

# **Foul WX Underground: The Dynamics of Resistance and the Analog Logic of Communication during a Digital Blackout**

**A Monograph  
by  
MAJOR Michael D. Parsons  
U.S. Army**



**School of Advanced Military Studies  
United States Army Command and General Staff College  
Fort Leavenworth, Kansas**

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## MONOGRAPH APPROVAL

Major Michael D. Parsons

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Approved by:

---

Alex J. Ryan, Ph.D.

Monograph Director

---

Jerome K. Hawkins, COL, FA

Monograph Reader

---

Stefan J. Banach, COL, IN

Director,  
School of Advanced  
Military Studies

---

Robert F. Baumann, Ph.D.

Director,  
Graduate Degree  
Programs

## Abstract

FOUL WX UNDERGROUND: THE DYNAMICS OF RESISTANCE AND THE ANALOG LOGIC OF COMMUNICATION DURING A DIGITAL BLACKOUT by MAJOR Michael D. Parsons, USA, 59 pages.

The current inter-agency doctrinal tools to integrate the decision-sharing elements of battle command at the operational level for defense support to civil authority operations are inadequate under conditions of extremely degraded communications. The rapidly integrated, often ad hoc, civil-military command structures suffer an over-reliance on the availability of digital connectivity to overcome basic frictions of organizational culture. We are not prepared for a digital blackout.

Under the conditions of a catastrophic incident within the United States, the prospect is high for a period of “command and confusion” immediately following a natural disaster or a major event of suspicious origin, such as an industrial accident or cascading failure of a major power grid.

This work examines domestic incident response and defense support to civil authority through the tensions between joint military doctrine, namely *Joint Publication 3-28 Civil Support*, and interagency guidance, articulated in the *National Incident Management System*. Doctrine acts as the institutional system of record for organizational decision-making on how to view and how to approach the problem of contested disaster response.

An adversary postured to exploit gaps and seams between civil-military responders suffering from degraded connectivity can derail public audience receptivity to official communications. This research proposes a framework in defense support to civil authorities for the mutual consideration of battle command, knowledge management, information operations, strategic communication, and psychological operations.

During domestic incident response, high levels of uncertainty may meet with low levels of technological reliability. Should technology falter or fail, commanders may not have the right tools to conduct battle command during defense support to civil authority operations. The findings and recommendations presented demonstrate the need to divert the current focus on the *syntax* of incident response communication and to draw out the discussion on the *semantics* of official civil-military communication. The argument must shift from the *rules* of response to the *meaning* of responders in ways that account for both the roles of public audiences and the risks from adversarial exploitation.

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## Section 1. Introduction

Disasters happen. Although frightening and somewhat unexpected, in modern cultures the turbulence to daily lives brought about by earthquake, tornado, fire, or flood triggers the question “why me” or “why us.” The world of nature can be a difficult place to survive in of its own accord. Generations of dealing with the unexpected gradually provide explanations to the “why” questions in ways that distance the victim from the intended target. It simply is not personal.

When a sudden gust of wind blows the candles out or a burst of lightning plunges a home into darkness, things change. Survival instincts kick in. Survival does not exist in isolation, though. There usually persists a brief moment that can be terrifying, reinforced by the recollection of nightmarish stories, when the immediate question is whispered: “what if this is no accident?”

The discussion ahead takes six sections to lay the foundations for reconsidering the basic problems of disaster response. Reliance on current doctrinal framing provides the common point of reference for civil-military communication with the public. Section 1 steps off with the considerations of a contested disaster. It is not just the weather that is foul. The research problem, questions, and objectives set in place the players and the primary rules that define their relationships to each other. Some relationships are complementary, some are antagonistic, and others are subject to change. Section 2 briefly surveys the interconnected disciplines of linguistics, social science, physical science, fine arts, engineering, and social psychology and draws on a rich context of responses to the environment. Section 2 helps articulate the structure with which to examine disaster response doctrine. This structure presents an analog logic of communication among audiences in the midst of catastrophe.

Section 3 lays out the methodology that explains the dynamics of resistance operating within this structure, dynamics that explain in broad terms how each of the players translates

communication into action. Fighting upstream against authority takes on a very different appeal when the depth of control is shallow and the speed of response is slow.

The range of possible scenarios presents a special problem. This research sidesteps the typical focus on the particulars of a historical or proposed scenario in order to expand the reach of the findings. The challenge to explore the entire set of disasters possible while bypassing the specifics of any given scenario drives the examination of the *rules* of disaster response rather than any specific *results* from any particular set of responses.

Section 4 presents the dynamics of resistance to civil-military communication during incident response. Drawing on the patterns established in Section 2, Section 4 places the elements of maturity, resonance, resiliency, timelines, feedback, and authenticity in the context of a competition among audiences. Section 5 addresses the secondary research questions that organize the implication of contested disaster response. Section 5 then pulls together the results of the analysis of the dynamics of resistance and presents recommendations. The recommendations unveil the inner workings of the dynamics of social mobilization, the perils of the centralization of information, and the dangers inherent in a superficial accounting for feedback during disaster response. Finally, Section 6 concludes with the issues of an organized opponent who capitalizes on the moments of uncertainty and who deliberately intervenes in the official appeals to public audiences when disaster strikes.

Preparing for a better response to the wrong problem is no better than not preparing at all. Trust that those who will respond know what they are up against matters as much as them knowing what they are doing. Set against the backdrop of a natural disaster, the first to respond cast a shadow. The public does not grant trust to authority figures unquestioningly. Doubt and hesitation open an opportunity for deception, for challenge, for resistance.

This work examines the discussion of domestic incident response and defense support to civil authority through the tensions between military doctrine, namely *Joint Publication 3-28 Civil Support*, and interagency guidance, articulated in the National Incident Management

System, in the dim light of uncertainty. Doctrine acts in this context as the institutional system of record for organizational decision-making on how to view and how to approach the problem of contested disaster response. Both documents have a consistent institutional mechanism for successive and collaborative improvement. Both documents fail to frame the problem beyond the traditional issues of operational security, information control, and technical interoperability.

The purpose of this work is to reframe the debate away from gradual improvement of either document together or separately in favor of generating an elevated understanding of the dynamics of resistance to official communication of disaster response at the operational level. Uncertainty magnifies when connectivity is broken or nonexistent, when the phone line goes dead.

The Armed Forces of the United States of America live in this world of uncertainty where tensions can and do rise to hostility, and hostilities can and do escalate to pitched struggles of life and death. A historical “comfort zone” existed, however, along a continuum of armed violence and major combat operations outside the borders of the United States. A century or more has passed since the expectations for defense support to civil authorities at home complemented a broad base of institutional and operational experience.<sup>1</sup> Both a legal and an intellectual re-evaluation of the place of the military within the United States grew out of the changing

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<sup>1</sup> Since the end of the constabulary era of American standing forces at the end of the 19<sup>th</sup> century, the maturing of civilian law and order coincided with expansion of national interests abroad and the luxury of a geography permissive for a lackadaisical defensive posture within the United States. See Walter McDougall’s *Promised Land, Crusader State* and Walter Mead’s *Special Providence: American Foreign Policy and How it Changed the World*. The military involvement with the Civilian Conservation Corps during the period between World War I and World War II stands as an anomaly, as is evidenced by the efforts made to keep the military involvement with the program as low a profile as practicable. See Richard Stewart, ed., *American Military History, Volume II* (Washington: Center for Military History, 2005), 62-64 [http://www.history.army.mil/books/AMH-V2/AMH\\_V2/chapter2.htm](http://www.history.army.mil/books/AMH-V2/AMH_V2/chapter2.htm) (accessed 15 February 2009). Likewise the deployment of troops to maintain order during the civil rights movement reinforces the point that a mismatch existed between civilian expectations, military expectations, and appropriate employment of force. See again Richard Stewart, ed., *American Military History, Volume II* (Washington: Center for Military History, 2005), 270-273 [http://www.history.army.mil/books/AMH-V2/AMH\\_V2/chapter9.htm#b15](http://www.history.army.mil/books/AMH-V2/AMH_V2/chapter9.htm#b15) (accessed 15 February 2009).



expectations of the Department of Defense following the culmination of the Cold War.<sup>2</sup> The geopolitical dust and clamor from the tearing down of the Iron Curtain in Europe had barely settled when the American mindset of the invulnerability of American soil was itself swept away. The collective myth of Fortress America fell to earth.

The 21<sup>st</sup> century thus begins in America with a need to better understand the relationships between the Department of Defense; the United States Government as a whole; State, local, and tribal governments; and civilian populations when responding to apparently natural disasters. The potential for exploitation of dire circumstances by spoilers, opportunists, adversaries, and sworn enemies adds an element of volatility that goes far beyond the social unrest of looting and rioting. The blended threats to American society of insurgency, insurrection, and internal corrosion may seem to some as a long way off, but on the evening of September 10<sup>th</sup>, 2001, so did a direct attack on the American people and the symbols of National power.<sup>3</sup>

The United States military can be quantifiably argued to be the most powerful armed force the planet has ever seen in purely kinetic terms.<sup>4</sup> The United States Government as a whole can likewise be associated with at least some responsibility for sustaining the largest economic

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<sup>2</sup> The one-two punch of this movement can be identified in the mandate to match stability and support operations on par with combat operations with *DoD Directive 3000.05* in 2005 and the issuance of *Army Field Manual 3-0 Operations* in 2008.

<sup>3</sup> The distinction between the occurrence of an improbable event and the coup de grâce of an unexpected event lies at the heart of military deception. Flying jetliners loaded with fuel into buildings was not an unexpected event for Osama Bin Laden. For a discussion on the relationship of the misperception of probability, see Nassim Taleb's *The Black Swan: The Impact of the Highly Improbable* (New York: Random House, 2007) and Leonard Mlodinow's *The Drunkard's Walk: How Randomness Rules Our Lives* (New York: Pantheon Books, 2008).

<sup>4</sup> Power defined through kinetic application accounts for potential force as a separate issue. For example, the nuclear exchange of energy under hostile conditions has occurred only once, whereas the potential devastation of a global thermonuclear exchange remains as of this writing purely hypothetical. The use of kinetic terms also separates the issue of lethality, as the U.S. military has been outperformed in the calculus of volume of human slaughter more out of ideological restraint than capability.

system history has yet witnessed.<sup>5</sup> With such massive articulation of human thought and interaction, however, the combination of U.S. civil-military responses to the elemental challenges of nature remains alarmingly vulnerable to the threats to which they each are the pinnacles of generations' worth of refinement. Great military power and great economic power remain tied to the laws of physics and the absence of laws governing human nature. In all this time we have still only fallen so far from the tree and stood up only so well against the injustices of a life that is "solitary, poor, brutish, nasty, and short."<sup>6</sup>

In order to gain traction collectively on the demands of survival— particularly social survival in a context where merely "getting by" is inadequate— roles and responsibilities matter. The distribution of expected effort, especially when a rugged individualism defines the American character, inherently implies friction. Add to that the burdens of institutionalized bureaucracy and an accompanying inversely proportional nimbleness to large organizations, mix in local politics, and strain to breaking the American roulette of personalities and competence. The problems ahead become clearer. Do responsible people have the right tools to get the American public through a contested natural disaster?

## **Research Problem: Reliance on Technology and Erosion of the Basics**

From the advent of the global positioning system forward, the debate within the professional military questioning the balance of a reliance on tools and of a basic competence in military skill gains traction. While the compass remains a standard piece of military technology, its continued use remains uncertain. The ability of an individual to read a map and navigate in

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<sup>5</sup> As with any statement on economics, numerous points of contention exist. Considerations of the EuroZone, the volume of China, and the United States' national debt aside, the statement stands as a broad testament to the utility of the current American political system over little more than two centuries.

<sup>6</sup> Thomas Hobbes, *Leviathan* (Oxford: Oxford University Press, 1996), 84. Hobbes' declared state of nature is quite plain. The implied references to Charles Darwin and Isaac Newton cannot be made more transparent. The apple remains in the eye of the beholder.

rough terrain through wits alone increasingly comes into question. Basic questions of survival must be answered prior to those of mission accomplishment.

With the sudden onset of disaster, the mission is survival. The time-honored heroism of individual initiative “alone and unafraid” cannot be counted on to see a crisis of survival through. Passage through the crucible of disaster cannot consistently rely on the presence and perseverance of genius. Planning, preparation, and procedures provide the structure for successfully communicating the actions required for execution.

When it comes down to the foundations of military competence, of military decision-making, are we eroding certain skill sets that cannot be rapidly shored up when the technological plug gets pulled? The problem is this: under the conditions of a catastrophic incident that can readily be expected to be fraught with both high levels of uncertainty and low levels of technological support, do commanders have the right tools to conduct battle command in an increasingly alien environment— a digital blackout.

## **Research Questions: Gaining the High Ground**

Technology is not a light switch. The subtle degrees of the stress of disconnection place variable demands on commanders’ performance. Beginning with the description of relationships between leaders and their environments, this research will draw out a context that rests on the positions of systems theory, uncertainty, complexity, and linguistics. The robustness of description demands a pursuit of clarity in which coding, elements of communication, and processes are made plain. Merging the evocative strengths of design and the cohesive integrity of computational logic, a system for evaluating communication authenticity and resonance will then be presented.

