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## Systems Theory and Military Leadership

Lisa Livingood

**Arthur D. Simons Center**  
*for Interagency Cooperation*

Fort Leavenworth, Kansas

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## **Systems Theory and Military Leadership**

**by Lisa Livingood**

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# Introduction

**H**ow do you think about the world? Do you perceive an environment with coexisting, complex systems that move between instability and stability? Do these systems intertwine, overlap, and collide? And, are they comprised of subsystems that include networks of actors exhibiting cycles and patterns of behavior? Perhaps, you perceive the environment as a *complicated* system filled with subsystems and parts (nodes) that have specific, independent functions.<sup>1</sup> Possibly, you see yourself living in a simple world where you wake up, go to work, and explain every action you observe or experience through direct causality—including human behavior. Or maybe, your experience of the world is a combination or progression of each of these realities.<sup>2</sup>

The way we understand and think about our environment matters. As delineated in complexity science, *complex* is not synonymous with *complicated*. In the absence of an education that provides a lexicon and means of thinking (framework) about complexity, professionals may articulate understanding of an observed environment using simple models. While these simplified models may explain many aspects of our lives, they can also distort the scientific information to the point where parts of the causal story are lost or misconstrued.<sup>3</sup> The importance of this possibility cannot be overstated within a combat environment. A military commander cannot ethically or responsibly put his subordinates in harm's way without working rigorously to observe, research, understand, and describe the local causal dynamics in which his military forces and partners will intervene.

Joint doctrine, explicitly, and Army doctrine, implicitly, recommend that military commanders and staffs exercise systems thinking in operational planning and execution. However, current military doctrine fails to fully explicate and apply a complex systems perspective. The question arises: Does any senior military commander use complex systems theory to understand, describe, and intervene in the operational environment? To this end, I analyze the methods of Lieutenant General (LTG) David M. Rodriguez, Commander of International Security and Assistance Force Joint Command (IJC), to articulate his understanding and interventions in Afghanistan.

This analysis reveals that complex systems theory suffuses how Rodriguez's visualization of his mission to stabilize Afghanistan. I show how Rodriguez's understanding, descriptions, and

**...current military doctrine fails to fully explicate and apply a complex systems perspective.**

interventions follow a systems approach characterized by complex stakeholder interactions depicted by nodes and linkages. The implications for this research are significant for scholars, doctrine writers, and military leaders responsible for achieving national security objectives against hybrid threats and in cooperation with interagency, international, and host-nation partners.

## **Military Doctrine and Systems Theory**

Joint and Army doctrine reinforce the idea that leaders must understand systems theory via operational design, Army design methodology, and definitions of leadership. “Strategic leaders, like direct and organizational leaders, process information quickly, assess alternatives based on incomplete data, make decisions, and generate support. However, strategic leaders’ decisions can affect more people, commit more resources, and have wider-ranging consequences in space, time, and political impact” than those of organizational and direct leaders.<sup>4</sup>

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Army leadership doctrine (Army Doctrine Reference Publication [ADRP] 6-22) emphasizes both the far-reaching consequences of a leader’s decisions and implicitly the environment. “Organizational leaders usually work with more complexity, more people, greater uncertainty, and a greater number of unintended consequences. Organizational leaders influence people through policymaking and systems integration in addition to face-to-face contact.”<sup>5</sup> The language of ADRP 6-22 indicates the use of systems and social systems theory as a baseline. However, it does not explicitly state how a military leader should think about the terms “complexity,” “uncertainty,” “unintended consequences,” or “systems.”

Joint doctrine and Field Manual (FM) 3-24, *Counterinsurgency* go further. These publications require a commander and his staff to use systems thinking within operational design methodology.<sup>6</sup> However, only FM 3-24 contains a definition of what the term “systems thinking” means:

Systems thinking involves developing an understanding of the relationships within the insurgency and the environment. It also concerns the relationships of actions within the various logical lines of operations (LLOs). This element is based on the perspective of the systems science that seeks to understand the interconnectedness, complexity, and wholeness of the elements of systems in relation to one another.<sup>7</sup>

The authors of FM 3-24 created a definition of systems thinking as they believed it applied to the military and an operational environment. While a contestable definition, it is the only attempt to define systems thinking in any Joint or Army doctrine, and is not included in any Army or Joint terms or definitions list.

The 2012 Army Doctrine Publication (ADP) 3-0, *Unified Land Operations* and ADRP 5-0, *The Operations Process* profoundly reshapes language and terminology, and thus, the way the Army sees both itself and warfare. Except for FM 3-24, nearly all language specifically referencing “systems thinking” had been removed from Army doctrine. In contrast, these publications add limited descriptions of some ways to think about social interaction. Currently, military practitioners, educators, and scholars strive to understand these changes and their implications.

Some argue such guidance, when combined with political, military, economic, social, infrastructure, information, physical environment, and time (PMESII-PT) and center of gravity (COG) analysis leads a staff to a sufficient understanding of the operational environment. Others argue that operations, planning, and intelligence doctrines “do not provide the information necessary to make succinct decisions about military action in the realm of conducting a full range of military operations. The current Joint and Army intelligence doctrines lack the framework needed to analyze sociopolitical variables in order to piece together the complex nature of human interaction, social organizations, and their roles in the operational environment.”<sup>8</sup>

Further, Whitfield goes beyond PMESII to explain the limitations of current adversary focus in operational analysis and the need for an analysis framework that examines interactions within and between human systems.<sup>9</sup> The Joint and Army planning communities need a nuanced understanding of systems theory, and a lexicon that translates systems theory into terminology that troops understand.

Army narratives, culture, and doctrine continue to embrace direct causality, simplicity, enduring principles of war and a linear, hierarchical understanding of the Army and its associated social networks.<sup>10</sup> Military educators continue to guide students to look for the COG, defined as “*the* source of power that provides moral or physical strength, freedom of action, or will to act.”<sup>11</sup> From a complex systems perspective, no such center (one definable source of power existing across all echelons of war that if attacked will decisively defeat an enemy) exists, with the exception of complete genocide. In contrast, some supporters argue COG analysis is relevant across the strategic, operational, and tactical levels of warfare and to all Army operations—except for insurgency, counterinsurgency, revolution, unconventional warfare, irregular warfare, stability operations,

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**...“joint doctrine needs to break from Clausewitz and develop new definitions of the center of gravity.”**

peace enforcement, peacekeeping operations, wide area security,<sup>12</sup> relief or reconstruction efforts, security cooperation, or engaging mission command<sup>13</sup> as a strategic leader. Yet, these efforts comprise the majority of Army and Joint operations.

