both great opportunities and many pitfalls. Bryan Heirston makes a cogent argument for firefighters as sensors in his 2010 article in *Homeland Security Affairs*:

The United States has over one million firefighters serving in over thirty thousand fire departments that respond to over twenty-four million emergencies annually. In their efforts to prevent and respond to life and

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<sup>37</sup> Alicia L. Welch, “Terrorism Awareness and Education as a Prevention Strategy for First Responders” (master’s thesis, Naval Postgraduate School, 2006), 13, <https://www.hsdl.org/?view&did=461629>.

<sup>38</sup> Robert M. Covert II, “Evolving the Local Fire Service Intelligence Enterprise in New York State: Implementing a Threat Liaison Officer Program” (master’s thesis, Naval Postgraduate School, 2012), 19, <https://www.hsdl.org/?view&did=732019>.

<sup>39</sup> Covert, 19.

property loss, firefighters enter homes, businesses, vehicles, and other assets, without a search warrant, thousands of times each day. This access has allowed firefighters to identify potential terrorist activities, oftentimes unexpectedly for both the firefighters and the potential terrorists. U.S. firefighters may be in a unique position to positively or negatively impact our current homeland security information-sharing efforts.<sup>40</sup>

The fire service's ability to augment the number of eyes and ears is an attractive prospect for the domestic intelligence enterprise.

Along with this increase in the number of intelligence gatherers comes legitimate concerns regarding the privacy and civil liberties of the public. As noted in the literature review, opposition to fire service integration has been primarily anecdotal. The most prominent voice against fire service integration into the domestic intelligence enterprise is that of Mike German with the Brennan Center for Justice. As quoted in a 2007 Associated Press article, German warns, "If in the conduct of doing their jobs they come across evidence of a crime, of course they should report that to the police. . . . But you don't want them being intelligence agents."<sup>41</sup> Despite the limited public opposition, the protection of privacy and civil liberties should be of the greatest concern for the fire service.

In recognition of this concern, academic research and federal documents agree on the critical importance of training for fire service members. Education for firefighters on privacy and civil liberty protections are offered as a bulwark against potential abuse and error. The fire service enjoys a special relationship with the public it serves, and this relationship is, in no small part, built on trust between firefighters and the public. It is, therefore, vital that firefighters receive the necessary training to fulfill their role in the domestic intelligence enterprise while maintaining the public's trust. Another common theme among the research and federal documents is the importance of a standard system to report suspicious activity observed by fire service members and the public. The NSI is currently in use and available to the fire service to report suspicious activity.

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<sup>40</sup> Heirston, "Firefighters and Information Sharing," 84.

<sup>41</sup> Associated Press, "Firefighters Take on Terrorism-Fighting Role," MSNBC, November 23, 2007, [http://www.nbcnews.com/id/21940968/ns/us\\_news-security/t/firefighters-take-terrorism-fighting-role/](http://www.nbcnews.com/id/21940968/ns/us_news-security/t/firefighters-take-terrorism-fighting-role/).

While the NSI provides a practical solution for initiating a report and routing it to the local fusion center and JTTF, some of the program's features pose significant barriers to full fire service integration. For example, and as noted in the literature review, the NSI does not allow fire service personnel to enter a SAR directly into the system. Fire service personnel along with other hometown security partners must contact local law enforcement to report suspicious activity.<sup>42</sup> Policies of this nature prevent complete fire service integration by keeping non-law enforcement personnel outside the system.

## **B. CONSUMER OF INTELLIGENCE**

The theme of situational awareness commonly appears in the research and industry documents about the fire service as an intelligence consumer. The fire service recognizes that one's level of situational awareness has a significant effect on one's decisions before, during, and after an emergency. Furthermore, the fire service recognizes the value of personnel accessing intelligence reports in a timely manner. Fire service intelligence needs differ from those of law enforcement as the former does not require information for future criminal prosecution. This critical difference between the fire service's and law enforcement's use of intelligence shows why the research urges the fire service to better advocate for its intelligence needs. The fire service must educate its partners in the domestic intelligence enterprise about its unique intelligence needs. Jerome D. Hagen illustrates this in his 2006 CHDS thesis: "Realistically, the vast majority of the fire service has little need to know the sources and methods resulting in a piece of intelligence, thereby, negating the need for TOP SECRET clearances."<sup>43</sup>

Central among discussions of the fire service as a consumer of intelligence is that of security clearances. Like NSI policies that prohibit fire service personnel from directly contributing SARs, current security clearance practices prevent the fire service from readily consuming intelligence. Just as training for personnel will be key for integration efforts, so too will be the need for security clearances. Much of the research highlights the

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<sup>42</sup> Nationwide SAR Initiative, "A Call to Action," 2.

<sup>43</sup> Hagen, "Interagency Collaboration Challenges," 38.

need for standardizing security clearances and streamlining the process to receive one. The 9/11 Commission took this further when it criticized an IC where “current security requirements nurture overclassification and excessive compartmentalization of information among agencies.”<sup>44</sup> Organizational cultures that create information silos impede efforts to prevent terrorist attacks. The 9/11 Commission calls for changing agencies from “a ‘need-to-know’ culture of information protection” to “a ‘need-to-share’ culture of integration.”<sup>45</sup>

### C. INTELLIGENCE ANALYST

The fire service can further contribute to the collective efforts of the domestic intelligence enterprise by supporting the analysis phase of the intelligence cycle. Fire service personnel have a unique collection of knowledge, skills, and abilities that are not found in law enforcement or the IC. The DOJ outlines these unique capabilities in its 2010 “Fire Service Integration for Fusion Centers”: “The integration of fire service organizations and personnel into the fusion process enhances the efforts of all homeland security partners across all mission areas.”<sup>46</sup> In support of the all-hazards mission of many of the nation’s fusion centers, the DOJ recognizes the role of the fire service in five areas of all hazards: prevention, protection, response, recovery, and safety.<sup>47</sup> Within each of these five areas, the fire service has the opportunity to bring to bear its subject-matter expertise in support of the entire domestic intelligence enterprise.

Numerous examples of how fire service organizations can operate within the analysis phase of the intelligence cycle are found within the research and federal documents. In his 2012 CHDS thesis, Joshua M. Dennis offers an example of how the fire service can contribute during the analysis phase of the intelligence cycle: “Fire officials are

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<sup>44</sup> National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report*, 417.

<sup>45</sup> National Commission on Terrorist Attacks upon the United States, 417.

<sup>46</sup> Global Justice Information Sharing Initiative, “Fire Service Integration for Fusion Centers,” 2.

<sup>47</sup> Global Justice Information Sharing Initiative, 2.

often best able to identify potential threats or anomalies that exist within their jurisdictions.”<sup>48</sup> This is to say that the fire service can support the intelligence analysis process by providing expertise and experience not normally found in the law enforcement community. The ways in which the fire service can bring these capabilities to bear vary widely. However, the broad consensus favors solutions that fit the capabilities of the local organization rather than a one-size-fits-all approach. Most importantly, the need for organizations to start somewhere, even if that just means reaching out to the local fusion center, is favored over delaying while waiting for things like funding, manpower, or a mandate. As noted in the literature review, the NSI has been established as the starting point for intelligence gathering at the local level. Therefore, the NSI and SARs will be further explored in the next chapter as the logical starting point to begin working toward fire service integration into the domestic intelligence enterprise.

#### **D. PARTICIPATION IN THE NATIONWIDE SUSPICIOUS ACTIVITY REPORT INITIATIVE**

Because of the nature of their work, the more than 800,000 law enforcement officers and 1.2 million firefighters in the U.S. are positioned to identify activities that may be associated with terrorism. In many instances, information based on suspicious behavior has led to the disruption of a terrorist attack, the arrest of individuals intending to do harm, or the corroboration of existing intelligence. It is of utmost importance that information on suspicious activities be shared with and between federal, state, local, tribal, territorial, and private-sector partners.

—Office of the Director of National Intelligence<sup>49</sup>

The NSI is the first point of entry into the domestic intelligence enterprise accessible at the local level. The NSI intends, first, to educate the public as well as hometown security partners to recognize activities that could be indicators of terrorism or

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<sup>48</sup> Dennis, “Standing on the Shoulders of Giants,” 26.