The intent is to prioritize those elements that get the commander’s intent to get to the target and “stick.” Applied game theory will then provide the structure for assessing performance of current U.S. joint military doctrine and U.S. intergovernmental frameworks against the

identified standards under environments along a continuum of analog /blackout and digital/networked connectivity. Finally, recommendations for strengthening the operational communication under harsh conditions will provide avenues for future application and further research.

Five secondary questions provide the focus for the analysis:

1. Does the National Incident Management System pose any inherent points of friction with the conduct of the *describe* and *direct* function of battle command during domestic disaster response?

2. Does the vocabulary and grammar of NIMS provide a readily available method of communication between civil and military elements at the beginning of a sudden onset catastrophe?

3. What effect does the initial period of uncertainty on the extent and causality of an incident (natural or hostile-actor) have on the establishment of command relationships between civil and military elements and the reliance on maintaining these relationships as initially designed?

4. What applicability does communication of the commander's intent under conditions of disconnected or discrete contact in lieu of directed or unrestricted dialogue have to the U.S. military's ability to conduct defense support to civil authority (DSCA)?

5. What are the critical factors of recognition that could undermine the authenticity of a "friendly" message stripped of digital context?

The results of the analytic wargame focusing on the above questions answer the primary research question: Does current joint doctrine provide commanders with mature, resonant, and

resilient methods to describe and to direct an operational level response to sudden onset contested domestic incidents<sup>7</sup>?

## **Research Objectives: Bracing Against the Foul Weather Underground**

This research explores the gaps and seams between battle command, information operations, strategic communication, psychological operations, and knowledge management. The standard benchmark for meeting challenges to authority must account for environmental conditions where reliance on technological connectivity to facilitate communication meets with no assurances. The findings and recommendations presented demonstrate the need to divert from the current focus on the syntax of incident response communication and to draw out discussion on the semantics of official civil-military communication in light of both the roles of public audiences and the risks for adversarial exploitation.

## **The Players and Their Playbooks.**

In the study that follows, the actors at play in catastrophic incidents will be characterized as the military command authority, the civil authority, the affected public, and opportunist adversaries. The military operates in accordance to joint military doctrine. *Joint Publication 3-28, Civil Support* stands as the benchmark, informed by *Homeland Defense and Civil Support Joint Operating Concept*.<sup>8</sup> The civil authorities function within legal frameworks. The relevant one in this case is the National Incident Management System (NIMS) within the National Response

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<sup>7</sup> The National Response Framework Resource Center defines an incident as: “An occurrence or event, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.” <http://www.fema.gov/emergency/nrf/glossary.htm#I> (accessed 28 March 2009).

<sup>8</sup> *JP 3-28* and *JOC DSCA*.

Framework (NRF). The affected public does largely as it pleases, with individual and collective choices normatively aligned with the existing legal and broad cultural framework of America. Under conditions of stress and existential survival, however, the dynamic of compliance with social norms has strong potential to erode. Factions focusing on the proliferation of pro-social, moderate, and anti-social behavior coexist with wide latitude for majority and minority positions.<sup>9</sup> The opportunist adversary in this study conducts actions and communicates with regard to an understanding of the other existing rule sets but is inherently free to perform outside of any boundaries understood by the other three actors.<sup>10</sup>

While cultural bias inevitably enters into the equation, only two of the players are officially reliant upon English as a primary means of common communication. The affected public, although pre-disposed to rely on English to communicate externally, does not require the same assumption for internal communications within smaller communities. Even with a commonality of language, however, the understanding of common terms among discrete entities will also be considered.

### **The Rules. Scope:Scale::Limitations:Delimitations**

Although accommodating the perspectives of each of the four sets of actors, the discussion that follows orients on the military in general and the military commander in particular. Orienting at the operational level, the issues for national policy will remain overhead to cast shadows and the particulars on how tactical actions are to be executed will run their course unimpeded by direct intervention. The novelty of the National Incident Management System in

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<sup>9</sup> A later discussion on the perils of a default reliance on polling as indicators of particular population's prevailing interests will unveil some cultural obstacles to the development, reinforcement, and influence on leaders and social networks by military authorities during disaster response.

<sup>10</sup> To facilitate the relevance of this study across a wide realm of contingencies, the constraint on adversarial behaviors, although realistic and challenging, will be kept to a bare minimum.

contact with Joint Doctrine will also avoid fixation on the Incident Command System as well as on issues of organizational structure.<sup>11</sup>

Issues of time matter incredibly. Therefore, the initial period of uncertainty that reigns over the “gap of pain,” during which local capacity is overwhelmed and external support is ramping up, will take primacy in this study over the periods of either preparation or recovery. Critical to the dynamics of appropriate response *on time*, *over time*, and at *what* time is the reliability of communication. This work will not strictly pursue the technical means and technological details of the problem. Due consideration is given to the factors involved in what is required to deliver *timely*, *accurate*, and *accessible* information in an environment where nothing is routine and nothing can be taken for granted.<sup>12</sup>

## Section 2. The Analog Logic of Communication

We build conceptual structures to make sense of the world around us. The thoughts that bridge gaps of understanding within individuals inevitably work their way into the exchanges between individuals and their environment. Sentence fragments devoid of context or disconnected from a sequential arrangement of meaning lose their utility and are adrift from any purpose. Over time, languages are born, societies built, and civilizations emerge. And then the fun starts.

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<sup>11</sup> Trouble-shooting wire diagrams without the context of personalities and competencies is futile. The ebb and flow of power dynamics within people-based systems is very little like electronic circuitry. A brief review of the rise and fall of Taylorism in the development of industrial management should close the deal. See Thomas Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm 1870-1970* (Chicago: University of Chicago Press, 2004), 285-286.

<sup>12</sup> These criteria for communication are the focus of Public Information within NIMS: “Public Information consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident’s cause, size, and current situation to the public, responders, and additional stakeholders (both directly affected and indirectly affected).” *NIMS*, 70.

## Linguistic Models: Maturity

The military culture is notorious for speaking in jargon, an often-imitated slickness and parsimony of communication that must stand up over the noise of the battlefield or reach out across the airwaves to demand rational action in the face of utter chaos.<sup>13</sup> The precision with which the military employs words requires guidance that does not come naturally. Uttering the phrase “six-five-oh-two” is as glaring a mistake to a basic trainee undergoing indoctrination as picking the wrong location on a map for an airstrike is for a seasoned combat controller. Zero tolerance is not the same as “oh” tolerance.

The structured components of communication, as well as the dynamics of interaction between a sender and a receiver, spring from a pool of potential theories. Whether based on an insular lexicon such as the military classic *Army Field Manual 101-5-1 Operational Terms and Symbols* or derived from the evolutionary appropriation of language loosely shared by millions of teenagers with SMS text capability on cell phones, @TEOTD the message must be shared or it remains lopsidedly meaningless.<sup>14</sup>

Linguistic theories focused on the social nature of the communication event prevail in the argument that follows.<sup>15</sup> The generation of symbols and syntax, although forensically useful, fall

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<sup>13</sup> It is no coincidence that the military uses both procedure words (prowords) and “Hollywood” callsigns. The mixture of strict military protocol and rampant individualism helps define American military culture.

<sup>14</sup> The 2004 edition re-naming of *FM 1-02 Operational Terms and Graphics* demonstrates the importance of naming conventions within tolerance for contemporary as well as historical use, especially in the context of hierarchical nesting in the case of Army to Joint doctrine. @TEOTD translates to “at the end of the day” according to both the SMS dictionary, <http://www.smsdictionary.co.uk/> (accessed 15 February 2009) and NetLingo, <http://www.netlingo.com/> (accessed 15 February 2009). The color/ colour distinction may be subtle but reinforces the point made even more when the text is digital and assumed by spell-check to be in error.

<sup>15</sup> One such universalist argument that language finds a way into a society from individuals refutes the copy-and-paste argument that languages are inherently learned. See Noam Chomsky, *The Logical Structure of Linguistic Theory*, draft dissertation, Massachusetts Institute of Technology, 1955-1956 <http://alpha-leonis.lids.mit.edu/Chomsky/> (accessed September 17, 2008), 715.



more under the purview of ciphers and codes. The problem with encryption of communication information during disaster response becomes a problem of boundary setting: who has the need to know, and when. Therefore, at some point the communication must breach the internal barrier of secured information and interact with the public audience. The military must speak clearly, and with authority.

### **Social Connectivity Models: Resonance**

The question of authority in disaster response is not a trivial one. The civil authority legally endowed upon local, state, and federal government officials does not operate in either a utopian or totalitarian environment. The competition for social authority was a concern enough for the Founding Fathers to structure the elaborate system of government to foment an uneasy factionalism, limit the purist conception of democracy, and build in numerous layers of checks and balances. The fabric of society in America enjoys sufficient diversity of strength to require any civil authority to consider the power invested from the people more of a responsibility than a right. Speaking “from a position of authority” requires a political finesse in knowing, and influencing, one’s audience.

A great deal of contemporary research attempts to draw relationships between social psychology and communication. Social Network Analysis informs much of the intelligence work driving action in the current conflict with terrorists.<sup>16</sup> The association and mapping of individuals and their observed relationships, however, provides a stick figure caricature of the richness of the social milieu that so captivated practitioners like Kurt Lewin. His practical application of developed theories gave meaningful understanding of the dynamics occurring within the

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<sup>16</sup> Marc Sageman, *Understanding Terror Networks* (Philadelphia: University of Pennsylvania, 2004) 137-139.

individual, between individuals, and on broader scales of social groupings.<sup>17</sup> Similarly, the attempts at pattern recognition within behavioral patterns of social structures rely on strained application of mathematical observations that may or may not accurately account for observable behaviors.<sup>18</sup>

Placing social systems under observation with the intent to determine patterns of authority brings up the question of external objectivity. Niklas Luhmann offered an integrated approach where communication acts as the central observable both within and without any given social system.<sup>19</sup> Working from a foundational basis on self-organizing systems and in particular the make-up of biological systems as organisms, Luhmann's work described implications where communication within a system occurs along several discrete timelines. Cellular transmission between proteins occurs in repeatable patterns. Genetic transfer occurs between organisms with relatively defined rule sets. Vocal warnings within a population for fight-or-flight responsivity occur nearly instantaneously but are derived from developmental patterns that bridge each of the time spans.

The chemical, biological, and physical manifestations of the transfer of information take on increasing relevance when enduring protein interactions, generational genetic transfer, and interactive speech provide a metaphorical gateway between theoretical social systems and the organizational structure of military command, civil authorities, affected public, and opportunists.

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<sup>17</sup> Kurt Lewin, *Field Theory in Social Science* (Washington DC: American Psychological Association, 1997), 262-263. Article titled "Field Theory and Experiment in Social Psychology" written in 1939.

<sup>18</sup> For the difficulties involved with consistent pattern recognition, see Steven Johnson's *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* (New York: Scribner, 2001) 101-107. For reasons why pattern recognition often comes too little, too late, see Dietrich Dorner's *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations* (New York: Basic Books, 1996), 185-190.

<sup>19</sup> Niklas Luhmann, *Social Systems* (Stanford, California: Stanford University Press, 1995), 137-139.

## Physical Evolutionary Models: Resiliency

Categorizing and compartmentalizing complex processes facilitates the sequential isolation of components and processes to gain greater mechanical understanding of their dynamics. The holistic interaction of complex processes requires the delineation of the scope of left and right limits and the scale of upper and lower boundaries. Working in tandem, the methods of deductive and inductive reasoning place demands on acceptable accountability for probabilities and constantly insist on the pressing question: what is missing here, what is not seen or what has not yet been seen that adjusts the equation? The comfort of reliable causality in the scientific method of experimentation equates to the mathematical understanding of observables and can be demonstrated fruitfully in terms of evolutionary processes.<sup>20</sup> Even over vast expanses of time, some things change only so much.

The change demanded by survival is twofold. The first step is the basic prerequisite: live through the experience. The prey running faster than the predator on a daily basis is one example. As the adage goes, the fittest survive. Getting knocked down or knocked out by an unexpected environmental blow, however, is somewhat different. Failing a complete escape unharmed and unchanged leads to the second step. The return or recovery to some semblance of normalcy, of a pre-event state, moves the issue from one of robustness to one of resiliency. Here survival of the fittest shifts from the present tense to the future tense. Those most able to roll with the punches and get back up again meet the true test of survival.

At the level of organisms, the evolutionary record of species posited by Charles Darwin in his *The Origin of Species* creates a pathway for tracing the artifacts of social interactions.<sup>21</sup> The

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<sup>20</sup> Thomas Kuhn explores the pitfalls of this outlook in depth in his *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962), 35-42.

<sup>21</sup> Charles Darwin, *The Origin of Species by Means of Natural Selection, or the Preservation of Favored Races in the Struggle for Life* (New York: D. Appleton and Co, 1900).

record occurs at paced intervals between generations and endures in identifiable, if unpredictable, ways. At the cellular level, the variability of interactions between proteins condenses to fairly predictable if often poorly understood sets. The options of what the same two proteins have to say to each other rely on permissive environmental conditions, but at the biochemical level of interaction the wildcard “mutation” of reactions is rare. Plummet to the quantum level of particle interaction, however, and such Newtonian normalcy feints into a queasy amalgam of oddball dynamics.<sup>22</sup> The object lesson here is that boundaries of probability frame the scale of systems.