Others support the idea of a COG only when executing combined arms maneuver at the tactical level of warfare. Within these limitations, a COG analysis may make sense. Even so, such an argument does not eliminate the need for systems thinking, as combined arms maneuver does not occur in isolation. Instead, it occurs among unified action partners within the context of U.S., allied, coalition<sup>14</sup> and partner political objectives, public opinion within the United States, and as a portion of activities across the phased planning spectrum.<sup>15</sup> Each of these arenas requires an understanding of the actors involved, how and at what level they are connected, and the ways the connections influence how our enemies, our partners, and we fight. Fundamentally, our strategic and operational realities reflect a complex world of living beings that adapt and do not maintain one single source of power, one COG.<sup>16</sup>

As a compromise with existing doctrine and military scholarship, many argue that an operational environment may have many COGs intertwined within co-existing systems.<sup>17</sup> Eikmeier writes, “joint doctrine needs to break from Clausewitz and develop new definitions of the center of gravity.”<sup>18</sup> He continues by arguing:

SoS [system of system] nodal analysis, while a useful technique for providing insights into understanding a system, is not a practical method for identifying the COG and should be replaced with the easier to use “ends, ways, and means” method. Indeed, no method, no matter how detailed, will produce truly scientific solutions. However, a disciplined and easily understood process such as the ends, ways, and means method can more efficiently meet the intent of JP 5-0.<sup>19</sup>

Eikmeier writes that determining a COG involves a holistic viewpoint and systems theory. Further, he writes that “systems theory covers a lot of ground,” and offers Arthur Lykke’s strategic framework as a simple solution. Lykke’s framework of three simple questions—What is the desired end state? How can it be achieved? What resources are required?—is systems theory boiled down to its essential elements in support of COG analysis.<sup>20</sup>

Although Eikmeier initially appears to argue for an understanding of systems theory, he fundamentally contends that it can be better consumed by boiling it down into the ends, ways, and means model. In contrast, I argue that while complex systems theory could and should be used in an approach to ends, ways, and means, a commander or

staff officer not educated in systems theory concepts or vocabulary will have difficulty conceptualizing, rigorously analyzing, and attaining an understanding of the operational environment.

Eikmeier's suggestion and disregard for Clausewitz does not reflect a current, multi-disciplinary understanding of systems theory or the unified action environment. In fact, his ideas seem more in line with a Jominian approach to warfare where one uses "clarity, logic, precision, and testable criteria" to determine the "true COG."<sup>21</sup> Jomini also proposed his theory in hopes of moving warfare into a precise science that his readers could easily grasp and popularize. Jomini argued that as his "Principles of War" were scientific in nature, they would endure throughout time and all levels of war... with the exception of civil, religious, national, or wars of opinion.<sup>22</sup>

While Eikmeier's concept of the COG, Jomini's "Principles of War," and Lykke's "Ends, Ways, and Means" models<sup>23</sup> provide useful ways of examining some situations, none of these approaches inherently considers the complex systems theory concepts of emergence (unintended consequences), snapshot time (the understood time cycle or battle rhythm internal to a specific system at a given moment in time), contemplative time (reflection on the interaction of multiple systems internal time cycles and the resulting patterns),<sup>24</sup> feedback loops (the interaction of actor tendencies and potentials feeding back into the system), or systemic causality (patterns of interactions within or between systems that repeatedly lead to a type of outcome). Unfortunately, linear analytical approaches do not provide a framework to rigorously research and analyze the complexity of human social networks or multiple interacting systems.

To understand why these approaches pose a problem, one must consider various levels of causality and complexity. When a person assumes direct causality, Lykke's ends, ways, and means model works well. Imagine a person wants to drink a cup of coffee (an end). He has five dollars (his means) and decides that as he does not have a coffee pot, he will walk to Starbucks and buy a cup (a way). If he executes this way, using his means, he will obtain his end (linear causality). However, Starbucks may be closed, the workers may be on strike, or their machines may be broken. Or, the coffee consumer might get hit by a car, a bomb might explode, or the coffee he desired might be banned as an illegal stimulant. I argue that the "Principles of War," the "Ends, Ways, and Means" model, COG analysis, and revised doctrine fail to account for the central role actors and their connections play in shaping the operational environment.

The reality of the operational environment requires responsible commanders and staffs to recognize causal complexity. Military scholars and doctrine direct commanders and their staffs to use

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systems thinking, but fail to define the term or teach the application of complex systems theory. Further, the tools doctrine provides—such as PMESII-PT; area, structures, capabilities, organizations, people, and events (ASCOPE), SoS, or COG analysis—should help the military practitioner gain a better understanding of the operational environment. However, these tools break systems into parts that act as separate categories, rather than overlapping, interacting, adaptable networks that shift, change, and sometimes feed back into each other. Joint doctrine is right—commanders and staffs need an educational base in complex systems theory as applied to multiple human domains. Military leaders are required to act and intervene in unfamiliar environments not of their choice—but in support of political objectives. All such actions indelibly alter the lives of those intervening and those living in the environment of intervention.

With the gravity of this responsibility, commanders seek to *understand* their current environment, *visualize* progression toward the conditions their political leaders broadly direct them to achieve, and *describe* those visualized paths to their partners and subordinates. Imbedded throughout this work—carefully examined or hidden in heuristics and assumptions—is causal logic. If a person does not have a base in systems theory and a taxonomy of causal logic, he will likely neither have the means of thinking rigorously about or articulating accurately the “whys” and nuances of actor interactions in the environment.<sup>25</sup> Without systems theory, planners tend to use doctrinal processes and tools that may lead to planning hubris and over-simplified views of operational reality.

# Commander IJC (COMIJC) Lieutenant General David M. Rodriguez Case Study

Most military strategists and planners wish to shape their efforts from the best possible understanding of current conditions. Thus, as doctrine directs, commanders and staff officers should use systems thinking when working through design and the Army Design Methodology. For the last six years, graduates of the Army's elite School of Advanced Military Studies have been educated in systems theory and subsequently served as staff officers supporting high-level commanders. However, the question remains: Does any senior level commander use complex systems theory when working to understand, interact with, and intervene in the operational environment? This paper is the result of research that used a qualitative analysis framework and a data set, N of 1, approach to examine this question. This research focuses on the 2009–2011 COMIJC Lieutenant General David M. Rodriguez as a case study, and attempts to answer the following questions:

- Does Rodriguez describe his environment in terms of complex systems influenced by interwoven networks of people, depictable as nodes and linkages?
- Does Rodriguez describe his operational arena in terms of actors and connections?
- Does Rodriguez describe patterns of interaction between actors and/or groups of actors?
- Does Rodriguez describe systems and their internally and externally interacting time structures?
- Does Rodriguez describe types of causality to include systemic causality, patterns of emergence, and feedback loops?

To examine these questions, I created mind maps by applying narrative and textual analysis to published speeches, written text, and military briefings. Rodriguez consistently maps friendly and enemy actors and their connections. And, while he describes his understanding of his mission and operational environment to diverse audiences, Rodriguez maintains consistent, though tailored, descriptions of the actors and connections.