<sup>49</sup> “Intelligence Guide for First Responders,” Office of the Director of National Intelligence, accessed April 25, 2018, [https://www.dni.gov/nctc/jcat/jcat\\_ctguide/intel\\_guide.html](https://www.dni.gov/nctc/jcat/jcat_ctguide/intel_guide.html).

other incidents of violence.<sup>50</sup> Second, the NSI provides a system to collect SARs and route them to the appropriate fusion center. Within this system, the NSI has incorporated multiple checks to ensure that SARs do not violate the public's privacy and civil liberties. The NSI provides training to homeland security partners, including fire service personnel, in privacy and civil liberties protections. Despite the availability of such training, the NSI restricts the submission of new SARs only to law enforcement personnel. As noted in the literature review, this restriction poses a barrier to fire service integration. In his thesis, Dennis frames this problem well: "Regardless of ones [sic] feeling on the issue, in order to be a full partner in disseminating and receiving information/intelligence SAR usage in the fire service will need to be addressed."<sup>51</sup> By restricting SAR submissions only to law enforcement, the NSI cannot realize its full potential. The fire service, by its very nature, operates at the local level, yet NSI policies that view the fire service as no different from the public effectively prevent integration and encourage an "us versus them" mentality.

Beyond the initial submission of SARs, NSI policies do not require that local law enforcement or the fusion center follow up with the fire service personnel who initiate a SAR. This one-way flow of information further discourages integration and collaboration. Rebecca L. Gonzales notes this lack of feedback in her 2009 thesis: "Such sharing tends to be unidirectional, with little, if any, police feedback returning on how the firefighter information was used or whether it was even received."<sup>52</sup> The lack of adequate staffing and increasing workload among fusion centers and law enforcement have been blamed for NSI policies that require no follow-up with fire service personnel concerning a SAR's status.

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<sup>50</sup> Nationwide SAR Initiative, "Suspicious Activity Reporting Training for Hometown Security Partners" (Washington, DC: Department of Homeland Security, January 2017), 1, [https://www.dhs.gov/sites/default/files/publications/17\\_0315\\_NSI\\_Hometown-Security-Partners.pdf](https://www.dhs.gov/sites/default/files/publications/17_0315_NSI_Hometown-Security-Partners.pdf).

<sup>51</sup> Dennis, "Standing on the Shoulders of Giants," 53.

<sup>52</sup> Rebecca L. Gonzales, "Transforming Executive Fire Officers: A Paradigm Shift to Meet the Intelligence Needs of the 21st Century Fire Service" (master's thesis, Naval Postgraduate School, 2010), 56, <https://www.hsdl.org/?view&did=16049>.

This failure to account for feedback loops within the larger system could arguably be the cause of low participation by fire service agencies and personnel. The Government Accountability Office took this even further in its 2013 report on the state of the NSI:

Fusion center and local law enforcement agency officials we interviewed generally said that receiving additional feedback on the SARs they submit—such as whether the FBI has received the SARs, whether the FBI is investigating the SARs, or what the outcomes of any investigations are—would help them better contribute to the NSI.<sup>53</sup>

The impact of feedback loops will be further explored in Chapter 4. The fire service’s lack of direct visibility and access to the NSI limits the intelligence available to meet the needs of the fire service. The NSI has the stated objective not only to gather SARs but also to share terrorism-related information. Currently, this sharing objective is limited only to law enforcement participants, leaving the fire service to rely on relationships with local law enforcement, wherein they trust law enforcement counterparts to recognize and communicate intelligence that is pertinent to the fire service. While the importance of interpersonal relationships should not be overlooked, true collaboration requires an environment of interdependence. Brian P. Duggan highlights this point in his 2012 thesis: “Focusing on relationships, the literature agrees that interdependence creates a shared purpose and the determination of a joint mission.”<sup>54</sup>

The 9/11 Commission’s call for unity of effort is largely heeded in the NSI; however, it falls short in its attempt to include the fire service as a full partner and collaborator. The NSI has proven to be a successful program in identifying activities that could have a nexus to terrorism and subsequently alerting the proper authorities for intervention. A 2015 report by the National Consortium for the Study of Terrorism and Responses to Terrorism evaluated the NSI and found that “99% of the SAR pre-incident activities identified by the American Terrorism Study align with one of the seven most

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<sup>53</sup> Government Accountability Office, *Information Sharing: Additional Actions Could Help Ensure That Efforts to Share Terrorism-Related Suspicious Activity Reports Are Effective* (Washington, DC: Government Accountability Office, March 2013), 13.

<sup>54</sup> Brian P. Duggan, “Enhancing Decision Making during Initial Operations at Surge Events” (master’s thesis, Naval Postgraduate School, 2012), 22, <https://www.hsdl.org/?view&did=732026>.

prevalent SAR indicators.”<sup>55</sup> This same report opened the door for fire service integration when it reported that “many of these indicators were not only observable prior to terrorist attacks, but also that there was evidence that some indicators were observed by the public.”<sup>56</sup> Given the significant research supporting the value of both the NSI and the fire service’s potential contribution to the system, the opportunity costs of keeping the fire service outside the NSI and SARs are significant. These costs tip the scale decidedly toward bringing the fire service into the fold as well as demonstrating the great value to be gained by using the NSI as the starting point for fire service integration into the domestic intelligence enterprise.

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<sup>55</sup> National Consortium for the Study of Terrorism and Responses to Terrorism, *Validation of the Nationwide Suspicious Activity Reporting (SAR) Initiative: Identifying Suspicious Activities from the Extremist Crime Database (ECDB) and the American Terrorism Study (ATS)* (College Park, MD: National Consortium for the Study of Terrorism and Responses to Terrorism, February 2015), 12, <https://www.start.umd.edu/publications>.

<sup>56</sup> National Consortium for the Study of Terrorism and Responses to Terrorism, 14.

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### III. SYSTEMS THINKING

Today, systems thinking is needed more than ever because we are becoming overwhelmed by complexity. Perhaps for the first time in history, humankind has the capacity to create far more information than anyone can absorb, to foster far greater interdependency than anyone can manage, and to accelerate change far faster than anyone's ability to keep pace. Certainly the scale of complexity is without precedent. All around us are examples of "systemic breakdowns"—problems such as global warming, climate change, the international drug trade, and the U.S. trade and budget deficits—problems that have no simple local cause. Similarly, organizations break down, despite individual brilliance and innovative products, because they are unable to pull their diverse functions and talents into a productive whole.

—Peter M. Senge, *The Fifth Discipline*

The task of fully integrating the fire service into the domestic intelligence enterprise is complex. This complexity emerges because of the vast number of interrelated and interdependent factors in implementing such a large organizational change. These factors include organizational culture, history, formal structure, and informal structure. Outside the organization, there are additional factors such as intra-organizational dynamics, information silos, resource limitations, and socio-cultural issues. The first step in addressing this complexity is to break from the traditional reductionist problem-solving methodologies commonly found in government in favor of those that recognize the system and endeavor to work within it to bring about the desired change.

#### A. THE WHAT AND WHY OF SYSTEMS THINKING

According to Peter M. Senge, "Systems thinking is a discipline for seeing wholes."<sup>57</sup> Most importantly, systems thinking provides a framework for understanding the complex interactions both internal and external to an organization. By recognizing that an organization is a sub-system operating within a larger system, the interconnectedness

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<sup>57</sup> Senge, *The Fifth Discipline*, 68.

becomes visible. As Derek Cabrera and Laura Cabrera describe, “At its core, systems thinking attempts to better align how we think with how the real world works.”<sup>58</sup> Systems thinking has, therefore, found widespread applicability across a range of disciplines, from its origin through today.

## **1. The Foundations of Systems Thinking**

While the origins of systems thinking can be traced to Plato and his work *First Alcibiades*, written between 390 BC and 340 BC, the more contemporary beginnings come from the early twentieth century in the study of cybernetics. Cybernetics, as a discipline, is best described as the interdisciplinary study of systems covering a range of categories, including network theory, engineering, biology, social science, and management. Some scholars disagree about whether systems thinking is a subset of cybernetics, as part of the natural sciences, or a separate yet equal discipline more focused on the social sciences. However, within the context of this thesis, the use of the term *systems thinking* encompasses the social science aspect with application in the organizational behavior and organizational development field.