At the level of social systems, the variability of opportunity is too great to be either fully understood or broadly predicted. The organism that is a social system functions within rules that are both self-imposed and limited by the dynamics of the environment.<sup>23</sup> At the individual level, personal experience creates a bedrock upon which decisions and communications rest. The protestation for individual self-expression and freedom of will also contributes to a wide array of quirky behavior. The question pursued here is whether there are remarkable properties of the structures between individuals as systems and social bodies that are their own systems that reveal information that while clearly not predictive in nature prove significant and understandable.

Militaries rest on a hierarchical chain of command. Civil authorities rely on hub and spoke power structures of representatives and constituents. The public organizes on clusters of interest and association. For the purpose of this research, adversarial opportunists survive with a cellular network with the bare minimum of connectivity between small groups. The structural and functional differences of each of the sets of military command, civil authority, affected public,

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<sup>22</sup> The thought experiment known as Schrödinger’s Cat classically illustrates the rational struggle to interpret how quantum mechanics actually works, in which a cat exists in a state of being both dead and alive until observed. Nicholas Maxwell provides an insightful analysis of Albert Einstein’s take on the issue in “Induction and Scientific Realism: Einstein Versus van Fraassen Part Three: Einstein, Aim-oriented Empiricism and the Discovery of Special and General Relativity” *British Journal of Philosophical Science* 44, no.2 (June 1993): 290-291.

<sup>23</sup> Kenneth Boulding, “General Systems Theory: The Skeleton of Science,” *Management Science* 2, no. 3 (April, 1956): 205.

and opportunist adversaries demonstrate more than merely categorical distinction. How they are built speaks to how they communicate, both within themselves and between the others. Figure 1 graphically represents the structural-functional construct.

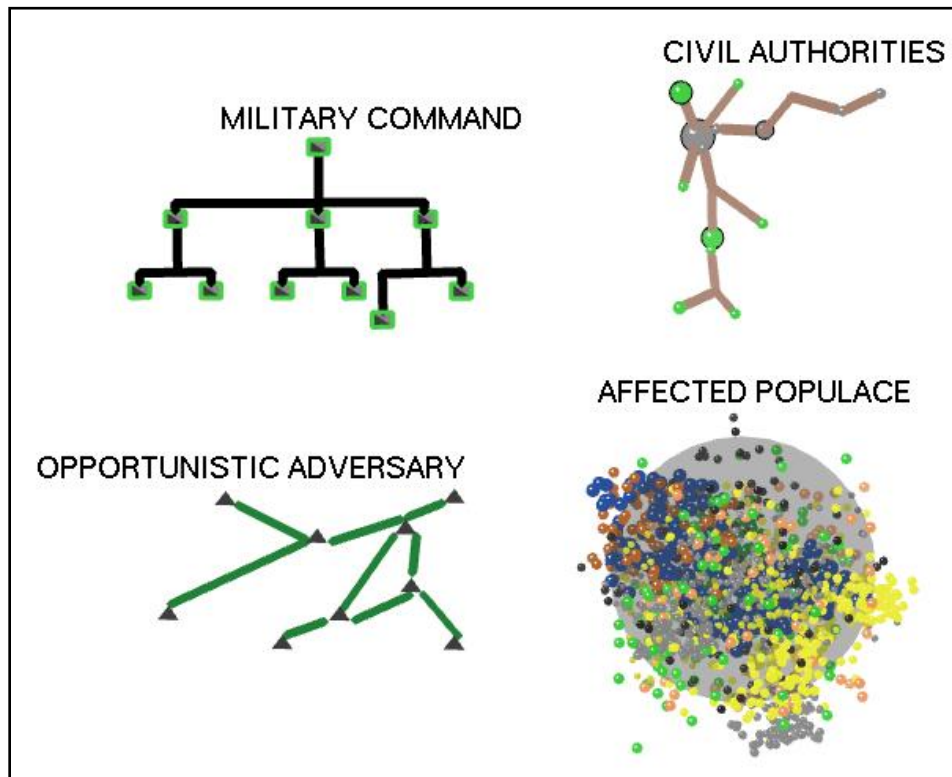


Figure 1. Structural and Functional Differentiation of Connectivity Patterns

### Timing-Critical Structures and Pathway Dependencies

The reliability of structures to escape unharmed or, failing that, to recover quickly, requires the ability to withstand the variation inherent in the environment. Houses made of straw, of sticks, and of brick may each equally survive the weather. For the occupant of each to survive, however, requires more than keeping out the wind and rain. With limitations on resources and limitations on time available to take corrective action, the effectiveness of the system in question to learn and pass on learning makes quite a difference in the case above to the first little pig, the

second little pig, the third little pig, and the big bad wolf. Without oversimplifying the problem, the risks of trial and error all too often end up with results more along the lines of Franz Kafka's protagonist in *The Trial*: overwhelmed, under-informed, running out of time, hitting a brick wall, and suffering a particularly acute sense of impending doom.<sup>24</sup> The prospect of a retrial or the hint of amnesty, however, suggest that in cases where the first round is less than fatal the next round may be tougher still.

The fine line between heuristics and fatal mistakes can be summed up in the phrase from the Wild West: the quick and the dead. Nature rarely suffers deliberation at the wrong place and time. Decisions appropriate to context that carries over to repetition under familiar circumstances require communication over near and far periods of time. Learning also relies upon the ability to repeat performance on demand.

## Music Notation and Performance: Timeliness

The performance of music as a human endeavor provides a tangible demonstration of the cognitive, communicative, and physical aspects of translating learning over time. Oral traditions bind societies through common understanding. The written word provides the foundation of human intellectual development. Music combines aspects of “live” and “recorded” communication and adds the critical dimension of timing. The scoring of music provides a source document for the performance at a later time and subsequent repetitions of that same performance. While the standard notation of music scores is rich with specific information for collaboration in performance, musicians use various systems of notation to “mark up” the music sheets with complementary layers of information.

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<sup>24</sup> Franz Kafka, *The Trial* (New York: Knopf, 1957).

Analysis of the interaction between performer, product, and process “provides a deeper understanding of the interaction process, showing how musicians interact with this highly structured, symbolic, and notational information to produce reliable and artistic performances over great spans of time.”<sup>25</sup> The establishment, implementation, and personalization of rules-based communication, both written and musical, endows the performer with an observable accounting of interaction with the information in several contexts. Marking up the score in isolation demonstrates a cognitive evaluation of future events. Rehearsing the score as annotated occurs both as an individual and in groups. Performing the musical piece as scored, as annotated, as rehearsed, and as repeated draws out a logical progression of information synchronization that largely is transferable.<sup>26</sup> The relationships among musicians, accounting for the role of the conductor, and ever mindful of the audience, reinforce the need to capture variation as framed in terms of interpretation. In art there is no “one right way” to perform.

Music as a model of communication with specific time requirements accounts for deviation and improvisation. The rules, methods, players, and audiences share to some extent the commonality of the event with significant latitude based on culture, technology, skill, and expectation.<sup>27</sup> Expanding the arena of communication to a place where the rules and expectations are open-ended brings us back to the real world.

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<sup>25</sup> Megan Winget, “Annotation of Musical Scores: Interaction and Use Behaviors of Performing Musicians” (PhD diss., University of North Carolina at chapel Hills, 2006), 7.

<sup>26</sup> Megan Winget, “Annotation of Musical Scores: Interaction and Use Behaviors of Performing Musicians” (PhD diss., University of North Carolina at chapel Hills, 2006), 141.

<sup>27</sup> If nothing else audiences attending a John Cage event and a passerby to a local radio playing jazz share the physiology of listening.

## Causality and Engineering Work-Flow Models: Feedback

Human beings may be difficult to model singularly, in pairs, and in groups, but the structures built in order to better image the world around us shed some light on the way ahead. Heisenberg's uncertainty and post-modernism aside, the output of social systems tends at many levels to orderly, sequential, and repeatable observation.<sup>28</sup> As a natural phenomenon, lightning may be difficult to predict, but efforts from flying a kite in a thunderstorm to building hydroelectric dams can in fact strike twice.<sup>29</sup>

The scientific method is not without flaws. A lack of creativity or failure to accept results that are well outside the existing understanding dampens critical thinking.<sup>30</sup> Never straying too far from the human element, the outright fabrication of information for personal gain or the negligent lack of standards out of sloppy malaise can be as detrimental to the social value and the validity of results as clinging too strongly to dogma. The terse directive from military culture on leadership makes a subtle point: "trust but verify."<sup>31</sup>

## Decision-Making/ Influence Models: Authenticity

The need to recognize patterns and form patterns introduces the application of logic to communication. When outcomes literally mean the difference between life and death for

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<sup>28</sup> Heisenberg, Werner, *The Physical Principles of the Quantum Theory*. (Chicago: University of Chicago Press, 1930), 20 and Perez Zagorin. "History, Referent, and Narrative: Reflections on Postmodernism Now," *History and Theory* 38, no. 1 (February 1999): 23-24.

<sup>29</sup> Sometimes, though, it really does take a rocket scientist. Janelle Turner, NASA Public Safety, "Lighting Often Strikes Twice," [http://www.sti.nasa.gov/tto/Spinoff2005/ps\\_3.html](http://www.sti.nasa.gov/tto/Spinoff2005/ps_3.html) (accessed 16 February 2009).

<sup>30</sup> Kuhn uses the example of an experiment where subjects provided the opportunity to identify the anomalous nature of, say, a "red six of spades." Kuhn, *The Structure of Scientific Revolutions*, 62-63.

<sup>31</sup> This is a common phrase in the American military, especially in the Non-Commissioned Officer Corps. Popularized by President Ronald Reagan and attributable as a Russian Proverb: "doveryai, no proveryai."



individuals and success or failure for organizations, the stakes get very high. Subsequently, much research chases the chimera of decision-making and influence models.

The trouble with modeling human behavior returns to the system boundaries problem. At what point do the factors of biochemistry, physiology, genetics, individual response to the environment, and socialization facilitate a holistic understanding that resembles something better than a one-to-one scale map? Return to the factor of change over time and even a stable model of human behavior, whether from Freud or Maslow, provides at best a blurry snapshot with momentary accuracy and open to interpretation.<sup>32</sup>

## **Deception and Uncertainty**

The anti-establishment rhetoric calling for everyone to “question authority” makes a subtle point often lost on disaffected youth considering the next round of illegal activities. The critical analysis of decision-making imbued with cultural, legal, and social authority does not tune out over the boundary edges of whether the decision is accurate. What about whether the decisions are what they seem? Agenda setting, conspiracy theorizing, and outright deceiving all fall under the nature of politics. It is no small departure from “accomplish” to “accomplice.” Communication in a social setting, therefore, requires considerable allowance for both interpretation and suspicion. Here uncertainty falls into three major forms: assessment of the receiver (feedback opportunity), assessment of the content (confirmation opportunity), and assessment of the messenger (interrogation opportunity).

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<sup>32</sup> Sigmund Freud, *Civilization and Its Discontents* (New York: W.W. Norton, 1962) and Abraham Maslow, “Theory of Human Motivation,” *Psychological Review* 50 (1943) 370-396.

## Uncertainty from Disconnectedness: Timeliness

Accounting for the multiplicity of bias and the unpredictability of human behavior, from the extremes of individual delusion to mass hysteria and psychosis to depression, logic provides a lucrative source of insight.<sup>33</sup> Computer programming aimed at the creation and maintenance of artificial intelligence, while still an intensely human endeavor, clarifies the progression from ignorance to awareness that entities are capable of. For example, an artificial intelligence entity (AI) that routinely interacts with other AI entities, either in a real or virtual environment, learns programmatically differently than an isolated AI.

The connectivity between an AI and its environment results in a qualitatively distinct learning pattern than when designed for AI to AI connectivity within an environment<sup>34</sup>. The inability to lean on the real-time information of peers escalates the requirement for a deeper base of experience. Recognition-primed decision-making, the matching of information in real time against a pool of experience at the individual level, turns on the need for adequate training and preparation more so than the expectation of genius-level creativity at the moment of need.<sup>35</sup> The reservoir of experience must be much deeper the narrower the confines of assistance and social connectivity.<sup>36</sup>

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<sup>33</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders – Text Revision*, 4th ed. (Arlington, VA: American Psychiatric Publishing, 2000), xxv, xxx-xxxi.

<sup>34</sup> Nils Nilsson, *Artificial Intelligence: A New Synthesis* (San Francisco: Morgan Kaufmann, 1998), 407-408; Stuart Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach* Prentice Hall Series in Artificial Intelligence (Upper Saddle River, N.J.: Prentice Hall/Pearson Education, 2002), 754-759.

<sup>35</sup> Gary Klein, *Sources of Power: How People Make Decisions* (Boston: Massachusetts Institute of Technology Press, 1999), 15-30.

<sup>36</sup> An airline pilot lost both engines shortly after take off and ditched in the Hudson River on January 15, 2009 with the single statement to the passengers: “Prepare for Impact.” All 155 passengers survived. “One way of looking at this might be that, for 42 years, I’ve been making small regular deposits in this bank of experience: education and training,” said US Airways Capt. Chesley ‘Sully’ Sullenberger. “And on January 15, the balance was sufficient so that I could make a very large withdrawal.” Chesley Sullenberger, interview by Katie Couric, *CBS Evening News*, February 10, 2009.