These maps *only* depict Rodriguez's conception of the actors and their connections. And, while these maps show that Rodriguez visualizes and describes his environment using systems thinking, further evidence of such thought must be, and was, sought in the

**Does any senior level commander use complex systems theory when working to understand, interact with, and intervene in the operational environment?**

text of his speeches, slides, and other authored publications. In these, Rodriguez narrates the relationships between individuals, organizations, and networks within systems. He identifies actor behavior tendencies which create feedback loops (friendly and enemy) that move through, interact with, and shape the Afghan system. Last, he describes his, his partners', and his subordinates' missions in terms of strengthening friendly networks, diminishing enemy networks, and shaping feedback loops (and associated unified action partner behavior) to support mission objectives.

## Perspective 1

Eighteen months ago, we wrote the first country-wide operational-level comprehensive campaign plan that included our **Afghan partners**. That combined team of both **ISAF** as well as the three security ministries—the **minister of interior, the minister of defense, and the national director of security**—all put that plan together. Now one of the important concepts was to concentrate and synchronize our efforts—where it was most important: **population centers, commerce routes, and areas of economic potential**. . . Now the **Afghans**, they were the ones who told us and guided us to those key areas, based on their knowledge of the human and the physical terrain of Afghanistan. The process started a yearlong effort to get everybody on the same sheet of music, synchronizing efforts in time and space.<sup>26</sup>

## ANALYSIS

Rodriguez describes the team that worked together to develop Campaign Plan Operation Omid in July of 2009 and identifies the following actors: “I” (IJC); “we” (the combined or partner team at snapshot time)<sup>27</sup>; ISAF; Minister of Interior; Minister of Defense; National Director of Security; and “they” (Afghans who guided population centers, commerce centers, areas of economic potential). Rodriguez further identifies “interwoven networks of people acting within a range of arenas” via his focus on physical areas of concentrated human interaction (population centers, commerce routes, areas of economic potential) and the broader context of “human terrain.”

He also emphasizes the need for synchronization among the elements of the partner team: “The process started a yearlong effort to get everybody on the same sheet of music, synchronizing efforts in time and space.”<sup>28</sup> In working to synchronize the elements of the partner team, Rodriguez uses a systems concept of time as a tool of

analysis and intervention.

### **DEMONSTRATED EVIDENCE OF SYSTEMS THINKING**

- Map of actors and connections (nodes and linkages).
- Emphasis on synchronization between partners' discrete systems.
- Focus on physical areas of concentrated human (actors) interactions (connections).

## **Perspective 2**

This morning I will tell you about where **we've come from over the last 18 months** and give you a sense of where we are headed. Eighteen months ago, we wrote the first country-wide operational-level comprehensive campaign plan that included our Afghan partners... Now, we just finished a review and update of that plan that we began last year. And there is **now expanded participation** in those planning efforts. So the **U.S. and U.K. embassies, other civilian players**; as well as, very, very, importantly, the **Afghan ministries—civilian ministries of the independent director of local governance and the minister of rural rehabilitation and development** also participated in that plan—altogether helping to bring better coordinated effects to a common plan.<sup>29</sup>

### **ANALYSIS**

Rodriguez describes the changing dynamics of the planning team for Campaign Plan Omid in terms of actors and their connections. He describes significant expansion (from 2009–2011) of the partner team involved in planning Campaign Plan Omid. Rodriguez emphasizes “expanded participation in those planning efforts,” which indicates both an increased number of actors and connections in the Omid partner team network.

### **DEMONSTRATED EVIDENCE OF SYSTEMS THINKING**

- Map of actors and connections (nodes and linkages).
- Increased number and diversity of actors involved resulted in improved outcomes through increased diversity of thought, expertise, and buy-in.
- Through increased connection, improved synchronization between partner team systems pursuing unity of effort, unified action, and unity of command.

### Perspective 3

Stage 1 and 2 are combined and mapped to assist in comparing the partner team networks of 2009 and 2011 Rodriguez refers to. This demonstrates the maturing of his understanding of the environment’s strategic complexity.

#### MIND MAP

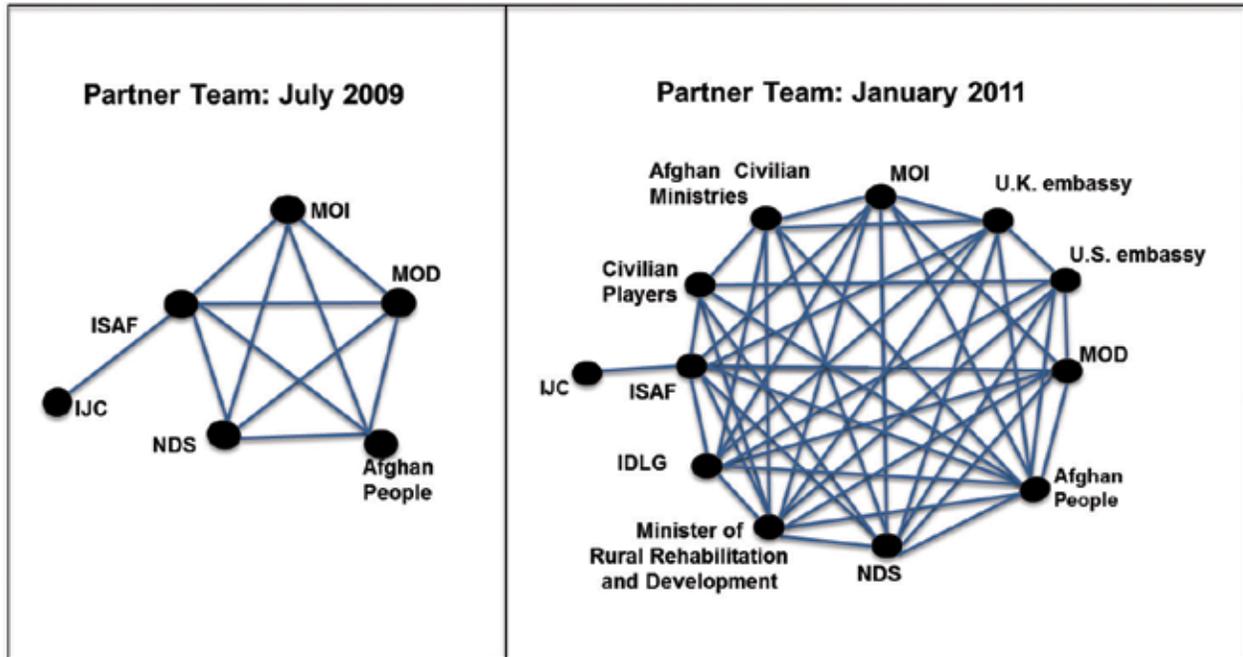


Figure 1

#### ANALYSIS

Rodriguez illustrates the increased number of linkages connecting actors and the resulting stronger organization. He also narrates that the increased number of actors and the types of actors “helped to bring better coordinated effects to a common plan.”<sup>30</sup> At the most basic level this indicates that he sees the environment in terms of actors and their linkages.