## **2. The Spectrum of Systems Thinking Applications**

Within the field of organizational development, systems thinking has gained acceptance as a valuable framework for addressing the increasingly complex and fast-paced nature of problems that organizations face in the “age of accelerations.”<sup>59</sup> Prominent among practitioners is Senge, who, following the publication of his 1990 book *The Fifth Discipline*, became widely regarded in the field of organizational development. *Harvard Business Review* in 1997, “identified it as one of the seminal management books of the past

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<sup>58</sup> Derek Cabrera and Laura Cabrera, *Systems Thinking Made Simple: New Hope for Solving Wicked Problems* (Odyssean Press, 2017), 12.

<sup>59</sup> Thomas L. Friedman, *Thank You for Being Late: An Optimist’s Guide to Thriving in the Age of Accelerations* (New York: Farrar, Straus and Giroux, 2016), loc. 395 of 8796, Kindle.

75 years.”<sup>60</sup> Senge describes systems thinking as the “fifth discipline” in that it is the “conceptual cornerstone” of a learning organization. He goes on to describe the importance of understanding systems thinking if a leader has any hope of managing complexity while nurturing a learning organization. Senge further highlights the importance of a learning organization that can manage in a dynamically complex environment as well as the need to understand the concept of feedback loops within a system.

Both concepts have significant crossover with the work of Ross W. Ashby and his theory of complex adaptive systems and feedback loops within a system. Ashby did not develop his theories strictly within the organizational development realm. Instead, he took a general approach to systems thinking—though his work has had an impact in both the natural and social sciences. Senge and Ashby are two prominent figures in the systems thinking field. However, they are not the only ones. The list of significant figures in the systems thinking arena is quite large, and it is beyond the scope of this thesis to list each one. Moreover, the number of theories, models, and methods attributed to this group is exponentially larger. Across the breadth of this collection, however, key components and attributes are universal.

## **B. KEY PRINCIPLES, CONCEPTS, AND RULES OF SYSTEMS THINKING**

The application of systems thinking within the organizational development field has found favor due to its relative simplicity and ability both to evaluate and to provide solutions for complex problems. Cabrera and Cabrera in their book *Systems Thinking Made Simple* have distilled the concepts of systems thinking into four rules that are “universal to all systems thinking methods.”<sup>61</sup> These rules for systems thinking are distinctions, systems, relationship, and perspectives (DSRP):

Distinctions Rule: Any idea or thing can be distinguished from the other ideas or things it is with

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<sup>60</sup> “Peter Senge and the Learning Organization,” *Infed* (blog), February 16, 2013, <http://infed.org/mobi/peter-senge-and-the-learning-organization/>.

<sup>61</sup> Cabrera and Cabrera, *Systems Thinking Made Simple*, 10.

Systems Rule: Any idea or thing can be split into parts or lumped into a whole

Relationship Rule: Any idea or thing can relate to other things or ideas

Perspectives Rule: Any thing or idea can be the point or the view of a perspective<sup>62</sup>

These four rules of DSRP serve as the foundation for systems thinking and effectively align theories and methodologies within the discipline. DSRP, when used correctly, serves to provide clarity and insight into systems thinking methodologies rather than restrict them. Beyond DSRP, some key theories and concepts are valuable in applying systems thinking to problems within an organization.

One key theory is that of adaptive systems, developed in the 1950s and 1960s by W. Ross Ashby in his general theory of adaptive systems. Ashby is known for developing theories and concepts that are general yet broadly applicable.<sup>63</sup> While Ashby received some criticism for keeping his theories too general, others have applauded his theories as being “axiomatic or definitional.”<sup>64</sup> In speaking to the broad utility of Ashby’s theories, Stuart Umpleby wrote, “Ashby’s general theories then [became] a tool for developing more specific, operationalizable theories in specific disciplines.”<sup>65</sup> For example, Ashby introduced the concept of feedback loops within an adaptive system; practitioners then built on his general theory to further refine the feedback loop concept within specific disciplines.

Senge operationalized Ashby’s feedback loops concept when he applied them within the context of organizational development in his book. Senge introduced feedback loops when he said, “The practice of systems thinking starts with understanding a simple concept called ‘feedback’ that shows how actions can reinforce or counteract (balance)

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<sup>62</sup> Cabrera and Cabrera, 10.

<sup>63</sup> Umpleby, “Ross Ashby’s General Theory of Adaptive Systems,” 4.

<sup>64</sup> Umpleby, 4.

<sup>65</sup> Umpleby, 4.

each other.”<sup>66</sup> Senge went on to describe how feedback and ultimately systems thinking became a “language” to describe and finally see the complex interactions and interconnectedness of a learning organization.<sup>67</sup> It is worth noting that the application of systems thinking within the specific field of organizational development, as described by Senge, does not stray from the four rules of systems thinking found in DRSP. Senge is one of many practitioners who has endeavored to apply systems thinking within the organizational development discipline.

Describing Ashby’s contribution to the systems thinking field would not be complete without including Ashby’s law of requisite variety. Ashby’s law, as it is sometimes called, states “that the variety in a regulator must be equal to or greater than the variety in the system being regulated.”<sup>68</sup> Ashby’s law has significant implications within the organizational development field as it provides both a method to understand the complex nature of a closed-loop system and a pathway for practitioners seeking to affect change within an organization. To describe the concept of fire service integration into the domestic intelligence enterprise as a system—it takes input, performs work, then delivers output—would require the understanding of it as a closed-loop system. To achieve integration, the system must be capable of receiving inputs, in the form of feedback loops, in a manner that allows the system and organization to adapt to inputs as they are encountered while promoting productivity. To treat fire service integration as an open-loop system fails to account for these varieties and would, therefore, result in an unsustainable and ineffective program.

### **C. APPLICATION AND USE OF SYSTEMS THINKING IN ORGANIZATIONS AND CHANGE MANAGEMENT**

Systems thinking as an approach to organizational development began in the 1960s. Researchers at the University of Michigan and Harvard Business School recognized

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<sup>66</sup> Senge, *The Fifth Discipline*, 73.

<sup>67</sup> Senge, 73.

<sup>68</sup> Umpleby, “Ross Ashby’s General Theory of Adaptive Systems,” 6.

aspects of systems thinking in naturally occurring systems that carried over into the study of human organizations. In their most basic form, systems in both the natural world and human organizations include inputs, transformation processes, outputs, and the capacity to use feedback to alter the output. In the 1970s, this concept found favor among academics in the organizational development field. Notable among these were David Nadler and Michael Tushman from Columbia University as well as Harold Leavitt of Stanford University and Jay Galbraith from the Massachusetts Institute of Technology. These scholars worked separately during this period to “develop a simple, pragmatic approach to organization dynamics based on systems theory.”<sup>69</sup> Their efforts resulted in two models or frameworks for applying systems thinking to an organization. Harold Leavitt developed the model commonly called Leavitt’s diamond. Nadler and Tushman together developed the congruence model. Both models include a graphic representation of their key attributes in the following figures.

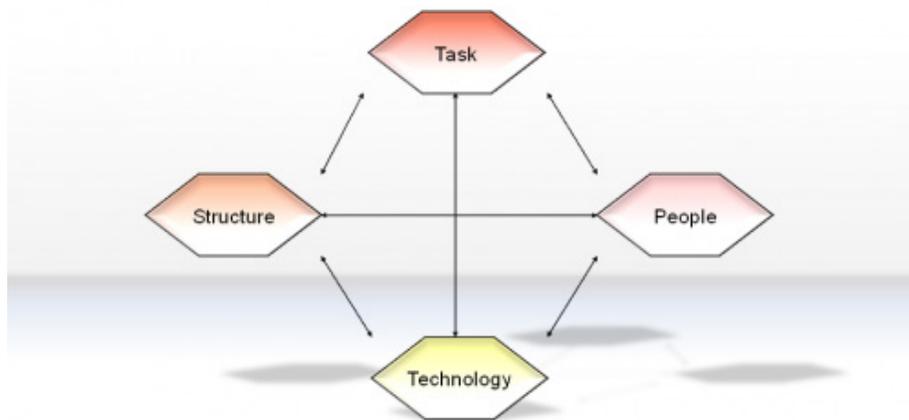


Figure 1. Leavitt’s Diamond: The Interaction of Social Forces in an Organization<sup>70</sup>

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<sup>69</sup> Mercer Delta, “The Congruence Model,” 2.