## Uncertainty from Available Information: Feedback

When connectivity is not as much an issue, the quantity of information available can have its own dampening effect. Information saturation or “overload” can drown a decision-maker. Information paucity or “all the wrong kind of information” can create a drought.<sup>37</sup> Investigation and intelligence work offer the regular rewards for diligent effort, but the explosion of information technology opens new arenas for the capture and management of knowledge. The physical task of finding a needle in a haystack has the occasional flash of brilliance under certain conditions: burn the haystack; find the needle. Unfortunately, brute-force-and-ignorance methods rarely meet the requirements of refined pattern analysis.

The introduction of mathematical approaches to sifting through massive amounts of readily available information, “data-mining,” looks nothing like the high-risk sending of men and machines deep inside mountains to extract ore. The key factor in data-mining or pattern-analysis intelligence approaches is the automation of relatively simple tasks. By batch-processing what are essentially rules-based interrogations, often using a distributed network of machines to reduce the sequential nature of finite but still time-consuming actions, the complement of automation and logic begins to resemble the physical and biochemical processes of nature. Thus simple rules plus simple processes over many entities at any given time generates a formula that embodies the ability to generate timely, enduring, and adaptable action for survival. Communication of this

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<http://www.cbsnews.com/stories/2009/02/10/eveningnews/main4791429.shtml> (accessed on March 29, 2009).

<sup>37</sup> All the wrong kind of information can be clearly seen in the tale of the Emperor’s New Clothes: the voice from the wilderness to speak outside of “groupthink” may be exactly the single piece of information that is lacking. Samuel Taylor Coleridge’s *The Rhyme of the Ancient Mariner* also provides a useful message: “water, water, everywhere, nor any drop to drink.”

dynamic within a system widens the scope and steps up the scale of the individual survival actions to allow the system as a whole to thrive.<sup>38</sup>

## Doubting Thomas: Unreliability of Messengers and Messages: Authenticity

Not everyone is a team player. When the pressures for survival mount, collective security falls prey to individual action: spoilers and straphangers.<sup>39</sup> Deception is itself a survival mechanism. Self-deception among individuals and collective denial within societies typically lead to a divorcing from a clear relationship to the environment and a corrupting of the decision-making process.<sup>40</sup> Deception between factions or sub-system components is commonplace in nature. The glaring predatory eyes on the wings of a butterfly have no moral quality: the lie is intended to survive.

Internal group deception, where the norm is one of trust, and inter-group deception, where the norm of trust may or may not have been established or maintained, is a real source of concern. Accounting for the intolerable presentation of violent malicious intent may be more within the comfort zone of the military community, but the civilian world of politics is unmatched in the exposure of ruthless self-interest masked as public good<sup>41</sup>.

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<sup>38</sup> Steven Johnson, *Emergence*, 32-33.

<sup>39</sup> Robert Axelrod and Robert Keohane, "Achieving Cooperation under Anarchy: Strategies and Institutions," *World Politics* 38, no.1 (October 1985): 248-249.

<sup>40</sup> At the individual level, see Laurence Gonzales' *Deep Survival: Who Lives, Who Dies, and Why* (New York: W.W. Norton, 2003). At the collective level, see Jared Diamond's *Collapse: How Societies Choose to Fail or Succeed* (New York: Viking, 2005).

<sup>41</sup> "For, all things considered, it will be found that some things seem like virtue will lead you to ruin if you follow them whilst others, that apparently are vices, will, if followed, result in your safety and well-being." Niccolò Machiavelli *The Prince*, (Kent, UK: Wordsworth Editions, 1997), 60.

## Rules of Law: Authoritative Standing Structural Doctrines

Doctrine codifies the lessons, direction, and structure of organizations with the purpose of a common point of departure for planning, preparation, and execution.<sup>42</sup> Law codifies the historical body of agreements across the span of a society's life between what is and is not acceptable while providing for the enforcement of the will of that society.<sup>43</sup> The difference here is that the enforcement mechanism of law is punishment or rehabilitation and the reinforcement mechanism of doctrine is successful execution and repeat performance. Neither prevention nor predictability factor directly into the results of either but they are hotly pursued nonetheless.

### Joint Doctrine (Military Command : Opportunist Adversary)

Military operations in Homeland Security in the United States fall under two distinct categories: Homeland Defense and Civil Support. Homeland Defense is “the protection of US sovereignty, territory, domestic population, and critical defense infrastructure against external threats and aggression, or other threats as directed by the President.”<sup>44</sup> The Department of Defense takes the lead in Homeland Defense.<sup>45</sup> Defense support of civil authorities (DSCA) is “civil support under the auspices of the National Response Plan,” which became the National Response Framework in January 2008.<sup>46</sup> As the name suggests, the Department of Defense acts in a supporting role and does not take the lead in Civil Support.

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<sup>42</sup> *Joint Publication 1-02* defines doctrine as: “Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.”

<sup>43</sup> The *Oxford English Dictionary* defines law in this context as “The body of rules, whether proceeding from formal enactment or from custom, which a particular state or community recognizes as binding on its members or subjects.”

<sup>44</sup> *JP 3-27*, I-1.

<sup>45</sup> *JP 3-27*, I-2.

<sup>46</sup> *JP 1-02*.

The framework for Homeland Security, Homeland Defense, and Civil Support includes threats that are both intended and unintended.<sup>47</sup> Terrorism and natural disasters together or separately create conditions where the Department of Defense may take the lead, support a lead civilian agency, or take no action whatsoever. Essentially two rule-sets are at work: the military threat is identified and DoD action is directed by the President through the National Command Authority (top down), or a military threat is not identified and local response manages until assistance is requested (inside out). Matching the strategic threats to the Nation with the tactical concerns of localities opens a time-critical window where operational-level engagements look up and down to balance authority and responsibility. At the moment of crisis, a dangerous precedent for command and control sets off a crucial question: “Who’s in charge here?”

If the answer is the Department of Defense, execution of Homeland Defense missions enjoy the stability and support of playing a “home game” for a team very adept at playing on the road. If the answer is a lead civilian agency or, worse, “please hold, your call is important to us,” the race to gain momentum and seize the initiative by military forces raises the stakes to rapidly set up some type of command structure and assist at an appropriate time and place. While Joint doctrine explains the environment, the rules for the game are those of the lead agency and the Department of Defense must take extra care to not foul out.

## NIMS (Civil Authority : Affected Public)

The National Response Framework (NRF) is a strategic guide.<sup>48</sup> Lessons learned from Hurricane Katrina in 2005 provided the impetus for the U.S. Government (USG) to overhaul the

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<sup>47</sup> See Appendix (A), Notional Relationship between Homeland Defense, Civil Support, and Homeland Security Missions.

<sup>48</sup> The opening line on page one of the NRF declares: “This National Response Framework (NRF) [or Framework] is a guide to how the Nation conducts all-hazards response.” NIMS reinforces this on page one: “the NRF provides the structure and mechanisms for national-level policy for incident management.”

National Response Plan and to breathe new life into how civilian authorities should respond to disasters.<sup>49</sup> The NRF capitalizes on the ubiquity of Internet access and training for local responders and civilian leaders, incorporating both a core document available online and a collaborative environment for sharing lessons learned.<sup>50</sup> The construct for communication is one of preparedness and training, leveraging the heightened public interest (and public coffers) since the turn of the century. The NRF claims to be the “concise, common playbook” required for leaders and responders with high personnel turnover and enormous diversity of potential challenges.<sup>51</sup>

The National Incident Management System is an operational template.<sup>52</sup> The two terms together, operational and template, already present challenges for integration with the military. First, NIMS states in bold that “**NIMS is not an operational incident management or resource allocation plan.**”<sup>53</sup> Translated for the military and other audiences, the statement goes on to identify NIMS as a “core set of doctrines, concepts, principles, terminology, and organizational processes.”<sup>54</sup> So, NIMS is a template but not a plan. NIMS bridges the strategic policy with tactical implementation but is not “operational.” NIMS is hereby caught in an identity crisis between being a ready checklist and a general guide. The very first table in NIMS is titled “Overview of NIMS: What NIMS Is and What NIMS Is Not.”<sup>55</sup>

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<sup>49</sup> *NRF*, 1.

<sup>50</sup> Lessons Learned Information Sharing, LLIS.gov protected by a benign level of access control.

<sup>51</sup> *NRF*, 2.

<sup>52</sup> *NIMS*, 1: “The *National Incident Management System* (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment.” Soup to nuts.

<sup>53</sup> *NIMS*, 3.

<sup>54</sup> *NIMS*, 3.

<sup>55</sup> *NIMS*, 6.

NIMS consists of five components: preparedness, communications and information management, resource management, command and management, and ongoing management and maintenance. For the purposes of this study, Components II and IV, communication and information management and command and management, will be the focus for interoperability with joint doctrine at the disposal of the military commander. How well joint doctrine stands up to working with NIMS for a commander describing and directing an operational level response to a sudden-onset contested domestic incident will be considered at the precipice of possibilities too numerous to run through a supercomputer and hope for “the answer.”<sup>56</sup>

### **Section 3. The Black Box: Representing the Digital Blackout**

The time for divining the future by smelling vapors, examining the spilt entrails of a sacrificial animal, or rolling out chicken bones onto a mat has passed. The clockwork predictability of the mechanical world ticking out measured efforts under a timetable for production, however, has also lost some relevance to the modern world. Between the pillars of faith and determinism stands reason.

Reasoning what may happen in the future requires a strong understanding of how things have worked in the past and how they work in the present. Early work in linear systems sidestepped issues of just how something *really* works by focusing on the relationships of inputs and outputs to a ‘black box,’ bypassing the inner workings of a particular problem and focusing instead on the relationship of a problem to other problems.<sup>57</sup> Thus decoupling causality from the equation allows for an exploration of the options that may be chosen without fixating on options

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<sup>56</sup> Douglas Adams describes just such a supercomputer that arrives at the answer to the Ultimate Question of Life the Universe and Everything as “42.” Issues of what the *question*, however, actually is, remain. Douglas Adams, *The Hitchhikers Guide to the Galaxy* (New York: Harmony, 1980).

<sup>57</sup> Emil Cauer, Wolfgang Mathis, and Rainer Pauli. “Life and Work of Wilhelm Cauer (1900-1945),” Proceedings, MTNS2000 (Fourteenth International Symposium on Mathematical Theory of Networks and Systems, Perpignan, France, June 19-23, 2000).



that will be chosen. An extension of the ‘black box’ method to systems of communication and action therefore shifts the focus away from the specifics of a particular episode of engagement and examines instead questions of the logic behind engagements.<sup>58</sup>

The analysis that follows suggests a practical application of just such a logical interrogation. Examining the players, the rules, and the nature of the game is akin to studying the game of chess or the game of go together, rather than studying particular games of chess in relation to particular games of go.<sup>59</sup> The challenge examined is how to grapple with uncertainties and communicate clear, direct, believable messages to elicit action from players when the rules, the nature of the game, and even the existence of certain players is suspect. Picture this: four strangers sit down to a game of cards only to be suddenly informed that the game is not poker but Russian roulette, the lights go out, and the door to a darkened hallway can be heard to swing open. Game on.

## **Blackout Drive: Orienting the Variables**

As written, *Joint Publication 3-28 Civil Support* captures the institutionalization of approaches to defense support to civil authority within the larger context of homeland defense, homeland security, and civil support. As designed, the National Incident Management System represents the socialization of a monolithic, one-size-fits-all approach to domestic incident response. Each document enjoys a normalized process to incorporate feedback and to remain

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<sup>58</sup> The explanatory framework provided by game theory is one such example. The rules of interaction between players can be examined at the tactical level of decision-making, or the rules of approaches to the game itself can be analyzed at the operational and strategic level of decision-shaping. See Robert Axelrod, “Effective Choice in the Prisoner's Dilemma,” *The Journal of Conflict Resolution* 24, no. 1 (March 1980): 3-25 and Robert Axelrod and Robert O. Keohane, “Achieving Cooperation under Anarchy: Strategies and Institutions,” *World Politics* 38, no. 1 (October 1985): 226-254.

<sup>59</sup> Establishing the relational framework for such an analysis also declares at the outset the tolerance for expectation bias, selection bias, and the limits to which conclusions can be applied outside of the frame of reference. Discussing apples and oranges should not directly inform geology, unless roots are part of the framework.

relevant. The rule of law provides an overarching framework that can categorize factions of the general public along lines of pro-social, neutral, or anti-social behavioral. An unconstrained rule set for opportunist adversaries spans the extremes of logical ideology and illogical pathology.

The controlled variables of military command, civil authority, affected public, and opportunist adversary are framed within the logical superstructure of the rule of law. The dependent variables of the logic of communication are maturity, resiliency, resonance, timeliness, feedback, and authenticity. The resulting performance of the civil-military doctrinal construct in the context of domestic incident response will be gauged in terms of the independent variable of connectivity: connected, unpredictably connected, and disconnected.

The issues of operational security, information control, and technical interoperability merely scratch the surface of the dynamics involved in the resistance to official communication intended to manage the consequences of an incident, defined as “an occurrence or event, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response.”<sup>60</sup>

## **Information Operations and Public Affairs**

Joint doctrine defines information operations framed against an adversarial decision-maker, either human or automated.<sup>61</sup> *Joint Publication 3-13 Information Operations* provides a

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<sup>60</sup> *National Response Framework Resource Center*.  
<http://www.fema.gov/emergency/nrf/glossary.htm#I> (accessed March 29, 2009).