Rodriguez’s 3<sup>rd</sup> Infantry Brigade Combat Team Commander, Colonel Toner, articulates similar themes in a U.S. Army Counterinsurgency Center interview: “Continued realization of political primacy in internal operations is crucial to legitimizing governance. We found that integrating our provincial and district leaders into the planning and executing of our operations to be extremely useful to reinforce political primacy and enhance the legitimacy of the government.”<sup>31</sup> Like Rodriguez, Toner also maps actors and their connections when describing his operational

environment and emphasizes the value of diverse actors working for a unity of effort:

One of **our** key programs was our government “outreach” program known as 1774. This brought the **governors** and the **province line directors** out to the **districts** to meet with the **elders** and/or conduct evaluations of the **district governors/staff**...This program was hugely successful and popular with the **people**—in fact the **governors** started to invite **parliamentary leaders** from Kabul to participate. This outreach enhanced the credibility and stature of the provincial governmental leaders and often enabled them to solve security based problems.

Finally, after bolstering the key aspects of the state, **we** used **agriculture** and **economic development** to deny the **insurgents** the base of discontented and **disenfranchised people** to support his [sic] efforts—this was necessarily done “by, with, and through” **GIRoA** [Government of the Islamic Republic of Afghanistan], as progress in these areas served as the most tangible proof that GIRoA was on its way to becoming a government in both word and deed. Our great **State Department** and other **civilian representatives** supported these efforts. I continued the “Board of Directors” [BOD] concept and sat with the **DOS** [Department of State], **USAID** [United States Agency for International Development], and **USDA** [United States Department of Agriculture] senior representatives on the Brigade BOD.<sup>32</sup>

## **DEMONSTRATED EVIDENCE OF SYSTEMS THINKING**

- Rodriguez describes the planning environment in terms of actors and their connections.
- Rodriguez emphasizes increased number of actors, diversity of actors, and increased number of connections.
- Desirable outcomes resulted from adapting the campaign plan to reflect changes in synchronization between partner systems and expanded unity of effort—more connected and diverse partners.

## Perspective 4

Rodriguez then goes on to describe how he viewed his personal role as the ISAF commander, and the connections and relationships he must establish, build, and maintain.

### MIND MAP

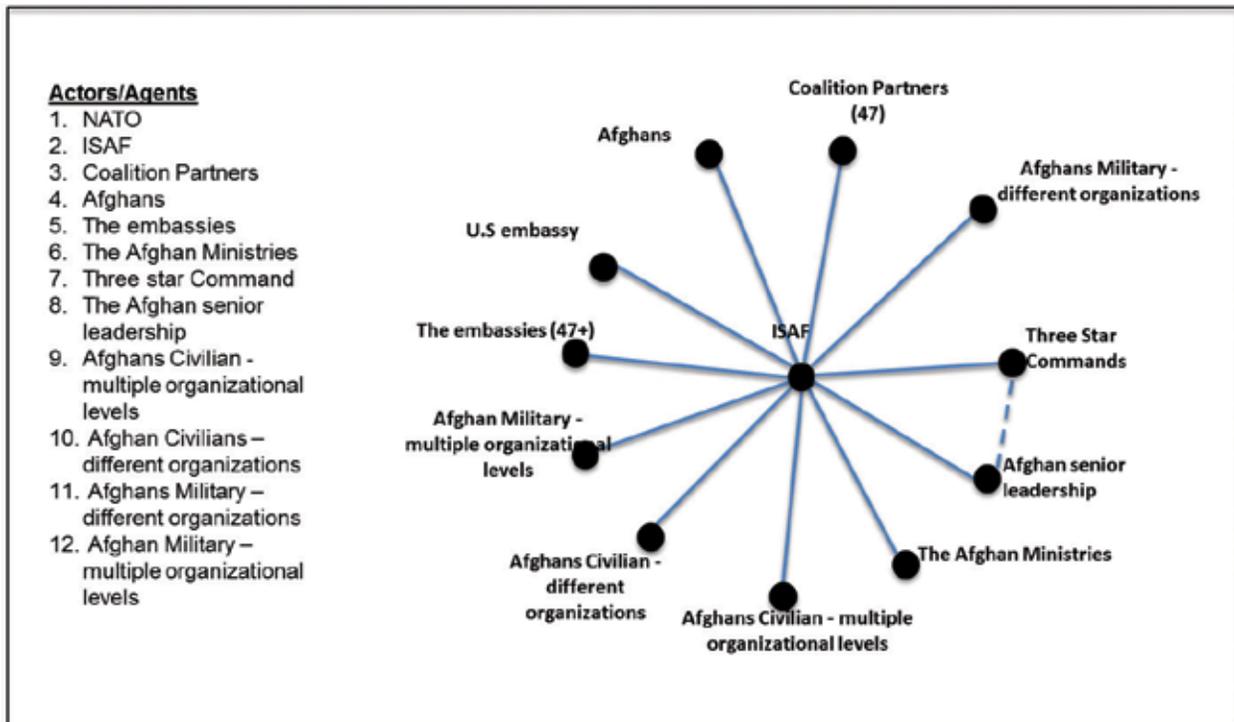


Figure 2

### ANALYSIS

Rodriguez continues to view each portion of the Afghan system and his operational environment in terms of actors and connections. While many of the connections he describes overlap with the partners listed in Stage 1, Rodriguez focuses on the relationships he must maintain and build as a function of his role as the ISAF commander, as opposed to his role as a lead planning partner.<sup>33</sup>

### DEMONSTRATED EVIDENCE OF SYSTEMS THINKING

- IJC depicts the ISAF commander's local dynamics (strategic echelon) in terms of actors and connections.
- This map depicts the network of relationships the ISAF commander must actively build and maintain across 47 nations of the coalition and their associated civilian governmental and nongovernmental organizations and joint militaries.



understanding of his commander's, his own, and his subordinates' operational environments in terms of complex systems influenced by interwoven networks of people acting within a range of arenas depicted as nodes and linkages. Each echelon of the ISAF structure has its own set of interacting systems that link and overlap with other ISAF organizational echelons. Though each regional command and its subordinate commanders operate at the tactical organizational echelon, its networks cross all boundaries of society. The actors that comprise each regional command influence the Afghan system and feed back into the success or failure of mission objectives:

**Commanders** out there on the ground have to make decisions every day about how to allocate their precious resources of time and effort. They must ensure the proper weighting between taking a fight to the **enemy** and strengthening **communities** by building the **capacity** and **connection** of that good **government** to the reliable **security forces** and to the **people**. And this trinity results in a trinity of popular mobilization, and it works.<sup>35</sup>

**...Rodriguez again links commanders to communities, government, security forces, and the people. Separately, he links those same commanders to the enemy (kill, capture) as an independent system of interactions.**

Here, Rodriguez again links commanders to communities, government, security forces, and the people. Separately, he links those same commanders to the enemy (kill, capture) as an independent system of interactions. Finally, he connects these multiple networks of people through the commanders and the choices they make—which feed back into the Afghan system and influence mission success or failure. Within figure 3, not only strategic leaders, but also operational and tactical leaders must think of their environments in terms of actors (unified action partners) and their connections. One of Rodriguez's tactical commanders holds a similar perspective:

If we are accomplishing the first two key tasks of security and partnership, we are **separating**; if we are accomplishing the second and third key tasks of partnership and governance, we are **connecting**; and if we were accomplishing the last two key tasks of governance and development, we're now **transforming**.<sup>36</sup>

Indeed, via short explanation, this squadron commander articulates that he thinks of the enemy in terms of “separating” (diminished connection) and friendly systems (unified action partners working for security, partnership, governance, and development) in terms of “connecting.”