<sup>70</sup> Source: “Leavitt’s Diamond: The Interaction of Social Forces in an Organization,” Draw Pack, accessed January 14, 2018, [http://www.drawpack.com/index.php?route=product/product&product\\_id=5231](http://www.drawpack.com/index.php?route=product/product&product_id=5231).



Figure 2. Key Organizational Components<sup>71</sup>

The similarities between the two models become evident in their graphical form. Additionally, both models demonstrate a strong link to the fundamental rules of systems thinking, DSRP. While both models bring value by providing the practitioner with a straightforward and repeatable methodology to apply systems thinking to organizations, the congruence model broadens the focus to include additional factors beyond Leavitt’s diamond, making it better suited to address the complexity of fire service integration into the domestic intelligence enterprise. Chief among these factors are the role of historical events and the impact they can have on an organization’s ability to change as well as the “concept of fit.”<sup>72</sup> The consulting firm Mercer Delta offers a useful explanation of the latter concept in a 2003 paper:

<sup>71</sup> Source: Mercer Delta, “The Congruence Model,” 6.

<sup>72</sup> Mercer Delta, 7.

Very simply, the organization’s performance rests upon the alignment of each of the components—the work, people, structure, and culture—with all of the others. The tighter the fit—or, put another way, the greater the congruence—the higher the performance.<sup>73</sup>

Considering the unique and complex nature of the efforts to integrate the fire service into the domestic intelligence enterprise, the congruence model stands as the more appropriate choice. As noted in Chapter I, this thesis endeavors to apply systems thinking, in the form of the congruence model, to implement a SAR system within the Fort Worth Fire Department.

#### **D. FIRE SERVICE INTEGRATION USING THE CONGRUENCE MODEL**

The following chapter employs the congruence model as a framework for developing and implementing a SAR system at the local level. This author proposes that by using the congruence model and the broader concepts of systems thinking, a SAR system can be successfully implemented and prove sustainable within the Fort Worth Fire Department. The author further proposes that these methods and tools offer promise in guiding efforts toward fire service integration beyond the local level.

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<sup>73</sup> Mercer Delta, “The Congruence Model.”

#### **IV. THE CONGRUENCE MODEL APPLIED TO SAR IMPLEMENTATION WITHIN THE FORT WORTH FIRE DEPARTMENT**

This thesis uses the congruence model to guide the implementation of a suspicious activity reporting system within the Fort Worth Fire Department. The congruence model provides a conceptual framework to guide organizational change. Consulting firm Mercer Delta describes the congruence model as “a simple, pragmatic approach to organization dynamics based on systems theory.”<sup>74</sup> The congruence model was first proposed by David A. Nadler and Michael L. Tushman in their article, “A Model for Diagnosing Organizational Behavior.” Nadler and Tushman describe the model as putting “its greatest emphasis on the transformation process and specifically reflect [ing] the critical system property of interdependence.”<sup>75</sup> This model ensures that the components of organizational changes “fit” within the organization.<sup>76</sup>

The congruence model includes the following steps to achieve fit or congruence: identify the symptoms, specify the input, identify the output, identify the problems, describe the organizational components, assess the congruence, generate hypotheses about the problems’ causes, and identify the action steps. As illustrated in Chapter II, suspicious activity reporting is the logical starting point to advance the integration of the fire service into the domestic intelligence enterprise at the local level. Although this thesis applies the congruence model specifically to develop a SAR program for the Fort Worth Fire Department, the key concepts and methodologies are broadly applicable to any fire departments seeking to incorporate SARs into their organizations. Mercer Delta highlighted this benefit of the congruence model when it stated, “The congruence model doesn’t favor any particular approach to organizing.”<sup>77</sup> Instead, it is “a contingency model

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<sup>74</sup> Mercer Delta, 2.

<sup>75</sup> Nadler and Tushman, “A Model for Diagnosing Organizational Behavior,” 39.

<sup>76</sup> Nadler and Tushman, 39.

<sup>77</sup> Mercer Delta, “The Congruence Model,” 11.

of how organizations operate and, as such, is adaptable to any set of structural and social circumstances.”<sup>78</sup> Notably, this chapter should not be viewed as a best or smart practice for SAR implementation but rather an example of how the congruence model provides a lens through which to view organizational change initiatives, leading to viable and sustainable solutions based on the organization’s needs.

#### **A. IDENTIFY THE SYMPTOMS**

While there are notable examples of fire departments successfully integrating with the domestic intelligence enterprise, they are in the minority. There have been several previous attempts at fire service integration at both the local and national level. The lack of widespread success in these attempts can be attributed to any number of reasons specific to the organizations involved. Furthermore, the reasons for an unsuccessful attempt are often not visible to the outside observer. Given these circumstances, this thesis has identified broad commonalities among previous attempts and proposed a path forward. As illustrated in the literature review, there have been several notable efforts toward fire service integration in the form of academic works, training guides, and national initiatives, which have individually served to advance the collective efforts toward integration. What stands out among these attempts is that each tackles one or more key aspects of integration, such as training, policy, trust, and relationships. None of these attempts takes a holistic approach that brings together the components and treats the domestic intelligence enterprise as a system. More crucially, few scholars or practitioners have paid attention to feedback loops and their influence on the system. Feedback loops have been discussed in earlier chapters and are a basic component of systems thinking.

The concept of feedback loops within a system can be easily confused with the term *feedback*, which describes a specific component of the communication cycle inherent in interpersonal communications. Feedback in the communication cycle accounts for the content of the message from the audience back to the sender. The feedback loop concept, however, describes the pathway and its subsequent effect on the system as it takes input, performs the

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<sup>78</sup> Mercer Delta, 11.

work, and delivers output (see Figure 3). Within the context of this thesis, the term *feedback* refers to the content of the message whereas the term *feedback loop* refers to the flow of influence within the system. The role of feedback loops is critical to a system’s ability to perform work sustainably. Many previous attempts at fire service integration have failed to account for feedback loops. A unique attribute of feedback loops is that they are inherent in a system. If an organization does not intentionally account for feedback loops within its systems, the feedback loops might undermine the organization’s efforts.

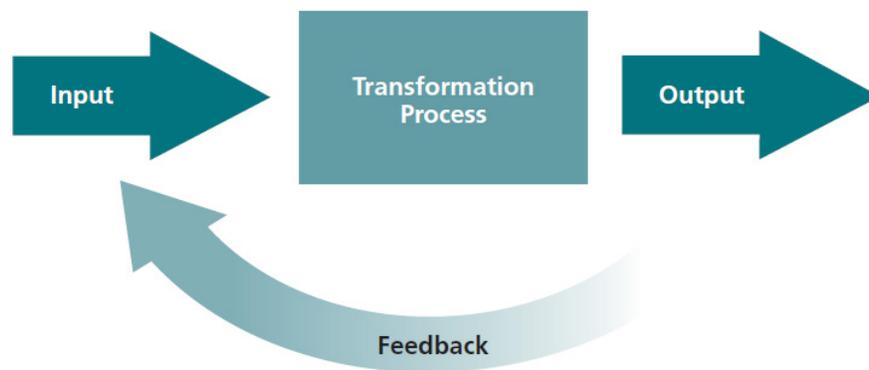


Figure 3. The Basic Systems Model<sup>79</sup>

There are numerous types of feedback loops within the study of systems thinking. This thesis describes two typologies: reinforcing feedback loops and balancing feedback loops. A reinforcing feedback loop influences the system behavior either positively or negatively. Senge offers an example of a positive reinforcing feedback loop in the form of a sales process: “If the product is a good product, more sales means more satisfied customers, which means more positive word of mouth. That will lead to still more sales, which means even more widespread word of mouth . . . and so on.”<sup>80</sup> A reinforcing feedback loop can also have a negative effect on a system. Senge again provides an

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<sup>79</sup> Source: Mercer Delta, 2.

<sup>80</sup> Senge, *The Fifth Discipline*, 82.

excellent example of the negative effect on a sales process: “If the product is defective, the virtuous cycle becomes a vicious cycle: sales lead to fewer satisfied customers, less positive word of mouth, and fewer sales; which leads to still less positive word of mouth and fewer sales.”<sup>81</sup>

Balancing feedback loops provide stability within a system. A real-world example of a balancing feedback loop is the human body meeting its basic need for food. When the body lacks the sustenance it needs, the brain sends a signal to eat in the form of hunger. When the body is satisfied, the feeling of hunger goes away. If someone continues to eat even after the hunger has ended, the brain replaces the feelings of hunger with increasing discomfort and eventually causes the body to reject additional food. This system in the human body maintains homeostasis. Balancing feedback loops have a similar purpose within an organization’s systems and must be considered.