<sup>61</sup> *JP 1-02*, “The integrated employment of the core capabilities of electronic warfare, computer network operations, psychological operations, military deception, and operations security, in concert with

framework for evaluating the quality of information that focuses on utility and control.<sup>62</sup> The information quality criteria only present an isolated portion of the information environment, however. Understandable in context of hostile environments, the distinction of information operations as having no bearing on the influence of outcomes for non-adversarial audiences presents a special challenge in the context of Defense support to civil authority. Similar to the limitations on the use of military force for the enforcement of domestic laws, the association with information operations conducted “on” the American populace draws sharp cultural, legal, and ethical protests.<sup>63</sup> Traditions embracing the rights to privacy and freedom of speech preclude popular patience with being “psychologically operated on” by the U.S. military.

Joint doctrine readily acknowledges the tension between the need to control information for operational security and the need to disseminate information in transparent ways. *Joint Publication 3-61 Public Affairs* clearly states: “timely and accurate release of factual information helps to deter enemy propaganda.”<sup>64</sup> In the special circumstances of DCSA, the lead federal agency retains release authority for public messaging. Formal news media access, such as it can be controlled, is subject to the lead federal agency’s approval.<sup>65</sup> The Cable News Network’s incorporation of iReporting into the professional news stream is one example of the ubiquity of media sources.<sup>66</sup> In this relationship, the role of public affairs operations also suffers from a

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specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting our own.”

<sup>62</sup> See Appendix B Information Quality Criteria as derived from *JP 3-13 Information Operations* Figure I-2.

<sup>63</sup> Codified in U.S. Public Law 80-402 Informational and Educational Exchange Act of 1948, section 501, Smith-Mundt Act of 1948.

<sup>64</sup> *JP 3-61 Public Affairs*, I-2.

<sup>65</sup> *JP 3-61*, IV-1.

<sup>66</sup> CNN iReporting provides for both increased coverage and visibility on self-organizing news as well as plausible deniability for inaccurate information for unvetted stories. <http://www.ireport.com/about.jspa> (accessed 21 February 2009).

doctrinally self-imposed quarantine, isolating the explicit transfer of information through the civil authorities while still needing to account for the uncontrolled “man-on-the-street” chance contact media engagement with military forces in the field.

## **Section 4. The Dynamics of Resistance**

Two strangers approach the doorway. Each has something to sell. Sometimes it matters who comes first. Sometimes it matters what they are selling. Often it matters most what the buyer wants to hear. So, too, with influence and the model of communication.

The broadcasting of information can occur simultaneously from one sender to many receivers at the same time. It is with each individual receiver, however, that a discrete occurrence interprets the substance of the message. If action is the subject, further decision-making assesses whether to take the action as understood or not. Given minor variations in time, then, each substantive communication counts independently as a transaction between the sender and the receiver. Unless complete saturation of the intended audience is met, however, subsequent retransmission of the message is required.

In this case, the follow-on transmission is one of two: the original or a copy. If it is the original, the same metrics apply as if it were part of the first set of transmissions. If it is not, additional metrics need to be applied to determine the variance from the first source to the second source, and so on. The principle provides a set of senders, a set of receivers, some of whom act as repeaters, and the next set of receivers. The construct of communication recursivity demonstrates the relationship of system components translating message to action over time. Each message taken to action affects the subsequent message produced as a result, and so on.

An additional factor becomes relevant when the proximity of competing messages in time allow for choice for the repeater to which message is repeated: message A from sender A, message B from sender B, or some amalgam of messages A and B. Competing messages allow for errors in transmission as well as the interjection of foreign message material. Communication

recursivity therefore generates the potential for mutation and adaptation within the system components. Selection criteria from each receiver then generate decisions about competing messages. The outcomes of the receiver decisions then become the basis for the message generated when the receiver begins sending subsequent messages.

The deterioration or erosion of adherence to a given rule-set regime between senders and repeaters can be demonstrated as the communication content flows from an initial military command through the civilian authority into the affected public. Like the childhood game of telephone, where children in a circle whisper a phrase in each other's ear until it completes the loop, the transition from original intended message to final received message can be dramatic.

The phase transition from multiple rule-sets to subsequently fewer rule sets can also have considerable impact on the quality of messaging. For example, the military command operates under the rule of U.S. law, joint doctrine, and ostensibly the National Incident Management System when communicating during a domestic incident. Civilian authorities function under the rule of U.S. law and ostensibly the National Incident Management System as well as the idiosyncrasies and local diversity of constituent audiences. The affected public makes choices based on the rule of U.S. law with heavy reliance on the social norms and influences of affiliations to institutions, groups, and individuals (including themselves). The adversarial opportunist is aware of the rule of U.S. law yet is bound only to the ideological and methodological restraints that are self-imposed. Military rules of engagement, law enforcement protocols, public reaction, and opportunist spoiling each have differing rule sets for interpreting and capitalizing on a message as apparently straightforward as "Stop or I'll shoot!"

## Maturity

The 2008 National Incident Management System grew out of a sense that the interagency environment had no capacity for planning.<sup>67</sup> Living in the shadow of the Department of Defense, the civilian-side departments of the U.S. Government received an abrupt wake-up call with the public dissatisfaction with the response to Hurricane Katrina.<sup>68</sup> While NIMS in the current configuration is relatively new, the redesign focused on making the concepts universally approachable.<sup>69</sup>

Routine communications issued forth under the framework of joint doctrine in general and JP 3-28 in particular enjoy the robust training and education architecture of the institutional base of the military. Professional development reinforces on-the-job training throughout the military. Variation in individual competency for fluency in the doctrinal basis for language are supported through the institutional memory of particular units. When confronted with the terminology and concepts of NIMS, the military shifts from a known point and adjusts. The culture of training, however, greatly facilitates the speed with which additional skills are picked up. The conjunction of utility and discipline reduce the need for “buy in” and merely account for a “breaking in” period. Speaking NIMS with civilian entities requires acceptance of another task, no more contentious than firing a weapon or filing a properly formatted report.

Under conditions of degradation of connectivity, the level of maturity of existing joint doctrine suffers a partial identity crisis. Field manuals were initially printed for obvious purpose: to have readily available material in the rain and mud. Memorization of knowledge at the tactical

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<sup>67</sup> Christine Wormuth and Anne Witkowsky, *Managing the Next Domestic Catastrophe: Ready (or Not)? A Beyond Goldwater-Nichols Phase 4 Report* (Washington DC: CSIS Press, 2008), 47.

<sup>68</sup> Bea, Keith Bea, et al. *Federal Emergency Management Policy Changes After Hurricane Katrina: A Summary of Statutory Provisions*. Congressional Research Service. (Washington DC: Library of Congress, 2006), Summary.

<sup>69</sup> NIMS transmittal letter from Michael Chertoff, Secretary of Homeland Security, *NIMS i*.

level is the traditional hallmark of great military forces. The classic image of a recruit stripping down and reassembling a rifle with a blindfold on makes the point: speed and familiarity under the worst conditions makes all the difference. When it comes to operational doctrine, the professional expectation remains a broad, articulate familiarity with the concepts and terms needed to accomplish the mission.

With the increasing reliance on digitized knowledge networks and repositories of information in digital format, so called “soft copy” manuals place an additional burden on the practitioner: think ahead. Referencing a two-hundred page document over a tactical internet at “dial-up speeds” may not suit the time pressures of a crisis. Loading up the hard-drive ahead of time is no different from a well thought out load plan. When the situation deteriorates beyond the boundaries of the expected, the crunch comes between experience and resources. Doing arithmetic without a calculator may take more time and may introduce a wider margin of error, but trying to learn calculus at altitude with a fuel warning light on may be asking too much. So too the difference between remembering what might have been taught in some distant classroom and suddenly finding that an otherwise expected reference manual is “temporarily unavailable.”

Complete disconnection from communication networks, the digital blackout that arrests interaction and localizes all activity to the command and control equivalent of “line of sight,” actually improves the maturity of joint doctrine. The quip to “go with what you know” tightens the decision-making and decision-sharing mechanisms. Sending a runner to pass a critical message across the battlefield forces a patience and thoughtfulness that is rarely found in times of crisis over digital networks. Getting it right the first time because there may not be the opportunity to “reply all” raises the attention to detail. Precision and clarity heighten when the critical nature of the message “secure the hospital” must result in an action that is not misconstrued as turning off the lights and locking the doors.

NIMS calls for the use of “plain language” in communications between agencies to ensure that “information dissemination is timely, clear, acknowledged, and understood by all

intended recipients.”<sup>70</sup> A tall order for organizations trained on the use of brevity codes, callsigns, and prowords to capitalize on time spent training together. Consider a professional sports team whose players are mixed up between amateur athletes and fans and then asked to play another sport. The difficulty in communicating within such newly formed teams becomes exponentially harder when the competition’s players are yelling commands that are indistinguishable from their own teammates’ commands.

## Resonance

Commercial advertising jingles, bumper stickers, and political slogans seek to capture the audience, not the audience’s imagination. The point is to trigger repetition and association. Careful consideration or thoughtful reflection poses distractions to the desired result.<sup>71</sup> When a message truly resonates across multiple audiences, the thematic content itself offers a social cohesiveness, of *wanting* to belong, of *wanting* to believe. “Just Do It” does not limit itself to product selection: a shoe company built from mountain warfare veterans of World War II struck a chord with a call to action echoing the ancient Greek myth of Victory. The critical factor for resonance is not the volume of audience members who absorb the initial messaging, but the replication of a generally accurate representation of the original message amidst the din of altercasting.<sup>72</sup>

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<sup>70</sup> *NIMS*, 29.

<sup>71</sup> Robert Cialdini, *Influence: Science and Practice*, 5th ed. (New York: Pearson, 2009) 2-6; Anthony Pratkanis and Elliot Aronson, *Age of Propaganda: The Everyday Use and Abuse of Persuasion* (New York: Holt, 2001), 179-184.

<sup>72</sup> Altercasting is the shaping of roles in communication for influence. In this context, gaining control of the message receiver by leveraging the perceived expectation of their social roles directly affects the expected behavior of retransmitting the message with or without intended modification. See Anthony Pratkanis, “Altercasting as an influence tactic.” in *Attitudes, behaviour and social context: the role of norms and group membership*, ed. D. J. Terry and M. A. Hagg (Mahwah, NJ: Lawrence Earlbaum Associates, 2000), 222-226.



Mission command in the military accounts for resonance through the emphasis on the commander's intent, on the adjoining of each task with a purpose.<sup>73</sup> Transitioning to NIMS, however, the emphasis drifts away to an emphasis on the universality of the message. Basing the environment of disaster response on the differences between organizations and their cultures, NIMS emphasizes the ability of communications to be easily understandable.<sup>74</sup> The lowest common denominator method then reverses when security issues surface. NIMS first declares: "all communications...should be in plain language...codes should not be used...the use of acronyms should be avoided during incidents requiring the participation of multiple agencies." The discussion in NIMS on encryption follows in its entirety:

"When necessary, emergency management/ response personnel and their affiliated organizations need to have a methodology and the systems in place to encrypt information. Although plain language may be appropriate during response to most incidents, tactical language is occasionally warranted due to the nature of the incident (e.g., during an ongoing terrorist event). The use of specialized encryption and tactical language should be incorporated into any comprehensive IAP or incident management communications plan."<sup>75</sup>

NIMS acknowledges that responders need to communicate and understand each other and need to have a plan for how to go about doing so when communicating in the clear could be problematical. Rather than tackle any of the myriad issues involved, NIMS moves on with standardization of report formatting and organizational structure solutions to the unaddressed dynamic of compromised communications. NIMS closes the argument on information security by focusing on procedures and authentication of information sources. The "rules and badges" approach to communication integrity frames the response environment in terms of the enforcement of effective standing controls.

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<sup>73</sup> *FM 6-0 Mission Command: Command and Control of Army Forces*, 3-6, 4-8 to 4-9, and *FM 3-0*, 3-6.

<sup>74</sup> *NIMS*, 28.

<sup>75</sup> *NIMS*, 29.

Keeping a list and checking it twice works when everyone who needs the list has the right list and everyone everywhere has access to updates. Document forgery and suave imposters are not merely the stock of black and white film noir thrillers: they are the basis for infiltration into security architectures where gaps and seams in access break down with degradation of connectivity. The gate guard at an isolated outpost whose phone line to “higher” has been cut must now act as a surrogate to the command structure. Individual mistakes and the leaking of information cascade into catastrophic inundation of the control of information.

Under conditions of severe isolation, the quality of the message itself becomes paramount. Distressed citizens uncertain of their personal survival may gravitate toward hearing what they want to hear. A public safety message that soberly assesses the impending expected damage to a community with clearly articulated threats from popular over-reaction may simply not ripple through the informal communication networks as well as an emotional appeal to “get out before it’s too late.” The aftershocks of dealing with such distress calls place overwhelming demands on responders that would otherwise have remained manageable.

## **Resiliency**

The corruption of the contents of communication can be considered in terms of a meteor crashing to earth: burning up in the atmosphere may make a brilliant light but it is the impact that matters. The resiliency of messages to survive the harshest of environments goes beyond the technical carriers or the tenacity of messengers. Transmission and subsequent retransmission make the race neither a sprint nor a marathon, but a relay. Unlike the powerful cautionary tale of the *Message to Garcia*, the message matters as much as the messenger.<sup>76</sup> Shaping intelligibility to overcome the obstacles of transmission forms the basis for coding or encryption.