In discussing partnership, Rodriguez emphasizes the importance of **unity of effort**, where there is not unity of command. “We have managed to guide the Afghan security forces to focus in the right

places, and we have gained the support of civilian actors to direct their terrific people and programs.”<sup>37</sup> According to Rodriguez:

The best chance of stabilizing Afghanistan is to mobilize the people to demand the fulfillment of their modest requirements. Now, this is dependent on the **connection** of the good government to the reliable security forces and to the people. And when all three legs of that stool or of the trinity work together, from the bottom, with a little help from the top, we will squeeze out enough of the enemies of the Afghan people to build sufficient stability for Afghanistan in the future.<sup>38</sup>

Here again, Rodriguez indicates that mission success depends upon unified action partners actively building connections between actors.

#### **DEMONSTRATED EVIDENCE OF SYSTEMS THINKING**

- Rodriguez maps the actors and connections he sees at each organizational echelon.
- Rodriguez describes the connections he expects regional commanders to build and maintain within and between partner organizational echelons.
- Rodriguez articulates mission success as dependent on expanding the number of friendly actors, the number of connections, and the strength of the connections in friendly networks.

**Rodriguez indicates that mission success depends upon unified action partners actively building connections between actors.**

## Perspective 6

In Perspective 5 (figure 3), Rodriguez describes the regional commanders' operational environments in terms of actors and connections. In Perspective 6 (figure 4), he focuses on the seams in a regional command's operational environment.<sup>39</sup>

### MIND MAP

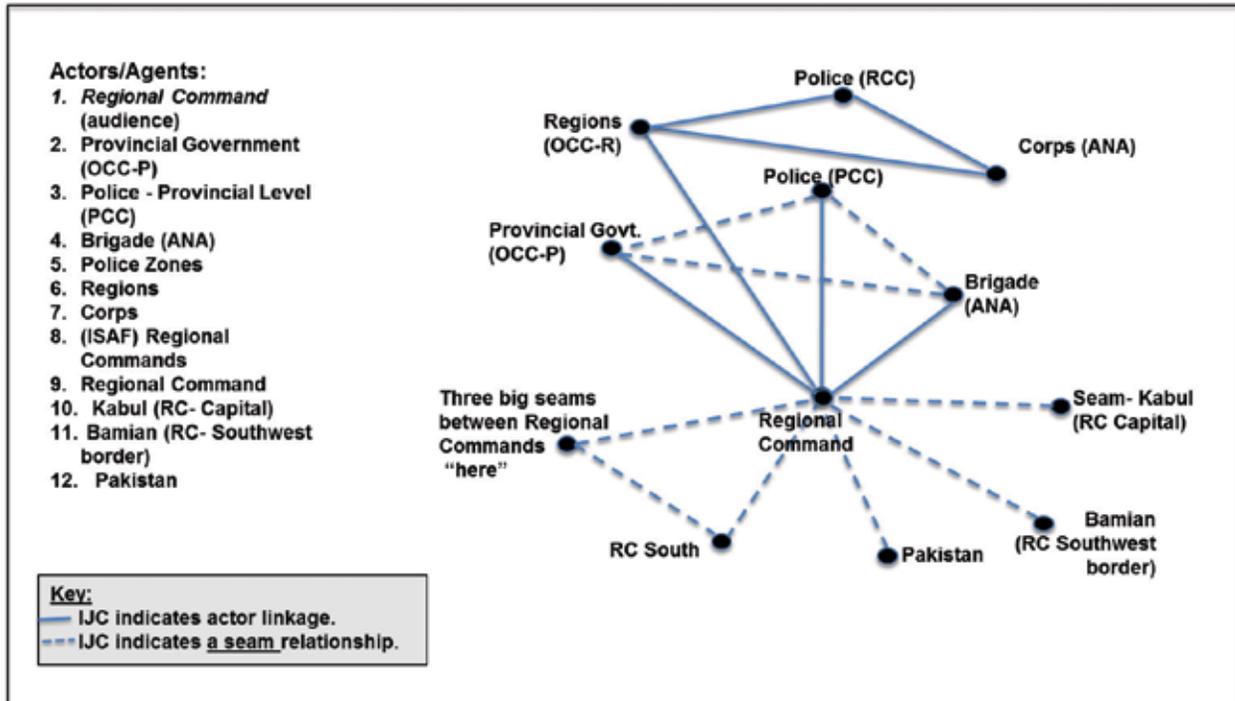


Figure 4

### ANALYSIS

Scaling in this manner adds granularity to the commander's situational awareness and intent. Further, it allows the staff officer or commander to understand specific combinations of actors and how they connect and examine the context of the relationships in the specific arena.

## Perspective 7

Insurgency creates a wedge between the government and the people via parallel hierarchies, armed propaganda, and responsive but merciless justice. [It] utilizes sanctuary in Pakistan to coordinate attacks and undermine the GIROA. Poor leadership aggrieves the population; ineptitude and corruption manifest in government officials, Afghan National Police, and judicial officials. [It] erodes the trust of Afghans through malfeasance and greed. Criminal patronage networks subvert legitimate governance and prey on the people. [They] thrive on the influx of poorly managed aid dollars and imbalanced governance, development, and security efforts. Bad international community practices alienate people, undermine traditional leaders, feed malign actors [and] networks, and ignore economic conditions, fair prices, and fair salaries at local levels. [They] weaken strategy and relationship(s) with Afghans through civilian casualties.<sup>40</sup>

### ANALYSIS

Rodriguez identifies enemies of the Afghan people and describes them in terms of agency and connections depicted as nodes and links.

He describes some actors as maintaining multiple roles. These roles tie actors into multiple networks and may link enemy networks into friendly networks (e.g., corrupt leader and Afghan National Police officer; Pakistan as a partner nation and, in ungoverned spaces, provider of insurgent sanctuary).