Any effort toward the development of a SAR system within the Fort Worth Fire Department must account for feedback loops during the development and implementation phases of the program. Accounting for them prevents a negative influence on the system’s processes, and more importantly, creating feedback loops explicitly supports an effective, sustainable SAR program.

## **B. SPECIFY THE INPUT**

The core mission and strategy of the Fort Worth Fire Department is clearly defined in the organization’s mission statement: “To serve and protect our community through education, prevention, preparedness, and response.”<sup>82</sup> The desire to develop a SAR system within the Fort Worth Fire Department aligns with the department’s mission to serve and protect the community and its strategy of education, prevention, preparedness, and response to achieve its mission. More specifically, the department’s mission and strategy support the development of a SAR program to further its efforts in protecting the

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<sup>81</sup> Senge, 82.

<sup>82</sup> “Fire Department,” City of Fort Worth, Texas, accessed January 15, 2019, <http://fortworthtexas.gov/fire/>.

community. The department desires to educate the community in all aspects of community risk reduction, and the inclusion of education programs such as the “See Something, Say Something” program fits well within this strategy.<sup>83</sup> The Fort Worth Fire Department places significant importance on the role of prevention in achieving its mission. Therefore, developing a SAR program would further support the prevention strategy and align well with the department’s programs. Developing a SAR program would enhance the department’s preparedness and response capabilities by supporting activities tailored to meet the threats faced by the community, resulting in responses that are safer and more effective.

The Fort Worth Fire Department has significant resources in the form of personnel, community trust, expertise, and response capabilities that will both support and benefit from the development of a SAR program. The department is well positioned to support the domestic intelligence enterprise in acting as intelligence gatherers during the normal course of operations. Additionally, the department can supplement its current fire prevention and education efforts by incorporating elements of programs such as See Something, Say Something.

### **C. IDENTIFY THE OUTPUT**

Within the Fort Worth Fire Department’s SAR program, outputs would be expected primarily at two levels within the organization and from the regional fusion center. The first level of output would be the company officer, who supervises a four-person crew on a fire apparatus. Upon observing suspicious activity, the company officer would need to initiate a SAR, which would then be routed to the department’s homeland security personnel. The homeland security group would then evaluate the SAR for a nexus to terrorism and ensure the protection of civil liberties and privacy. The future Homeland Security/Arson Group would then submit the SAR to the regional fusion center as the second output.<sup>84</sup> Finally, the regional fusion center would further investigate the SAR in

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<sup>83</sup> Nationwide SAR Initiative, “Suspicious Activity Reporting Training,” 1.

<sup>84</sup> In the Fort Worth Fire Department, the Arson Group has homeland security responsibilities, so it is the most logical choice for this function.

accordance with its policies and processes. The third output is in the form of feedback to the department's homeland security group and the company officer who initiated the SAR.

#### **D. IDENTIFY THE PROBLEMS**

The Fort Worth Fire Department does not have a formal SAR process. The lack of a formal process—supported through training, policy, and practice—has resulted in an informal system containing feedback loops that discourage reporting of suspicious activity. The lack of training, unclear processes, and inadequate feedback have led to the perception that reporting suspicious activity is solely the function of law enforcement and members of the department's Homeland Security/Arson Group, which further limits the department's ability to contribute to the efforts of the domestic intelligence enterprise at the local level.

#### **E. DESCRIBE THE ORGANIZATIONAL COMPONENTS**

##### **1. Informal Organization**

The Fort Worth Fire Department has long operated with an informal doctrine that values only firefighting as part of the duties of personnel. While the normal activities of department personnel encompass much more than fighting fires, the informal organization has largely treated those duties as ancillary. While the department has led the charge over the past few decades in fire suppression strategies and tactics, it has fallen behind in other areas, including participation in SARs. This situation is in no way unique to the Fort Worth Fire Department. Many fire departments around the nation are in a similar state. In an environment of increasingly limited resources, taking on new duties such as SARs has been abandoned in favor of putting resources toward programs more likely to bring a greater return, for example, in shorter response times, political goodwill, and positive public perception. While these outcomes are in no way an exhaustive list of the factors preventing SAR program development, they do, however, demonstrate that the department has not recognized the significant value in supporting the domestic intelligence enterprise by developing a SAR program.

## **2. Work**

The day-to-day activities of the Fort Worth Fire Department are well suited to support a SAR program. As described in earlier chapters, the fire service has countless daily interactions with the public, which provide opportunities to observe suspicious activities that might have a nexus to terrorism. In the same way that fire crews check the smoke detectors in homes during medical emergencies, they can be on the lookout for indicators of terrorism to bring added value to the community as the department responds to calls for service. Just as department personnel have been trained to protect a patient's private medical information, they could also be trained to protect privacy and civil liberties while performing their duties related to SARs. Finally, the department currently requires that company officers submit formal reports for incident responses, which are then maintained in a searchable database to glean valuable information relevant to the department's operations and effectiveness. This system provides feedback to company officers both formally and informally, incentivizing them to write high quality reports to add value to the department.

## **3. People**

Fire service personnel, by their nature, are problem solvers. Given the right tools, training, and support, they can prevail in most circumstances. SARs are no different in that with the proper training, tools, and support, fire personnel can use SARs to enhance the department's ability to serve and protect the community. Firefighters are well prepared to participate in a SAR program given the extensive training they receive in areas such as fire science, hazardous materials, emergency medicine, and fire prevention, among others. Therefore, SARs should be treated as an additional tool available to personnel to perform their jobs. As with any new tool, they need to be trained on how to use it, and it needs to be supported by the organization.

## **4. The Formal Organization**

The Fort Worth Fire Department does not currently have a SAR program. While the department does have limited, informal connections with the domestic intelligence enterprise, it does not have a formal policy to support integration. The department does not

have a formal process to submit a SAR at the company officer level. Additionally, the department has only a small number of personnel with responsibilities in homeland security and intelligence. Most importantly, these same personnel are tasked with homeland security as an ancillary function.

The department does, however, place great value on continuing education and training for personnel. This has resulted in a training division that can support the inclusion of SAR training into the current curriculum. Finally, the department, with the support of the City of Fort Worth Information Technology (IT) department, has developed a robust and capable IT infrastructure that could easily support the technological needs of a SAR program.

#### **F. ASSESS THE CONGRUENCE**

As noted earlier, among previous failed attempts to further integrate the fire service into the domestic intelligence enterprise, the failure to account for feedback loops within the system is largely to blame. An example of this failure is found in the NSI policy that requires non-law enforcement participants to contact law enforcement to submit a SAR. This policy is incongruent with the desire to have non-law enforcement agencies participate. Participation is further discouraged by the fusion center's policy of not following up with the person or agency that initiated the SAR. This policy misses an opportunity to provide valuable feedback to improve the quality of future SARs. It creates a negative feedback loop that reduces trust and communication—not to mention its chilling effect on participation—and highlights an ill-fitting component in the system. The concept of fit is a key component of the congruence model and is explored in further detail in subsequent paragraphs.

Fit within the congruence model describes the interaction among and between components of the larger system. Mercer Delta further describes the concept of fit: “The degree to which the strategy, work, people, formal organization, and culture are tightly aligned will determine the organization’s ability to compete and succeed.”<sup>85</sup> If components

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<sup>85</sup> Mercer Delta, “The Congruence Model,” 8.

within the system do not fit well or are misaligned, the larger system will fail to perform as intended. The alignment of components of a system are similar to the way in which gears mesh to transfer mechanical energy. As shown in Figure 4, because the green gears mesh tightly, they function effectively and efficiently. The red gears in Figure 5 demonstrate a poor fit that prevents the gears from meshing correctly and negatively affects performance.