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<sup>76</sup> Elbert Hubbard, *Message to Garcia* (Roycrofters, 1899).

The military use of language removes the auditory doubt behind a “Bee” or “See” by converting them into “Bravo” and “Charlie.” Knowing the specific code is not as important as knowing the rule behind the code. An operator unfamiliar with Bravo-Two-Two-Six could readily make the leap given a minimum of information and convey “B226” as “Boy Two-Two-Six,” etc. The prompting of clarity through the use of simple rules shifts the matter of resiliency from one of memorization to one of logic. The dynamics of mathematics, for example, allow for a common solution to “ $2 \times 4 = ?$ ” whether two is multiplied by four directly or whether two is added to itself and the action is repeated four times ( $2+2+2+2$ ).

The parsing of messages into codes to survive the trip between sender and receiver maintains this reliance on logical dynamics whether the medium is Samuel Morse’s code over wire or signal mirror or whether the medium is packets of data launched over the electromagnetic spectrum or flashed fiber optic cables. Clearly, a reliance on connectivity makes the efficient transfer of messages vulnerable to skips and dropouts in addition to the perils of mistranslation.

NIMS addresses the need for formulaic familiarity with information, specifically the use of formats with recognizable patterns. A request for transportation, for example, should have something in common for the user with a request for bulk fuel.<sup>77</sup> Matching the need to the resource to the location with some sense of correlation streamlines the process. The bureaucratization of information flows does serve a purpose other than promote frustration, after all. Balancing a mountain of neatly completed forms with the delivery of action synchronized among a pool of responders insists on a dispatching system, however, that in design is connected.

As the consistent transfer of information from point to point degrades, efficiency is sacrificed for effectiveness. As with the routing of messages in general, the greater the need for the message to get through the more avenues explored and the more resources consumed. A

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<sup>77</sup> *NIMS*, 32-33.

public radio broadcast relaying the location of shelters within a community, complemented by door-to-door canvassing and telephonic notification differ significantly from an announcement in the local paper for disaster preparedness meetings.

The consideration of routing of communications only goes so far. When significant or complete breakdown of the lines of transmission occur or are expected, the content of the communication takes on a new precedence. Leaflet drops or similar generation of massive amounts of written material relies on the one-to-one production of document to recipient. Under conditions of isolation, disaster response must plan for the communication of messages by second and third order messengers. Thus delay and decay of integrity drives home the point that the logic behind the message must account for tolerable range of interpretation.

## **Timeliness**

The translation of mature, resonant, resilient messages through audiences separated in space obviously takes time. Less apparent is the relationship of each discrete component of that time required: the progression of *timeliness*, or being on time, to *endurance*, or lasting over time, to *velocity*, or adding a sense of motion and direction to time, to *acceleration*, or the change to the rate of motion over time. Put simply: getting there, remaining there; heading there, hurrying there. The timeliness of communication incorporates the static and the dynamic aspects of both linear or sequential logic (if, then, next) and the synchronization of translating information in one domain to action in another domain (the pushing and pulling of influence and the merging and morphing of confluence).

Joint doctrine hierarchically categorizes the outputs of the decision-sharing process based on the level of organization and the relationships in place for authority. The mechanism of *phasing* builds in common understanding for priorities and expectations and aids in the transition to subsequent phases. For example, the shaping phase of a civil support operation transitions to the staging phase based on fairly clear legal authorities and the onset of a readily observable

incident. Hurricane forms, lean forward. Hurricane hits, execute. The movement of personnel and materiel runs on very different timetables than the movement of information. Rumors can spread contagiously much faster than public safety messages. The message of government support broadcast by the physical presence of disaster responders can arrive well behind the despair of citizens determined to do what it takes to survive on their own, with or without the rule of law.

*Joint Publication 3-28* articulates the inherent time-cycle disconnect between the control of information through a central approval process led by the federal agency with lead responsibility and the media's ability to "transmit instantaneous reports."<sup>78</sup> Brushing aside the argument for professional standards and editorial oversight of what is essentially a brand conscious business, the reality relieves the non-governmental media from immediate restraints on information release with concern to legitimacy. Reporting news fast and following up with corrections is in fact a standard practice in the public media, while retractions and corrections on official messaging can prove incredibly damaging to the public trust.<sup>79</sup>

Much of the debate over the uneven playing field in promoting official and un-official communication assumes an imbalance in the adherence to ethical standards. In the case of government and military officials self-imposing central approval or deliberately delegating authority to communicate openly down to the level of lowest acceptable risk, the public media in a society emboldened with freedom of the press has nothing to lose but its audience or market share. When the communication occurs in an other-than-broadcast medium, however, the rules of ethics shift dramatically. Getting the message out first may be too late if someone else has gotten the message out *ahead of time*.

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<sup>78</sup> *JP 3-28*, IV-1.

<sup>79</sup> "Read my lips, no new taxes." George H.W. Bush, acceptance speech delivered to the 1988 Republican National Convention in New Orleans, Louisiana, August 18, 1988.

The communication source that pre-positions information under given rules of release is just such a game-changer. The military uses casualty notification procedures designed to allow the intimate personal contact of face-to-face transmission of a message to circumvent a potentially shocking piece of news.<sup>80</sup> Contingency planning, as simple as a GOTWA,<sup>81</sup> also facilitates the sharing of decisions before the fact in the event of isolation. The “if you never hear from me again” message, if you will.

Unfortunately the NIMS answer to the challenge of providing timely information to both internal and external audiences revolves around the central structure of the Joint Information System and the Joint Information Center (JIC). The JIC is “the central point of contact for all news media at the scene of an incident” and “develops, recommends, and executes public information plans and strategies...and controls rumors and inaccurate information that could undermine public confidence in an emergency response effort.”<sup>82</sup> The recommendation that “public information officials from all participating agencies/ organizations should co-locate at the JIC” gives a physical address for any adversary looking for a classic center of gravity in the war for public opinion.<sup>83</sup>

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<sup>80</sup> Lessons learned during the Vietnam War and public outrage at the dehumanization of casualties helped to drive home this change. The United States Army had used “taxicabs and telegrams” for casualty notification. Harold Moore and Joseph Galloway, *We Were Soldiers Once, And Young: Ia Drang, the Battle That Changed the War in Vietnam* (New York: Harper Perennial, 1993) 380-381.

<sup>81</sup> *FM 3-21.8 Infantry Rifle Platoon and Squad*. 28 March 2007. 9-23. Going where, Others going with, Time of expected return, What to do if the departing party does not return, Actions to take if either the departing element or remaining party take contact.

<sup>82</sup> *NIMS*, 29.

<sup>83</sup> “The fighting forces of each belligerent— whether a single state or an alliance of states— have a certain unity and therefore some cohesion. Where there is cohesion, the analogy of the center of gravity can be applied. Thus, these forces will possess certain centers of gravity, which, by their movement and direction, govern the rest; and those centers of gravity will be found wherever the forces are most concentrated.” Carl von Clausewitz, *On War*, ed. and trans. by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1989), 485-486.

Based on the expansive nature of the incident, NIMS allows for the establishment of JICs in several ways but retains the core concept that they communicate and coordinate in order to meet the release authority guidance of the lead federal agency.<sup>84</sup> The challenge for organizing information centers under the umbrella of central control begs the question: what is a besieged or isolated JIC to do? With the original question posed again: what if the phone lines get cut on purpose and not by accident?

Under conditions where communication among internal partners precludes communication to external audiences, the lack of connectivity yields local initiative, gross incongruity in official positions, or some combination of the two. When the clock is running the element that accounts for timeliness in all aspects, not merely being on time, makes the difference when getting there first may already be too late.

## **Feedback**

The purpose of communication in the decision-sharing domain of disaster response is to elicit a tangible response, typically tied to behavior. The intangible aspects of perception, meaning, and value can only be measured via proxy through the observation of subsequent action. For example, a public safety message recommending departure routes for mass exodus from an area can be assessed through the rate and flow of those choosing the specified route, delaying their departure, or taking a route of their own choosing. Compliance in the aggregate informs the success of the message more than the presence of non-compliant digressers. Opinion polling or other methods of measuring “sentiment” are more applicable to predictive analysis of future behavior, much as the contemporary fascination with “representative groups” that are then

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<sup>84</sup> *NIMS*, 70-72.

projected to reflect larger populations. Prediction in human endeavors defies complacent categorization and modeling.

The military treats the collection and analysis of information through the broad framework of intelligence. Law, regulation, and tradition restrict intelligence gathering on U.S. citizens by the Armed Forces.<sup>85</sup> The line drawn between domestic information gathering and intelligence gathering presents legal issues that require clear distinction and oversight by the commander. Setting up mechanisms for feedback must account for both predictive analysis—pattern formation— and reactive analysis —pattern recognition. Accounting for observable proxies and devoting effort to hypothesizing the relationships between proxies and what they represent can be bypassed if the result of analysis is specific action taken rather than determining if particular action will be taken. The challenge for military intelligence in particular is to promote the objective assessment of feedback that falls outside of expectations while critically reevaluating that which is not being looked for.

NIMS lays out a four-step process for information flow that consists of (1) gathering information, (2) verifying information, (3) coordinating information, and (4) disseminating information.<sup>86</sup> The only monitoring mentioned is of the media to ensure understanding by the media for accuracy and completeness in order to avoid the consistent repetition of inaccuracies.<sup>87</sup> The NIMS information flow is an “ongoing cycle” that loosely defines a feedback loop where the official civil-military authority and the affected public shift between roles as information producers and information consumers.<sup>88</sup> Information considered “inaccurate” is discounted and

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<sup>85</sup> *DODD 5200.27 Acquisition of Information Concerning Persons and Organizations Not Affiliated with the Department of Defense* (Washington DC: Government Printing Office, 1980) 2.

<sup>86</sup> *NIMS*, 72-73.

<sup>87</sup> *NIMS*, 73.

<sup>88</sup> *NIMS*, 73.



not repeated if part of the gathering and verifying steps or corrected and addressed if part of the coordinating and disseminating steps. Hostile or antagonistic sources of information are not explicitly considered in this framework where information is stripped of intent and gauged on biased assessment of accuracy. NIMS orients on rectifying *wrong* information without dealing with the possibility of *deliberately harmful* information.

The civil-military mechanics of communication assessment fixate on broad and controlled access to information. As the level of connectivity degrades, delays in information sharing inhibit the common operating picture hoped for by participating responders. The dropout of media broadcasting as a sustained source of information jeopardizes the ability of government officials to collect real time feedback on the impacts of public messaging. Congestion of data networks and constriction of cellular telephone bandwidth forces the rapid reprioritization of what information is critical and what information is not. Sifting through the mass of available data in a recognizable way can be as misleading as having the wrong algorithm or chasing an intelligence lead that leaves no digital footprints. An adversary operating on a pre-scripted analog timetable, working the seam between information and intelligence and the gap between errors and omissions of transcribed reports, would prove extraordinarily elusive. Hiding in plain sight during disaster response is as easy as yelling “Fire!” in a crowded theater.<sup>89</sup>

When the screen streaming 24-7 news goes blank, the radio goes quiet, and the constant flow of email messages from the field stops, an eerie silence may follow for the organization whose every backup redundancy includes the electro-magnetic spectrum. Shifting between too much of the wrong information and too little of the right information, reliance on ethical transparency, accuracy, and accountability leave official communications careening between

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<sup>89</sup> “The most stringent protection of free speech would not protect a man in falsely shouting fire in a theatre and causing a panic. It does not even protect a man from an injunction against uttering words that may have all the effect of force.” *Schenck v. United States*, 249 U.S. 47 (1919).

offering the wrong message at the wrong time and not hearing the right message from the right audience.

## **Authenticity**

*Advance and be recognized.* When the sender and receiver communicate face-to-face, the uncertainty surrounding the apparent source of a message disappears. The integrity of the message content splits along two lines of investigation: hidden meaning or hidden purpose. Completely transparent messages, like statements of fact, exist only in the realm of the theoretical. The extension of distance between the sender and receiver, either physically or cognitively, allow room for obstacles and intermediaries to intervene in the transmission. As a message is transmitted, distortion of the original message content can and nearly always does occur. Given a situation where the receiver interacts with a message of doubtful origin, determining the authenticity of the message complicates the existing issue of evaluating the content of the message at face value.

As the mechanics of message generation, transmission, receipt, and regeneration repeat themselves, source verification becomes exponentially unreliable. The investigative pathology of reducing an epidemic population backwards in time to a “patient zero” requires a distinct transmission marker that does not get lost in the environment. Language in everyday use does not typically enjoy such distinction unless a remarkable term exposes traces of novelty. Once saturation of use erases the contemporary chain of transmission, the forensic nature of specific messenger-to-message tracing gives way to mere etymology. Messages with sufficient content, however, can carry identifiable structures of sequence and style much the way handwriting analysis approaches biometric data. Messages do not have fingerprints, but observable aspects of messages can serve as footprints that provide meaningful if uncertain information.