Rodriguez describes part of his strategy as breaking or redirecting the linkages in the enemy networks, while partners “strengthen the connections” of friendly actors. A good example of this balance is Rodriguez’s previous description of the choices commanders must make between applying time and resources to “take the fight to the enemy,” and building the networks of actors and connections Rodriguez argues moves the Afghan system from insecurity to stability.<sup>41</sup>

Drawing from interviews of Rodriguez’s division, brigade, battalion, and squadron commanders, many of his subordinate commanders understand, articulate, and apply Rodriguez’s mental model of the operational environment:

Our battlefield is the Afghan people. We dominate our partnered area of operation through the support of the local populace, gained with **positive interaction** at every

**Rodriguez identifies enemies of the Afghan people and describes them in terms of agency and connections depicted as nodes and links.**

opportunity. These efforts include **combat actions** to defeat enemy forces, reconstruction efforts to mend the ravages of thirty years of war, and fostering governance and security to bring stability to our partnered area. It mandates a deliberate link between combat operations and civil military operations, done by design in every operation. **If we fail to own the population, then we give the enemy an endless source of recruits, sanctuary, and logistical support. If we succeed, we gain intelligence on the enemy, deny him sanctuary and support and limit his recruiting base.** Do not underestimate the complexity of this battlefield...Win the trust and confidence of the people; this is how we will force our enemies out of the area of operations.<sup>42</sup>

This Marine commander, like Rodriguez, describes his operational environment and mission in terms of actors and their connections. Further, he describes the feedback loops of positive and negative systemic interactions. He concludes that success in the area of operation rests on positive interaction with the local populations.

Colonel Toner highlights that “the mission of 3<sup>rd</sup> Brigade Combat Team was to execute a counterinsurgency strategy to **separate the enemy from the population**; achieve effects with the population through their security forces and government; and transform the environment into one where the enemy can no longer operate.”<sup>43</sup>

Separating the enemy from the population diminishes or breaks the links between actors. Thus, the size of a network decreases. This idea ties into Rodriguez’s method of increasing the size of friendly networks in terms of physical terrain occupied and number of actors, while simultaneously decreasing the enemy networks structural and geographical size.

**Separating the enemy from the population diminishes or breaks the links between actors. Thus, the size of a network decreases.**

## Perspective 8

Our first foray using this strategy was down in the central Helmand River Valley, a coordinated civil-military effort on the part of both the international community and the Afghan partners... While there were almost immediate security effects through the partnered operations that we conducted there, the Afghans, supported by the international community of course, had a **tougher time building government capacity in the wake of the security gains.**<sup>44</sup>

### MIND MAP

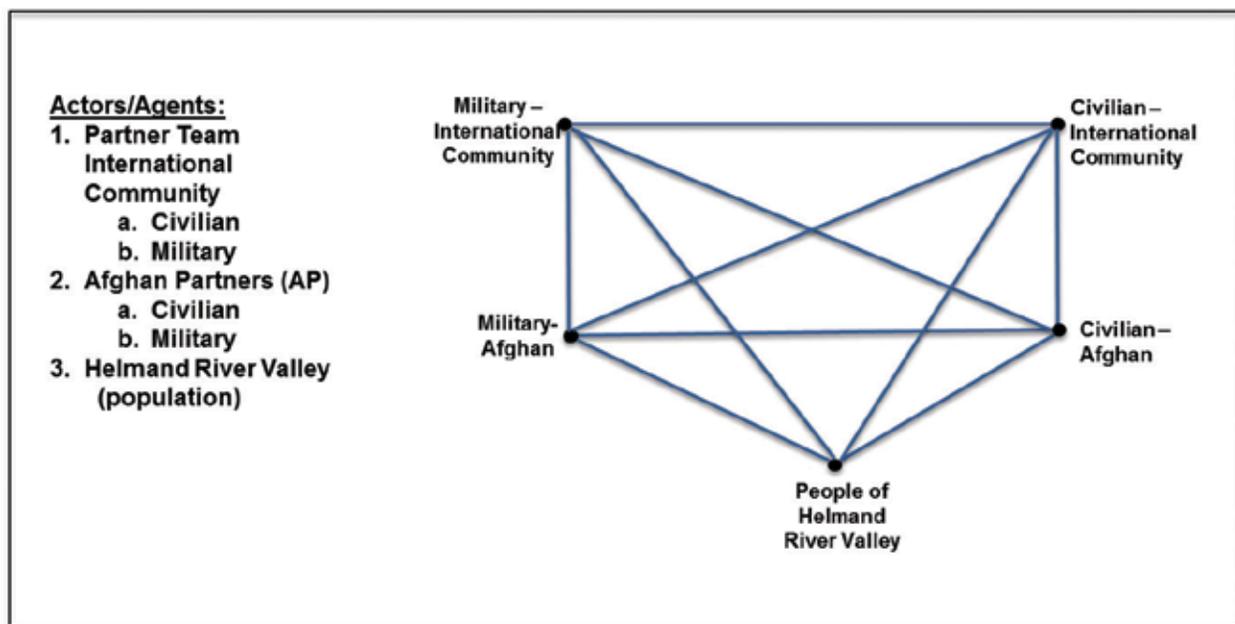


Figure 5

### ANALYSIS

Rodriguez describes the Operation Omid unified action partner team in terms of actors, their connections, and the outcomes of their interaction with the population of the Helmand River Valley (i.e., “tougher building government capacity in the wake of security gains”). He identifies agents within the partner team as civilian, military, international, and Afghan. Beyond the four identified systems that comprise the partner team in this vignette, Rodriguez identifies the security effect subsystem, the building government capacity subsystem, and the pre-existing Helmand River Valley system.

Next, the Partner Team began work to move Operation Omid to the next location, Kandahar.

## Perspective 9

The partnered team learned some significant lessons during those operations that they were able to apply in the summer and fall of 2010 in Kandahar City and its environs....Several of these lessons included the need for prior planning to prepare government activities in advance.<sup>45</sup>

### ANALYSIS

Using a map similar to Perspective 8 (figure 5), Rodriguez again describes the Operation Omid unified action partner team in terms of actors, their connections, and the outcomes of their interaction with the population of Kandahar City.

Further, Rodriguez identifies the security-effect subsystem, the building government capacity subsystem, and the pre-existing local system. Through this, he has a means of thinking about how these systems interact internal to the Operation Omid partner team, and the sequence in which the partner team sub-systems interact with the pre-existing local system (Helmand River Valley or, now, Kandahar). Rodriguez pursues this line of thinking into “experimental intervention,” such that when the operational partner team moves to its next location (Kandahar City) the “security-effect subsystem” is resynchronized (internal stabilizing of subsystems) with the building governmental capacity subsystem in an attempt to mitigate “the wake of security effects.”