Figure 4. Gears with a Good Fit

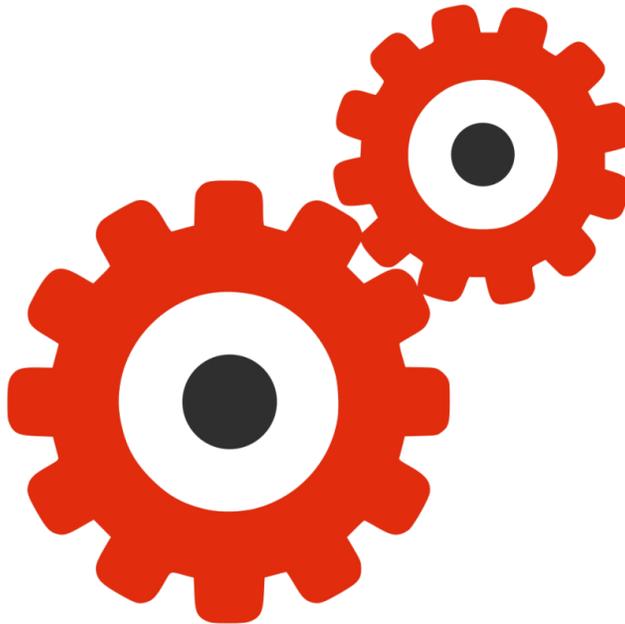


Figure 5. Gears with a Poor Fit

The congruence model serves as a framework to develop programs within an organization in a manner that accounts for the fit of individual components. Figure 6 shows each of the components of the congruence model and its relationship to the larger system. The concept of fit largely encompasses the blank spaces between the components of the model. For the practitioner, this means that an individual component, such as the formal organization, does not function in a vacuum. Each change to the formal organization must, therefore, be evaluated for fit within the larger system. An example of a failure to account for fit within a SAR program would be the requirement that company officers report suspicious activity without first receiving proper training. This kind of requirement would be incongruent with the people and the work. An earlier example in this thesis described the NSI policy of preventing company officers from submitting SARs directly, highlighting a poor fit between the work and the formal organization.

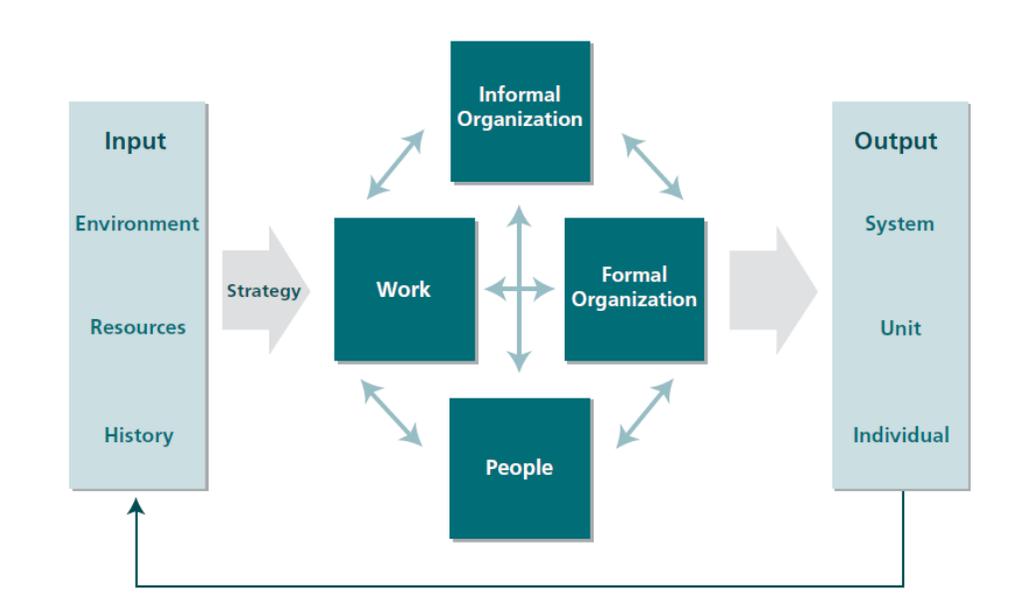


Figure 6. The Congruence Model<sup>86</sup>

Mercer Delta provides additional guidance for assessing fit within a system (see Table 1).

<sup>86</sup> Source: Mercer Delta, 11.

Table 1. Determining the Degree of Fit<sup>87</sup>

FIT	THE ISSUES
Individual–Formal Organization	To what extent individual needs are met by the organizational arrangements; to what extent individuals hold clear or distorted perceptions of organizational structures; to what extent individual and organizational goals converge.
Individual–Work	To what extent the needs of individuals are met by the work; to what extent individuals have skills and abilities to meet work demands.
Individual–Informal Organization	To what extent individual needs are met by the informal organization; to what extent the informal organization makes use of individuals' resources, consistent with informal goals.
Work–Formal Organization	Whether the organizational arrangements are adequate to meet the demands of the work; whether organizational arrangements tend to motivate behavior consistent with work demands.
Work–Informal Organization	Whether the informal organization structure facilitates work performance; whether it hinders or promotes meeting the demands of the work.
Formal Organization–Informal Organization	Whether the goals, rewards, and structures of the informal organization are consistent with those of the formal organization.

Given that the Fort Worth Fire Department has never attempted to implement a SAR program, it is impossible to evaluate the congruence of previous attempts. It is possible, however, to use the congruence model as a framework to develop a new program or initiative in a manner that proactively accounts for the fit of individual components of the system. Mercer Delta describes such benefits of the congruence model: “It allows you to predict the impact of change throughout the organizational system.”<sup>88</sup> It follows, then, that unless the incongruences found in the NSI and within the organization are not corrected in the Fort Worth Fire Department SAR program, it will almost certainly fail in time.

**G. GENERATE HYPOTHESES ABOUT THE PROBLEMS’ CAUSES**

The successful development and implementation of a SAR program within the Fort Worth Fire Department at first seems a difficult if not impossible task. However, this thesis shows that using the congruence model will greatly simplify the process of developing and implementing a sustainable, value-added SAR program. The congruence model provides a

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<sup>87</sup> Source: Mercer Delta, 8.

<sup>88</sup> Mercer Delta, 11.

lens through which to see the feedback loops in a system and areas of inappropriate fit, enabling a program design that leverages the flow of influence to ensure program success.

## **H. IDENTIFY THE ACTION STEPS**

Many of the key action steps needed to develop a SAR system within the Fort Worth Fire Department have been discussed earlier in this chapter or in previous chapters. Action steps fall broadly within the three capabilities of the fire service: intelligence gatherers, analysts, and consumers. More specifically, within these capabilities, action steps must address the key aspects of integration: training, policy, trust, and relationships. While the action steps needed in the development of a SAR program that accounts for these factors are relatively straightforward, the real work and, to a great degree, art lies in the fit of these steps within the organization. The following paragraphs explore the action steps required to develop the Fort Worth Fire Department's SAR program. These are not intended as an exhaustive accounting of all steps needed, nor are they intended to provide a ready-made policy or program. Rather, the intent is to address the key action steps needed to develop a program that accounts for the previous failures and lessons learned to ensure fit within the organization and recognize the role of feedback loops for an effective, sustainable program.

### **1. Training**

Personnel participating in the SAR program will need initial and ongoing training to acquire the knowledge to act as intelligence gatherers. Initial training should cover a range of topics with the intent of providing a basic understanding of terrorism, methods of attack, the intelligence process, and the protection of civil liberties. Numerous training resources are available through the Department of Homeland Security on these topics. Many of these training courses are available online and allow participants to complete courses at their own pace. By leveraging these training courses, the Fort Worth Fire Department will be able to include the entire department without the time and cost associated with traditional in-service training. Furthermore, by utilizing the curriculum currently available, the department can better utilize classroom in-service training to cover topics that are specific to the SAR program in Fort Worth. Among the topics covered during

in-service training, the most prominent should be the protection of privacy and civil liberties. Martha Marie Ellis pointed to this need in her 2014 CHDS thesis when she said, “Given the sensitivity of involving fire personnel in the structured effort of intelligence gathering, attention must be given to training in the legal implications of civil liberties.”<sup>89</sup> Alicia L. Welch, in her 2006 CHDS thesis offered a suggested curriculum with which to establish a training program within a fire department.<sup>90</sup>

Specialist training is available for personnel expected to engage directly with the regional fusion center and the JTTF. The role is commonly known as *terrorism liaison officer* (TLO), and training is available under the same name. Department members in the TLO role serve as the primary connection between the department’s operations personnel and the major urban area’s fusion center. TLOs receive SARs from the fire company officer and route them to the fusion center after first evaluating each SAR for a nexus to terrorism and ensuring that privacy and civil liberties have been protected. By acting as a gatekeeper to the fusion center, the TLO ensures that only SARs of value and quality are submitted. Finally, training should cover the role of the department as a consumer of intelligence. All stakeholders must understand the intelligence needs of the participants. As noted previously, the department must advocate for its unique intelligence needs and work to educate law enforcement and the fusion center as to the differences in how the department uses intelligence. Furthermore, the department must train its members in the appropriate handling of intelligence to ensure that sensitive information is protected.