The role of sentiment analysis in data mining offers contentious material on the extent and depth of the usefulness of critically evaluating message structures. Whereas the objective of

sentiment analysis seeks clarity on the *intent* of the communicator, the relevance to civil-military incident response is the potential to shed light on the *identity* of the communicator. Like a staged publicity photo of the corpse of rebel leader propped up with an identifiable edition of a major daily newspaper, cues in messages can be purposefully misleading to shift attention from the embarrassing or to draw attention to the desirable.<sup>90</sup>

Authenticity of messaging in military history is tied intrinsically to deception. The history of ciphers, codes, and spies speaks to the control of information for release at times and places of ones choosing. Crossing the threshold from internal control to external control changes the dynamics of the message content. Once a message is essentially “released into the wild,” the propagation of the original content is contingent upon the structural integrity of the message’s “identity.” A statesman declaring “Peace for our time” falls prey to events and reality, whereas the dynamics of “Give Peace a Chance” shift the burden of proof away from the original messenger.<sup>91</sup>

Authority has an authenticity all its own. The reliance on transparency of information to the public by the military forms the basis for non-confrontational communication. The use of attribution, official spokespeople, and public forums recognizes the value of projecting authenticity. Joint doctrine and NIMS structure internal communications against standards of information control and information security. External communications are bound by regulation of clarity and honesty.<sup>92</sup> The orchestration of branding messages is an immature capability within the interagency incident response community, but the acknowledgement of the need to do so is an

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<sup>90</sup> *Salvador*, directed by Oliver Stone, 20<sup>th</sup> Century Fox, 1986.

<sup>91</sup> British Prime Minister, Neville Chamberlain, publicly stated in front of #10 Downing Street, London, on September 30, 1938: “My good friends, for the second time in our history, a British Prime Minister has returned from Germany bringing peace with honor. I believe it is ‘peace for our time.’ Go home and get a nice quiet sleep.” John Lennon wrote the song “Give Peace A Chance” in bed in suite 1742 at the Queen Elizabeth Hotel in Montreal in 1969.

<sup>92</sup> *JP* 3-28, II-23-24, IV-1-2, IV-14 and *NIMS*, 72-73.

indication of the tension between anachronistic techniques of propaganda and the contemporary considerations for public diplomacy.<sup>93</sup>

When the carefully staged press conferences gives way to chance contact with the media, the handoff from internal control to external control loosens up. Officials armed with talking points but divorced from access to rapidly changing events endanger the credibility of civil-military authorities. Likewise, local community leaders, whether elected or emergent, become spokespeople for spokespeople, extending the chain between sender and receiver and allowing room for distortion and influence of the message itself. Official looking documents with impressive looking letterhead or watermarks can circulate among distressed populations. Leveraging terms and phrases that smack of legitimacy and that are close enough to match what an audience expects to hear and wants to hear, forged documents stripped of a digital context are the analog equivalent of denial-of-service attacks. Once a believable rumor or deliberate misinformation begins to make the rounds, the effort to control external information places a disproportionate drain on resources.

## **Section 5. Crooked as a stick in water<sup>94</sup>: Culling the Results**

The very concept of “consequence management” takes the turbulent forces of nature— of which man is part— and frames them in accordance with rational perspectives that particular actions taken at appropriate times by responsible parties can directly influence environmental conditions in order to minimize damage. Holding on to observable conditions and then holding out for the matching puzzle piece of an appropriate action could create a dangerously misleading

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<sup>93</sup> The debate considering the roles and responsibilities to Executive agencies under the Smith-Mundt Act and the gray line between informing vice influencing the American public by the military speaks to the shift in taking official statements at face value. Government credibility endured a significant blow to the head during the nexus of the unraveling of American commitment in Vietnam and the unveiling of Administration activities in the Watergate scandal.

<sup>94</sup> Imagery courtesy of the Cowboy Junkies from “Common Disaster” on their album *Lay It Down*, 1996.

set of mismanaged expectations. Like beautiful paving stones down the wrong road, good intentions are phenomenal precursors to being blindsided.

### **First Secondary Question: Points of Friction**

The intent behind the National Management Incident System is to foster an all-encompassing approach to all incidents “regardless of cause, size, location, or complexity.”<sup>95</sup> NIMS poses the following three inherent points of friction with the conduct of the *describe* and *direct* function of battle command during domestic disaster response: scope, scale, and accessibility.

The scope of NIMS specifically avoids public preparedness and individual preparedness.<sup>96</sup> Leaving the public to their own recognizance, NIMS focuses on treating the public as an unequal partner, to “come as you are” and to be handled through official channels and unofficial representation. Community groups, non-governmental organizations, and formal power structures merely skim the surface of the social dynamics at work during times of crisis. The immature accounting for the rich social context from which disaffected, ambivalent, and cooperative factions spring clashes with the contemporary military focus on “the people.”

The one-size-fits-all mandate that NIMS assumes for the operational level of all hazards response, whether a tornado strikes a small town, an industrial accident poisons the air over a high school, or a shipping container tracks radioactive debris over a multi-state area, tends to discuss events as singularities. The failure to adequately consider the successive rounds of an incident or the complementing of natural hazards with man-made interference divorces the fundamental construct of NIMS from the scaling of units in both time, space, and purpose that

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<sup>95</sup> NIMS, 1.

<sup>96</sup> NIMS, 9, 17.

military campaign planning is historically known for.<sup>97</sup> The skirmish, battle, and war require description and direction that do not readily translate across to a community that uses terms like “hundred year flood.” The probability that floods of centurion magnitude will occur back to back is a very different probability than whether a single hundred-year flood will be accompanied by a deliberate contamination of drinking water with cholera.<sup>98</sup> The outlook of NIMS fails to see past what it is looking for.

The friction point most readily addressable is the accessibility of NIMS to commanders and staffs who can reasonably expect to be called upon to operate under the National Response Framework. Integration of NIMS throughout the planning and preparation phase can be assisted yet further through incorporation into existing programs of military training and education. Lacking ready access to reference materials, participants in disaster response who are not familiar with the standards of interoperability that NIMS demands create conditions of self-imposed degradation of performance. The breaking in period of moving away from the rigor and convenience of command and control toward the exhausting collaboration and compromise of civilian overlapping jurisdiction can be taxing.

## **Second Secondary Question: Vocabulary and Grammar of NIMS**

The vocabulary and grammar of NIMS has both drawbacks and benefits during civil-military communication at the sudden onset of a catastrophe. The unqualified advantages are the explicit standardization and the complementary methodology to military doctrine. The potential benefits are the focus on training and the proscription to use “plain language.” The significant

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<sup>97</sup> For a concise discussion of the compartmental relationships among scientific disciplines and the need to move beyond isolated distinctions of scale, see P.W. Anderson, “More is Different: Broken Symmetry and the Nature of the Hierarchical Structure of Science,” *Science* 177, no. 4047 (August 4, 1972): 393-396.

<sup>98</sup> Kiyosi Itō, *Introduction to Probability Theory* (Cambridge [Cambridgeshire]: Cambridge University Press, 1984). 165-168.

drawback of NIMS is the reliance on terminology and formatted reporting that are close enough to existing standards in other domains as to be readily mistaken and misused.

The legal and normative acknowledgement of NIMS as *the* system for departments, agencies, civic organizations, and the private sector to use across a wide span of operations provides an impetus for familiarity. Similar to military doctrine, NIMS functions both in a training environment and in more routine incidents. The military mantra to “train as you fight” translates into “respond as if it were real, every time, all the time.” Incorporating NIMS into organizational processes and procedures can range from intermittent review to holistic best practices. The formalization of NIMS also reflects standardization among coalition partners and enjoys the lessons learned from such military tools as the North Atlantic Treaty Organization’s Standard Agreements, or STANAGs.

The reduction in miscommunication using NIMS requires preparation. Internal communication competencies can be reinforced through organizational training, but without routine public exposure through official messaging, the gap widens between civil-military elements and the public audiences. While advocates of Esperanto claim numerous successes for a “constructed international auxiliary language,” the United Nations documents official work in only Arabic, Chinese, English, French, Russian, and Spanish.<sup>99</sup> Regardless of how well designed an arbitrary system of unification is, the community in question may simply not respond well.

### **Third Secondary Question: Command Relationships**

The establishment and maintenance of command relationships between civil and military elements during the initial period of uncertainty on the extent and causality of an incident faces three primary challenges. First, the designation of the lead federal agency revolves around the

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<sup>99</sup> Lejzer Ludvig Zamenhof, a Polish physician, established the basic groundwork for Esperanto in 1887. <http://esperanto.net> (accessed on 29 March 2009) and <http://un.org> (accessed on 29 March 2009).

categorization of an incident as Homeland Defense or Civil Support. Second, the rapid establishment of joint information structures that reign in the control of information under designated release authority. Third, a starting line-up of official agencies and forces may find that none of the activity generated can keep up with an opportunist adversary pre-positioned to infiltrate ad hoc messaging systems. Working out the kinks of “so, who’s in charge here” against an entrenched opponent poses the threat of imposters readily accepted into the formative response team.

A fundamental challenge that NIMS addresses is the rapid establishment of an appropriate response architecture to supplement local capacity as early as possible in an effort to reduce what is termed the “gap of pain.” The uncertainty surrounding the *extent* to which an incident will demand resources, however, is a very different issue than the uncertainty shrouding the *cause* of an incident. Tracking weather reports and monitoring meteorological phenomenon allows room for best guesses and estimates of how much, when. An initial report of widespread damage, such as an industrial accident, triggers forensic analysis backward in time to find root causes and forward in time to determine courses of action to minimize further catastrophe. As reports come in that conflict with expectations, the trouble really begins. Observed conditions may be attributed to meteorological hazards, coincidental phenomena, or deliberate hostile action. Worse, conditions may exist that are not readily observed. The adage that “where there is smoke there is fire” is typical of the potential for misleading indicators. Where there is smoke, perhaps there is something being hidden, lurking to act on responders merely looking for fire.

The initial period of uncertainty, during which the extent and causality of an incident remains ambiguous, effects the establishment and maintenance of command relationships between civil and military elements in two ways. First, the declaration of lead agency above the local level splits down separate paths: one for homeland defense and another for defense support for civil authority. Second, the consequence of a designated lead agency generates an



organizational response inertia that is not designed in any way to “turn the ship around” if new information requires a shift from civil authority to military command.

The determination of lead agency in response to an incident requires first a deliberate acknowledgement that the local capacity has been or will be overwhelmed. Both the National Response Framework and NIMS orchestrate the employment of additional resources along a continuum of transition from preparedness to response. Issues of sovereignty, resource management, local capacity, and legitimacy are intricately tied to cultural and legal nuances for which the Federal Government and the military must maneuver carefully. Once the determination has been made that either the Department of Defense will lead the response under the conditions of defending the homeland or another federal or state agency will lead the response under the conditions of homeland security, the priorities of work for response are clearly spelled out in NIMS. Rapidly establishing civilian command and management structures that tie in with military command and control structures takes time but, in many cases, can be trained and rehearsed to a certain extent. As public information control mechanisms like the Joint Information Center structure are stood up to meet the specific needs of the incident, a common theme of lines of release authority gain momentum. The time period in which the nature and cause of the incident unfolds—allowing such decisions of “who’s in charge here” to be made—presents an acute vulnerability that can be exploited by actors well informed as to the nature and cause of the incident. The party responsible for mayhem can take the lead in the opening stages of communicating to the public from a position of entrenched and stable command and control.

Once the designated lead agency gains sufficient traction to describe and direct activities of subordinate and partner agencies, the mold is set. The sunk cost of establishing functioning command and management systems in the midst of a crisis create subtle barriers to critical evaluation of new information. When designated as a military mission requiring the Department

of Defense to lead operations in defense of the homeland, existing military doctrine progresses naturally toward a return of control to civil authorities.<sup>100</sup> The reverse is not the case. Taking jurisdiction away from local authorities and even from civil authorities requires executive declarations of martial law or of a state of emergency that are not to be made lightly.<sup>101</sup> Thus, the resistance to reshape nascent organizational command and management relationships during the initial period of response and move away from civil authority facilitates a “strongly supportive” role by the Department of Defense. This potential hesitancy to match new intelligence with required action not only hints at the maintenance of self-imposed organizational blind spots but also points out the handicap imposed by the need to centralize control of information through a dedicated official gatekeeper.

Control of information lies at the heart of military operations. Maintaining secrecy and issuing clear and concise orders has value when supporting civil authority, but only to a point. Moving out of the shadows of a “need to know” environment in order to function in a “need to share” environment relies heavily on the ongoing dialogue between partners.<sup>102</sup> Seamless sharing of information is the goal, but compartmentalization of information is the norm. Accounting for the time required for parliamentary feedback, the sausage-making of compromise to gain consensus, is generally alien to military command and control.

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<sup>100</sup> *JP 3-27 Homeland Defense*, II-16 and A-3. *JP 3-28*, III-12 also defines the phases of a civil support operation.

<sup>101</sup> In the United States, civilian control of the military still rests with the State Governor or the President of the United States, respectively. “When it comes to a decision by the head of the state upon a matter involving its life, the ordinary rights of individuals must yield to what he deems the necessities of the moment.” *Moyer v. Peabody*, 212 U.S. 78 (1909).

<sup>102</sup> *JP 3-27*, VII-5, states: “DOD must lead the way in transitioning from a ‘need to know’ to a ‘need to share’ culture. The need to share information is an operational necessity that avoids withholding information and minimizes the potential for operational gaps that characterized the pre-9/11/01 environment. The overall goal is to attain seamless access to the trusted information sharing environment for all response forces throughout the AOR.”