In a speech at the Center for a New American Security, Rodriguez expands the discussion:

**We spend the bulk of our military effort on degrading or destroying insurgent infrastructure to include the leadership.**

With regard to sequencing and prioritizing the lines of operation that the plan has made very, very explicit—as plans always intend to do—it has attempted to correct some of the challenges of the past, some practices that actually made the situation worse...Now we’re much better off. We spend the bulk of our military effort on degrading or destroying insurgent infrastructure to include the leadership. But we also ensured that **the planning of local security and good governance begins early enough to be inserted and follow on as soon as the conditions allow.**<sup>46</sup>

Here Rodriguez highlights that the interactions of the security, governance, and local systems are not a linear process of forward advance, despite some efforts to make them so. First, prepare—build connections with local actors to plan local security and good governance. Second, insert actions and “follow on as soon as conditions allow.” What Rodriguez portrays above is neither clear

nor precise. Instead, as he indicates, it is a messy, intertwining Clausewitzian triangle of complex governance, public, and security systems.<sup>47</sup>

## Perspective 10

We all had to improve the complementary effects of the conventional and special operations forces. The Minister of Interior learned some lessons on recruiting and training police forces, which were much more effective in the follow-on operations. And we all learned that building local political bodies that represent the people is an iterative process. And if more and more people are mobilized, the representative councils become more representative and more effective.<sup>48</sup>

### ANALYSIS

Rodriguez describes the Operation Omid-Kandahar environment in terms of actors, their connections, and the outcomes of their interaction with the population of Kandahar City. He indicates the following efforts to improve the unified action:

- “Improving the complementary effects” between special and conventional force systems.
- The Minister of Interior engaged in new recruiting practices (connection with population) and police training practices.
- Friendly networks expand via new members.
- Actors within the network become stronger via training and just treatment.

Rodriguez’s narratives that accompany figure 5 and his other planning methods collectively depict the need for revised sequencing between the partner team’s “security-effect” subsystem and the “build local governance” subsystem. Each of the partner team’s systems includes subsystems (security effects, building governance, rule of law, etc.) layered with subsystems (special operations forces and conventional forces, air and land forces, Afghan National Police and Afghan National Army, etc.) with discrete networks of people, each having its own punctual time (in this case length of time needed to execute mission tasks) that must be synchronized within the larger partner team system. In such a situation, one might find it useful to apply Perez’s Modified Institutional Analysis Development Framework<sup>49</sup> or Whitfield’s Intelligence Fusion Paradigm.<sup>50</sup>

The partner team subsystems and the local indigenous systems each have their own internal speeds. After the partner team subsystems interact with each other and the next local system, the

**Rodriguez’s narratives... and his other planning methods collectively depict the need for revised sequencing between the partner team’s “security-effect” subsystem and the “build local governance” subsystem.**

commander has the opportunity to reflect on the interactions and outcomes and plan his next action (experimental intervention) into yet another new indigenous local system.<sup>51</sup>

In discussing operations in Kandahar City in the summer and fall of 2010, Rodriguez describes a positive feedback loop that he and the unified action partner team began to understand through their experimental intervention in Kandahar City: “We all learned that building local political bodies that represent the people is an iterative process. And if more and more people are mobilized, the representative councils become more representative and more effective.”<sup>52</sup>

## Perspective 11

The final Perspective shows a progression from an unstable environment and corollary *absence* of positive connections (Arghandab) to a perceived stable environment with a corollary increase in connected friendly actors filling governance and security roles.

So now in Arghandab—a district just outside Kandahar City—that you know has been a tough place since the first we really went in there and stayed beginning in July 2009, was a Taliban stronghold, and people could not move around without fear. In that 18-month period, the district governor was killed, the district police chief was maimed, and there were no government officials or police present any place but the district center, which some of the Afghans described as a combat outpost. I was there two weeks ago, and there were 16 government employees working with a new district governor. There’s a new police chief who has a police force that’s out and about. And the people on a Friday afternoon, Afghan family time, were out picnicking in the Arghandab River Valley—a significant change from 18 months ago.<sup>53</sup>

### MIND MAP

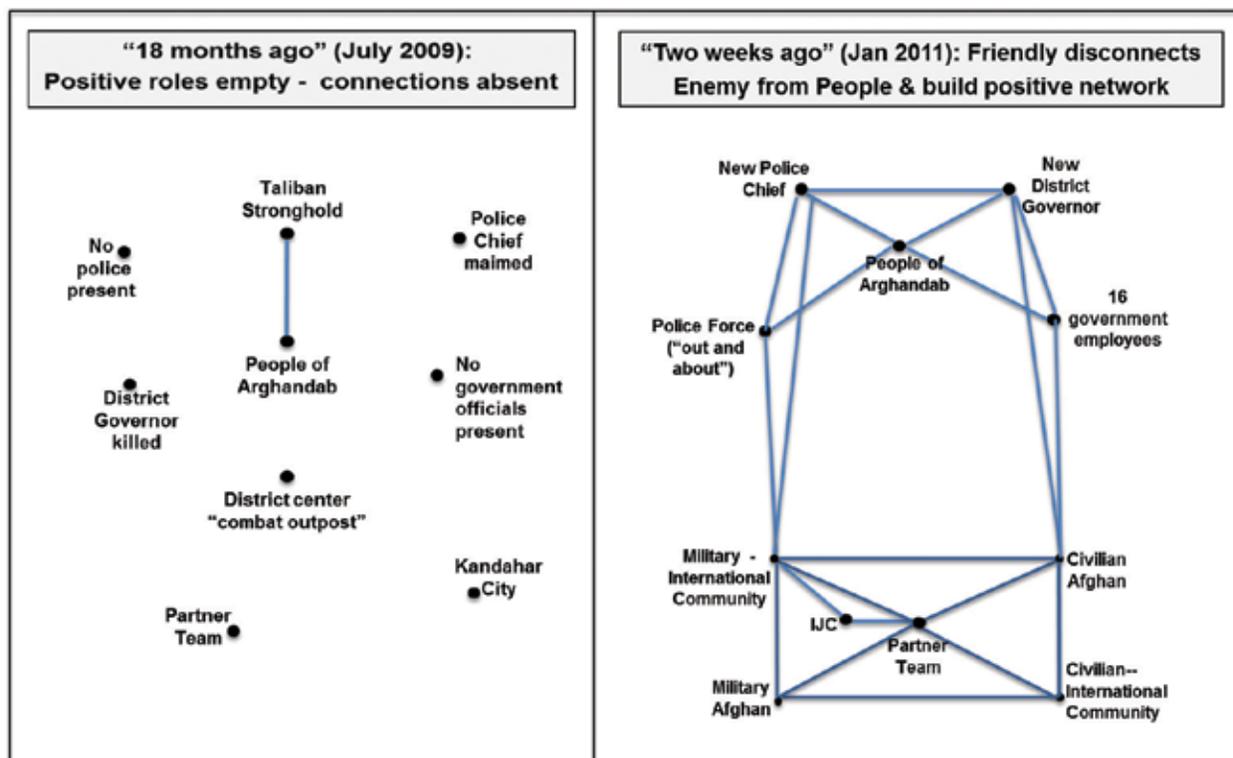


Figure 6

## **ANALYSIS**

Rodriguez describes the Operation Omid Arghandab environment—and the impact the unified action partner team had moving from 2009 to 2011—in terms of actors and their connections. He describes the dynamics in 2009 that influence the **absence** of desirable actors and connections to include limitation of movement and absence of legitimate actors to connect with. In the absence of positive connections, Rodriguez maps the roles actors should fill and consistently maps organizational echelons of civilian and security force actors within the environment.