## 2. Policy

The 9/11 Commission offers some valuable wisdom regarding organization in government: “Good people can overcome bad structures. They should not have to.”<sup>91</sup>

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<sup>89</sup> Martha Marie Ellis, “Identifying and Leveraging Trust as a Key Element in the Development, Implementation and Sustainment of the Salt Lake City Fire Department’s Intelligence Program” (master’s thesis, Naval Postgraduate School, 2014), 95, <https://calhoun.nps.edu/handle/10945/43906>.

<sup>90</sup> Welch, “Terrorism Awareness and Education,” 61.

<sup>91</sup> National Commission on Terrorist Attacks upon the United States, *The 9/11 Commission Report*, 399.

These words offer guidance as to the role of policy within the department's SAR program. The collective policies that establish and support a SAR program should adhere to three key tenets. Chief among these is the need for policies to establish firm boundaries within which the SAR program will operate. As noted numerous times in this thesis, and by others, the use of firefighters as intelligence gatherers has the potential to place personnel in a position to violate the privacy and civil liberties of the citizens they are sworn to serve. Policies should establish clear guidelines for personnel to avoid these violations. An example of the need for clear boundaries is found in a 2008 report published by the Manhattan Institute:

It would be misguided and probably a violation of the U.S. Constitution's Fourth Amendment for a firefighter to conduct a safety inspection of the home of a person whom the department had been told was a suspected criminal or terrorist, if the reason that a firefighter undertook the inspection was chiefly to circumvent the requirement of a search warrant.<sup>92</sup>

Therefore, policies should clearly establish the role of personnel as intelligence gatherers in coordination with the Fort Worth Police Department and the regional fusion center so that all parties recognize the value of the SAR program as well as its limits.

The second tenet is the need for policies to serve as enablers of the SAR program rather than a source of friction. After establishing the program's boundaries, the policies should focus on creating a low-friction environment for the flow of information. Policies should clarify roles and responsibilities to improve workflows while avoiding incongruencies wherever possible. Policies should account for the fit between the key organizational components: informal organization, work, people, and formal organization.

The third and final tenet is the need for policies to be adaptable and changeable. The SAR program must be allowed to iterate and evolve as the need arises. It would be unreasonable to expect that policies, created to implement a program of this nature, would not change as the organization adapts and learns to operate in this new space. The congruence model supports the iterative process by providing a method to continually

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<sup>92</sup> Daveed Gartenstein-Ross and Kyle Dabruzzi, *Firefighters' Developing Role in Counterterrorism* (New York: Manhattan Institute, August 2008), 6, [https://media4.manhattan-institute.org/pdf/ptr\\_03.pdf](https://media4.manhattan-institute.org/pdf/ptr_03.pdf).

evaluate the performance of the organization and the program. Ellis echoes this tenet when she says that a successful program is achieved by “providing a continued mechanism for evaluation and adjustment.”<sup>93</sup>

### **3. Trust**

The importance of trust when developing the department’s SAR program cannot be overstated and should be incorporated into all aspects of the program. Ellis understood this when she “identified trust as the cornerstone to the success in the development, implementation and sustainment of the Fire intelligence program model.”<sup>94</sup> Ellis recommended ten steps to ensure that trust was maintained during the development of a SAR program:

1. Initiate meetings with decision makers for each collaboration partner
2. Establish consensus on need and degree of involvement
3. Develop unified proposal options to secure funding
4. Develop strategic plan based on current and potential funding
5. Draft policies, procedures and memorandums of understanding between agencies
6. Establish specific channels of communication for collection and dissemination of information
7. Develop expectations and training program
8. Deliver training to fire personnel
9. Leverage existing assets
10. Continue planning, evaluating and adjusting as needed<sup>95</sup>

In addition to ensuring the trust cultivated within the program, these ten steps also serve as an outline to guide SAR program development and implementation.

### **4. Relationships**

Much like trust, relationships are important in all aspects of a successful SAR program. Throughout the development and implementation of a SAR program, relationships will be cultivated, nurtured, and leveraged. All stakeholders must understand

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<sup>93</sup> Ellis, “Identifying and Leveraging Trust,” i.

<sup>94</sup> Ellis, xviii.

<sup>95</sup> Ellis, 89.

each other's capabilities and needs—and how each can add value to the SAR program as well as the larger unified effort to secure the homeland. This notion was supported by Jerome D. Hagen in his 2006 thesis when he concluded, “Public safety agencies should continue to learn more about each other by increasing contact at training sessions, drills, and exercises. Learning about other agencies’ skills, needs, and limitations is of particular importance.”<sup>96</sup> The more opportunities for agency collaboration, the more opportunities to test the fit of the SAR program. By embracing relationships among stakeholders, the formal organization will better fit the informal organization as well as ensure that the overall strategy of the SAR program continues to meet the needs of all stakeholders involved. A focus on relationships ensures that all stakeholders buy into the SAR program, and it is arguably more important that each has skin in the game as well. While all stakeholders bring their own unique value to the program, strong relationships ensure that each recognizes the potential opportunity costs should the SAR program fail.

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<sup>96</sup> Hagen, “Interagency Collaboration Challenges,” 114.

## V. DISCUSSION AND CONCLUSION

This thesis sought to improve fire service integration into the domestic intelligence enterprise by using the concepts of systems thinking, including the congruence model, to guide the development of a suspicious activity reporting system within the Fort Worth Fire Department. Furthermore, this thesis sought to build on the outstanding work that had already been done to improve fire service integration. Many of these contributions, as noted in previous chapters, covered the critical components for integration. However, none took a systems view or holistic approach to bring together these disparate works into a unified path forward. Ross Ashby's congruence model serves as an invaluable tool to bring these components together in a manner that results in a high-performing and sustainable program. The congruence model further aids the practitioner by filtering out the elements of a program that are a source of poor fit as well as highlighting those that fit well. The practitioner can use the congruence model as a tool to guide the implementation of a new program and as a lens with which to evaluate past attempts. This unique aspect of the congruence model is discussed below.

### A. DISCUSSION

1. Can the congruence model be used to evaluate past attempts to improve integration?

Mercer Delta highlighted the congruence model's ability to support an organization seeking to incorporate smart practices into its program while avoiding the pitfalls that come with a cut-and-paste approach to problem solving. The congruence model does not favor a particular approach to organizing. On the contrary, it says, "There is no one best structure. There is no one best culture. What matters is 'fit.'"<sup>97</sup> This model does not suggest copying a competitor's strategy, structure, or culture. It says the most successful strategy will be one that accurately reflects an organization's exclusive set of environmental realities. The most effective way for an organization to develop a program is to ensure that the program's

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<sup>97</sup> Mercer Delta, "The Congruence Model," 11.

components are congruent with both the organization’s strategy and its unique personality. “It is a contingency model of how organizations operate and, as such, is adaptable to any set of structural and social circumstances.”<sup>98</sup>

The congruence model could, therefore, be used to screen smart practices found within the fire service community and the domestic intelligence enterprise to ensure that only those with the highest level of fit are incorporated into the organization. Additionally, the congruence model allows the practitioner to analyze previously unsuccessful programs to “understand the organization as a system” and, therefore, better evaluate the performance of the organization.<sup>99</sup>

2. Can the congruence model be used to guide future integration improvements?

The congruence model has been likened to a “roadmap” in that it not only provides a graphic depiction of an organization as a system but also guides leadership as it navigates the change management process.<sup>100</sup> The model ensures that a program or change initiative succeeds by continually aligning the four components—informal organization, work, people, and formal organization—so they mesh tightly together and produce an output that aligns with the strategy of the organization. When mired deep in the struggle to bring a new program or initiative to fruition, it is easy to lose sight of the original strategy and goals that set the organization on its path. One need not search far to find examples in the public and private sectors of projects that upon completion failed to achieve most if not all their original goals. This thesis sought to leverage the congruence model and, more broadly, the concept of systems thinking to achieve the final mile of fire service integration by developing a SAR program at the local level and do so without losing sight of the

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<sup>98</sup> Mercer Delta, “The Congruence Model,” 11.