#### **Fourth Secondary Question: Communication of the Commander's Intent**

Communication of the commander's intent reflects the American military reliance on the powerful dynamic delivered by individual initiative that operates off clear guidance with minimum necessary control measures.<sup>103</sup> Accepting risk and acknowledging the constant presence of confusion and miscommunication, the commander's intent—once established—is largely a one-way vehicle of communication. The commander's intent is issued with an implicit range of tolerance for both interpretation and action attributable to it. Disconnected or discrete contact between commanders and subordinates is both expected and planned for in a disciplined military setting.

Conduct of support to civil authorities alters the self-reliance of military organizations on military protocols. Incident response lacks an explicit hierarchical chain of command and exposes often ambiguous or changing relationships among partners at different echelons. In these circumstances, the military faces challenges very similar to those present in coalition warfare, challenges that the military at higher echelons is all too familiar.<sup>104</sup> Breakdowns in centralized communication can jeopardize the already fragile link between the commander's intent and non-military partners' interpretation of how to choose to act on it. Likewise, barring a responsive mechanism for the receiving end to demonstrate through word or deed an understanding of just what the commander intends, intermittent contact with subordinate and adjacent elements tends to increase the need for greater control measures. Then a vicious cycle ensues where lack of communication leads to increasing attempts to send more-specific messages that are increasingly irrelevant to the problem faced by those cut off from a headquarters that is not truly in command of the situation.

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<sup>103</sup> Army doctrine best illustrates this in the concept of mission command. *FM 3-0*, 3-6.

<sup>104</sup> "There is only one thing worse than fighting with allies, and that is fighting without them." Winston Churchill.

## **Fifth Secondary Question: Critical factors of Recognition**

When every second counts and there may not be a second chance to get it right, avoiding the tailspin of inarticulate or incomprehensible messaging commands attention. Sending the right message, however, is less than half of the problem. Stripped of a digital context, an official communication must appreciate three critical factors that place demands on “friendly” authenticity. First, audience expectations can dismiss official messages in favor of the attractiveness of official-sounding false promises. Second, dilution of messages for clarity and brevity sacrifices the presence of “remarkable tracers” in favor of broadly understood phrases. Third, anyone with a rudimentary command of the language can effortlessly imitate the style and syntax of official messages.

Drawn together, these three critical factors undermining authenticity make plain the implications of a breakdown in communication during the initial stages of response to an incident that may be part natural disaster, part accident, and part hostile exploitation. During the most sensitive and vulnerable phase of the generation of a robust and reliable response, an opportunist adversary may seize and retain the initiative in corrupting and co-opting official communications in order to manipulate public response. Bent on ends counter to saving lives, protecting property and the environment, and meeting basic human needs, an entrenched enemy aware of the dynamics of infiltrating public information through the lure of reasonable but enticing plain language in an imitative official style has time on their side.

## **Recommendations: Shoring Up Operational Communication**

Military doctrine must explicitly address three key components and integrate them into the interagency dialogue: social mobilization during disaster response, decentralization of information control, and assessment of audience feedback. The current focus on operational security, information security, and technical interoperability misjudges the relationships that drive the public to promote, accept, or resist official intervention in catastrophic circumstances.

First, accelerate the dynamics of social mobilization. The public is the audience. The public is also the medium. The message matters. Losing momentum where communication translates to action is as perilous as taking no action to begin with and is as negligent as persisting with the wrong action. The rule of law and the pre-incident social fabric are the basis for individual and collective decisions. Normative behavior cannot be assumed under grossly abnormal conditions. The public then shares decisions through pressing and interrupted communication, which itself in turn continues to shape further decisions and further actions. In an environment exceptionally vulnerable to chance contact, interception and intervention in messaging creates a veritable free fire zone for influence.

Second, accept decentralized information control. The affected public will place official or seemingly official language in context with all the other competing and complementing traffic. The public is still the messenger. Reliance on a structured lead agency to craft statements available for a host of additional agencies to spread around hands over the initiative to elements with fewer self-imposed restrictions. Official statements then become dated from the moment they are issued, useful as a check to confirm or deny suspicions and doubts after the fact. More importantly, official statements remain just that: statements. The dialogue among the public takes place elsewhere.

Third, account for feedback. The public will talk as much if not more so among itself than to an official assessing the public. Any official response architecture must build in a recurring operational “listening halt,” a pause with deliberation to adjust and sharpen the senses. Gauging the impact of official communication must move beyond the superficial monitoring of news reports, local polling, and contact with selected representatives. Appreciating the role of technology in altering the nature of social interactions must also examine the prospects of what happens when those technologies that sustain networking among people are disabled. People who maintain their contact with their community primarily through technical means may resort to very unfamiliar behavior when they find they need to knock on a neighbor’s door to find out what is

going on. The public may be asking themselves questions that they were not expecting. Even local officials may find that they do not recognize their own communities during a disaster.

Therefore, engage the public in the debate on disaster response early and often. Joint doctrine and interagency guidance need an open forum to act on the inherent advantages of preparedness and to build the momentum that leverages adaptive responsiveness. The alternative is to practice during the execution of incident response against an unforgiving clock.

## **Section 6. In Conclusion: Challenge and Response**

Time plays an important function in the struggle to accomplish goals that others oppose. Starting conditions can be categorized as proactive or reactive only after action is planned and followed through upon. Therefore, in seizing the initiative at the outset of the crisis, the player that has the ability to *start* something is not necessarily the player that maintains the momentum necessary to *finish* something. However, the conditions of connectivity can play an enormous role in the quality of continued execution. Where adaptation to the environment demands feedback, typically seen in the participative decision and communication structures tied down to accountability and legal restrictions, the opponent with the least demand for feedback enjoys a temporary but marked advantage. If the opponent has no intention of lasting until the tactical endgame, the temporary advantage may make all the difference for meeting strategic goals. Strategic impact may then endure well beyond tactical or operational defeat.

The challenge is not so much to get inside the decision-cycle of the adversary through speed but to get past the entanglements pacing one's own decision-cycle.<sup>105</sup> Rapidity gives way to fluidity. Organizationally speaking, the component that generates decision to action is the communication from one entity to another. Providing information in return (feedback) assists the

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<sup>105</sup> *JP 3-0*, III-3, states that the goal of command is “to **provide the ability to make decisions and execute those decisions more rapidly than the adversary.**” Emphasis in the original.

*understand* and *visualize* elements of battle command. Projecting information for external consumption lies at the heart of the *describe* and *direct* elements of battle command. Addressing the timing challenges of feedback requires intelligence and streamlined decision structures. Addressing the timing challenges of information projection can and should rely on an internal logic to assure both the validity of new messages and the expectation of receptivity amidst a suspicious din.

Current joint doctrine fails to provide commanders with mature and resilient methods to describe and direct an operational level response to sudden-onset contested domestic incidents. The gaps and seams between battle command, information operations, strategic communication, psychological operations, and knowledge management mask an important and overlooked aspect of defense support to civil authority. The logical articulation of official communications may be overwhelmed by the presence of suspicion and paranoia in a sea of audiences, each of which then play a role in propagating the message to other audiences. The subtle exploitation of messages can render cascading effects hidden among overlapping authorities, *each* working under the trust of the public with the best of intentions, *all* caught unaware of the catastrophic consequences they have become carriers for.

Creeping successive adjustments to either joint doctrine or interagency guidance is not the way forward. The institutional and social debate must lift and shift from the traditional issues of operational security, information control, and technical interoperability. The response community must face up to the imposition of a well-composed contestant vying for the public during times of intense distress to the social fabric of communities in the midst of uncertainty. This dark horse has a purpose not to draw the public in but to use the public as a mechanism for drawing and quartering itself. The solutions are neither simple nor tangible. Accounting for what goes bump in the night, however, is a good start. Challenge the existing response architecture.

Halt: who goes there?

## APPENDIX A: Notional Relationship Between Homeland Defense, Civil Support, and Homeland Security Missions

The table below outlines the proposed framework from *JP 3-27* and *JP 3-28*.<sup>106</sup> Clearly defined DOD lead roles are in bold. One can draw the conclusion that the nuclear deterrence strategy of the Cold War remains the sole survivor in the black-and-white delineation of roles and responsibilities. It should be noted that ballistic missile defense is not considered homeland security.

	Homeland Security	Homeland Defense	Civil Support	DoD Role
8. National Guard Title 10 US Code	Yes	Yes	Yes	Lead and/or Support
9. Emergency Preparedness	Yes	Yes	Yes	Varies
6. FAA Support to DOD (NORAD)	Yes	Yes	No	Lead
3. CBRNE Consequence Management	Yes	Maybe	Yes	Varies
5. Maritime Security	Yes	Maybe	Maybe	Varies
2. DOD Support for Disaster Relief and Law Enforcement Activities	Yes	No	Yes	Support
4. Airport Security	Yes	No	No	None
7. National Guard Title 32 US Code	Yes	No	No	None
1. Ballistic Missile Defense	No	Yes	No	Lead
10. DOD/ Community Relations	No	No	Yes	Support

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<sup>106</sup> *JP 3-27*, A-1 and *JP 3-28*, I-3.



## **APPENDIX B: Information Quality Criteria**

*Joint Publication 3-13 Information Operations* establishes the following criteria in Figure I-2, I-3.

Accuracy. Information that conveys the true situation.

Relevance. Information that applies to the mission, task, or situation at hand.

Timeliness. Information that is available in time to make decisions.

Usability. Information that is common, easily understood format and displays.

Completeness. Information that provides the decision maker with all necessary data.

Brevity. Information that has only the level of detail required.

Security. Information that has been afforded adequate protection where required.

These definitions do not adequately account for the framework of players in Defense support to civil authority. Modifications are formulated in Appendix C.

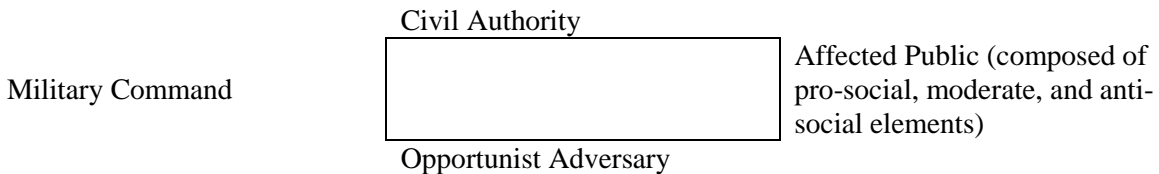
## APPENDIX C: Metric Relationships

The dependent variables defined:

- maturity: trainable, fielded, and commonly understood or understandable
- resiliency: survivable utility across a broad range of environmental disturbances
- resonance: strength of communication to endure alternate messaging
- timeliness: accountable for delay against natural and man-made conditions (*in time vice faster than*)
- feedback: confirmation of receipt/ interpretation of transmission
- authenticity: integrity of message during transmission

maturity	linguistics	
resonance	social connectivity	
resiliency	physical evolution	
timeliness	causality and engineering	connectivity
feedback	information availability	learning/ performance
authenticity	validity	influence

Applied game theory will analyze the relationship of the above dependent variables to the following agents as controlled variables:



The cornerstone relationships of the agents' rules are:

	Joint Doctrine	
Military Command	U.S. Law	Opportunist Adversary
Responsibility	National Incident Management System (NIMS)	Self-Organization
Civil Authority		Affected Public

Three condition sets (environmental futures scenarios) will analyze the relationships of communication based on the independent variable of connectivity:

digitally connected	unpredictably connected	disconnected
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## **APPENDIX D: *How About a Nice Game of Chess?* Areas for Future Application and Further Research**

Simulations reflect reality through a lens. Like a republic, they represent their constituencies through a filter. The analytic wargame is an extension of the initial game theory methodologies developed during World War II. While wargames themselves are harmless excursions into the exploration of possibilities, the lessons derived from them can in fact have catastrophic consequences.

The conclusions drawn from the logical interrogation of two documents, two historical artifacts representing the institutionalization and socialization of processes for both decision-making and decision-sharing, can and should be subject to critique. Areas for future research should take the basic construct outlining the dynamics of resistance and the analog logic of communication during a digital blackout and test historical and hypothetical scenarios.

Rather than relying on the monolithic utility of the National Incident Management System as a one-size-fits-all winner-take-all rule set, a coherent system for operational communication can be designed around a functional ability to absorb and adapt component subsystems. Similar to the distribution of paper signal operating instructions, or SOIs, official incident responders should explore the potential of establishing normative methods of evaluating communications against a flexible subset of “analog metadata.”

Methods of non-digital authentication protocols, both for encrypted and unencrypted messages intended for audiences internal, external, and lateral to the sending organization, should be considered in light of the operational environment described in this work.

Finally, the fight for the initiative at the outset of a contested domestic incident must allow for a nuanced understanding of the risks inherent in “sleeper cell” adversaries capable of trading strategic patience for tactical advantage. Rapidly losing the initiative as official response architectures rebound to take advantage of adaptation, and entrenched adversary need not fight to win so much as fight to hurt and melt away. Expanding the principle dynamics of domestic

incident response as discussed here to other conflict environments may also better prepare commanders suddenly faced with the unexpected failure of digital connectivity.

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