<sup>99</sup> Mercer Delta, 2.

<sup>100</sup> Mercer Delta, 1.

original purpose—to join the unity of effort in protecting the homeland from terrorist attacks.<sup>101</sup>

3. Can local-level SARs be used as a springboard to fire service integration at the national level?

Joshua M. Dennis concluded in his 2012 CHDS thesis that “in order to be a full partner in disseminating and receiving information/intelligence, SAR usage in the fire service will need to be addressed.”<sup>102</sup> Local-level SARs stand as a key driver of integration efforts. This bottom-up approach to integration brings to bear all the capabilities of the fire service in support of the broader goal of unity of effort in preventing terrorist attacks. This approach to integration includes all three functions—intelligence gathering, analysis, and consumption—so that the full value of intelligence integration can be achieved at the local level. This contrasts with a top-down approach that would implement change at the national level first. As demonstrated in the literature review, this top-down approach has been largely ineffective.

It is this author’s opinion that the argument in favor of a bottom-up approach by way of a local SAR program is akin to the fire service’s calculating fire saves rather than fire losses to measure productivity. To explain further, a department that uses fire losses would add up the dollar value of the damage caused by fires within its jurisdiction in a calendar year. The department would then present that number to its respective leadership when asking for more resources. The discussion would go something like this:

Look at how many dollars were lost last year to fires; give us more resources in the form of personnel, apparatus, and fire stations, so we can reduce the number next year.

Now compare this to a department that uses a fire saves methodology. This department evaluates each property that suffered a fire in the calendar year to determine the value of the property and contents before as well as the estimated damage after the fire. The

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<sup>101</sup> National Commission on Terrorist Attacks upon the United States, “Executive Summary,” 20.

<sup>102</sup> Dennis, “Standing on the Shoulders of Giants,” 53.

department then subtracts the damage estimate from the property value, leaving the fire saves figure. The department would then present this figure to its leadership when asking for more resources. The discussion would sound like this:

In the last year, this department responded to X number of fires and limited the damage significantly. We estimate that these properties are worth XXX dollars. We were able to save XX dollars. Had we not been there, all of these properties would have been lost.

One approach says, look at what we have done with the resources the citizens have entrusted to us. Give us more resources, and we can be even more successful next year. The other approach says, look how much we could not save last year. Give us more resources, and we will not lose as much next year.

By using a local-level SAR program as the starting point, the department will begin to add to its “saves” side of the ledger instead of starting at the national level where it can only continue to point to its greatest losses and hope that its leaders get on board. Finally, in keeping with the congruence model and specifically the concept of fit, no effort at the national level would likely produce a program that fits every city and department. Programs implemented locally, on the other hand, can be leveraged to develop state and national policies to further support and enable those programs.

## **B. LIMITATIONS**

Given the prescriptive nature of this thesis, there was not an opportunity to answer the author’s research question: How can the concept of systems thinking be utilized to achieve the “final mile” of fire service integration into the domestic intelligence enterprise? Nonetheless, this author points to the proven track record of the congruence model within the business community as evidence of the model’s viability. Furthermore, it was not the intent of this thesis to provide a ready-made SAR program that could be an off-the-shelf solution for agencies wishing to implement SARs in their jurisdictions. In fact, any attempt to develop such a program would run counter to the concept of fit and would be doomed to fail. However, the hope is that an agency seeking to implement a SAR program would use the congruence model to evaluate the fit of SAR programs from other agencies and apply them in a manner that fits within its organization.

### C. RECOMMENDATIONS FOR FUTURE RESEARCH

This thesis applied the congruence model to the relatively narrow problem of fire service integration into the domestic intelligence enterprise. Given the success of the model within the business community in tackling a wide range of problems, are there opportunities to apply the congruence model within other areas of government? It is the experience of this author that those of us in the public sector have fallen far behind our private-sector counterparts in the areas of project management and organizational development. The private sector has largely embraced the need for an organization to be agile if it hopes to remain competitive. In contrast, the very nature of government causes it to resist change and avoid risk. In his 2016 book, *Thank You for Being Late*, Thomas Friedman tells of his conversation with Google X CEO Eric “Astro” Teller about the current state of humanity and the rapidly changing technological landscape. Friedman describes how Teller used a simple graph to illustrate his point. Friedman’s interpretation of Teller’s graph perfectly illustrates the need for those in government to better manage change (see Figure 7).

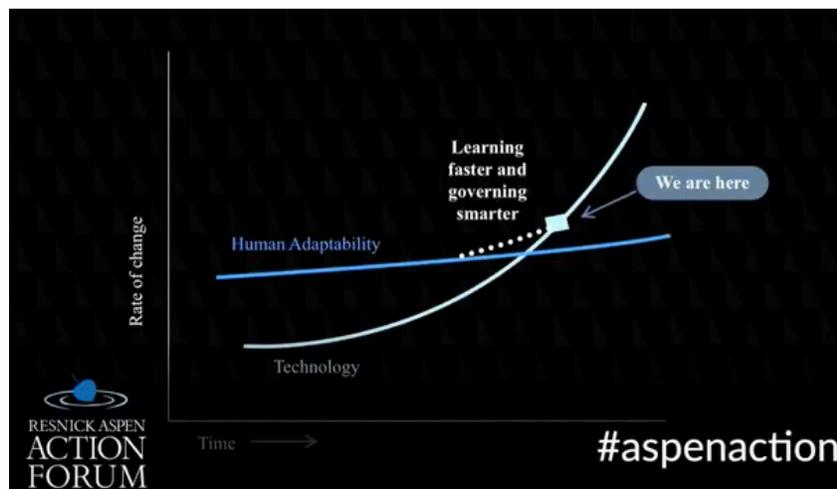


Figure 7. Teller Graph<sup>103</sup>

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<sup>103</sup> Source: Matt Parke, “Thomas Friedman: Technology Is Accelerating Faster Than Our Ability to Adapt. We Can Catch Up,” *Working Nation* (blog), August 2, 2017, <https://workingnation.com/thomas-friedman-technology-accelerating-faster-ability-adapt-can-catch/>.

As Teller's graph shows, the government's ability to manage change in today's climate of rapid acceleration is inadequate. It is, therefore, critical that the government seek innovative tools and techniques to help manage change. This author asserts that the congruence model and, more broadly, systems thinking could enable the government to catch up to the private sector and ultimately be "in the flow," which Friedman describes as being not only users of the flow of knowledge but contributors as well.<sup>104</sup> Further studies and the testing of tools such as the congruence model within the public sector would further support efforts to improve government decision making, organizational development, and agility.

#### **D. CONCLUSIONS**

In seeking to tackle often-heard problems associated with integrating the fire service into the domestic intelligence enterprise, this author recognized clear gaps in the collective integration efforts. There have been notable efforts at the national and local levels. However, as previously noted, this work sought to close the gaps by bringing these disparate works together into a holistic and system-minded approach. The application of the congruence model through this thesis has brought the problem of fire service intelligence integration down from the 30,000-foot level to the treetop level. Stopping at this level recognizes that any attempt to go further is impossible without direct input and engagement from the people directly involved in the development of the program—and would be doomed to fail.

Developing a SAR program outside the agency ignores the requirement that the practitioner consider the four components of informal organization, work, people, and formal organization. Therefore, successful program implementation at the local level requires the deployment of the congruence model at the local level as well. A common expression in both the public and private sectors is "The last mile is often the hardest." It describes the difficulty in moving down from the treetops to the ground. However, the congruence model and associated systems thinking tools stand as a roadmap to guide

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<sup>104</sup> Friedman, *Thank You for Being Late*, loc. 2183.

agencies seeking to achieve the final mile of fire service integration into the domestic intelligence enterprise. The 9/11 Commission's call for unity of effort is increasingly important with every year that separates us from the attacks that brought us to where we are today.<sup>105</sup> We must, therefore, continue to tackle head on these persistent problems that stand as barriers to achieving unity as we daily work to protect the homeland from those who wish to do us harm.

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<sup>105</sup> National Commission on Terrorist Attacks upon the United States, "Executive Summary," 20.

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