## **Summary of Research Analysis**

### **OVER-LAPPING, DISCRETE SYSTEMS**

General Rodriguez describes the Afghans' system by scaling it down into a series of interwoven mappable contexts, openly bounded by the actors, agents, and systems identified within each context. Then, Rodriguez maps how the actors, agents, and systems connect to each other, and also examines how they are *not* connected.

### **TIME, GEOGRAPHY, AND CONNECTION**

Rodriguez provides many examples of how actors are connected over time. He includes both time based, and geographically based networks when examining change, and indicates that time based and geographically based networks are fertile fighting ground between the opposing systems of unified action partners and the enemies of the Afghan people. These systems overlap and intertwine, as they share human and geographical terrain, sometimes sharing the same actors and even similar strategies. Rodriguez believes that the enemy also sees mission success in terms of their connection with, and control of, the Afghan people.

### **CONNECTIONS - BUILD FRIENDLY, DISMANTLE ENEMY**

Rodriguez describes the focus of Campaign Plan Omid as building friendly networks and dismantling enemy network infrastructure. He leads partners to expand and strengthen friendly networks by increasing the number of actors, building connections between actors, and maintaining and strengthening existing connections between actors.

Rodriguez works to increase the connections in the network by focusing on structural (number of people) and physical expansion (geographical area). Through unity of effort, Rodriguez guides unified action partners and his subordinate commanders to decrease the number of actors within enemy systems, weaken and destroy

**Rodriguez maps how the actors, agents, and systems connect to each other, and also examines how they are not connected.**

connections between enemy actors, isolate enemy actors, and envelop enemy actors so that they leave enemy networks and join friendly networks. Moreover, Rodriguez works to reduce the number of enemy network connections by decreasing the numbers of people tied within a network (structural shrinkage), and the geographical terrain that the actors in the network exist upon (physical shrinkage).

### **DISCRETE GEOGRAPHICAL, STRATEGIC, OPERATIONAL, TACTICAL NETWORKS OVERLAP**

The networks Rodriguez describes from one organizational echelon, or operational area, to the next are not the same. Each map incorporates some of the same actors and connections, but never all. Counter to common Army cultural narratives and military doctrine, Rodriguez emphasizes, maps, and describes friendly systems, networks, and actors.

### **FEEDBACK LOOPS**

Rodriguez consistently describes the feedback loops created through international community bad practices, through the fight between the enemy and the partners over the population, and through the effects of policy decisions that impact tactical operations and Afghan trust.

### **COMPLEX SYSTEMS**

Rodriguez views complex systems as adapting to the absence or failure of a part. There is no one leader or center of gravity that the partner team can destroy or degrade to achieve mission success. Rather than destroy a leader, Rodriguez leads others to sever a network's connections. Further, Rodriguez sees "weak communities" as opportunities to create positive feedback loops of good leaders, popular mobilization, representative local governance, and good local police all feeding back into strong communities.

**There is no one leader or center of gravity that the partner team can destroy or degrade to achieve mission success.**

## **Significance**

Complex systems theory should assist strategists and planners in framing their design process as they develop an operational approach to their environment. It should remind commanders and staffs to find mechanisms to build internal connections between staff and across commands. This research shows that commanders and staffs must have a grounding in complex systems theory if they are to reduce enemy capability and will, increase partner capacity and capability, and strengthen and maintain U.S. force readiness, while providing a stable and secure environment observable to the population.<sup>54</sup> Rodriguez impacted the lives of hundreds of thousands

**Using systems theory as a base to understand social systems and collective action problems can help leaders build stronger internal organizations, better partnerships, and more effective interventions.**

of U.S. Army Soldiers, joint military service members, civilian inter-agency personnel, and the entire coalition of military and civilian partners. Clearly, from his perspective, a leader must understand the friendly partner team, its actors, and connections.

Using systems theory as a base to understand social systems and collective action problems can help leaders build stronger internal organizations, better partnerships, and more effective interventions. Further, the application extends beyond theaters of war and unified action. Truly, such analysis can and should be applied to ongoing theater security cooperation plans, and to partner organizations within any cooperative context.

Clearly, Army officers need the capability to analyze, articulate, and apply key systems theory concepts. Unfortunately, as no such curriculum exists for all field grade officers (the backbone of staffs), many will continue to express themselves in terms of linear causal language<sup>55</sup> and culturally familiar narratives. Therefore, it is not surprising that most Army service members continue to think of themselves as professionally communicating within a hierarchical chain of command. Yet, Army commanders, as referenced in leadership doctrine, know they must build relationships at all levels of their organization. They must physically train with their enlisted Soldiers, mentor their junior officers, coordinate with their peers, and communicate key actions to their commanders. Rodriguez shows that, despite the Army's common narrative, Army service members engage with each other via networks of relationships that cross a variety of hierarchical echelons.

Additionally, military leaders understand that they must build horizontal relationships with both governmental and nongovernmental organizations that have no equivalent rank structure, and maintain good community relationships with American citizens from all social classes and foreign citizens while deployed or stationed abroad. Commanders, including Rodriguez, inherently appreciate that strong connections—both hierarchical and non-hierarchical—are key to being an effective leader.

Rodriguez maps interactions between individuals, organizations, insurgent networks, criminal patronage networks, security effect networks, and governance building networks. Systems thinking is valuable, and so is mapping networks.

# Recommendations

- Create or identify a typology of systems to include open systems, closed systems, complicated systems, and complex systems. Include in all levels of officer education. Include in Joint and Army doctrine publications.
- Use the language already developed by multi-disciplinary systems and network theorists to articulate important concepts. Identify existing terms defined in doctrine that have similar meaning to multi-disciplinary systems concepts and adapt or update doctrine. Provide a glossary. Include in all levels of military education with a sufficient amount of time for students to absorb and understand the information. Include in Joint and Army doctrine publications.
- Create or identify a taxonomy of causality to be considered in various proximate contexts that include concepts of direct causality,<sup>56</sup> systemic causality<sup>57</sup> and emergence.<sup>58</sup> It should also include structural, institutional, psychological, and ideational causal dynamics.<sup>59</sup> Causal logic should be taught in enlisted and officer education. Include in the body of Joint and Army doctrine publications.
- Provide a framework that helps a practitioner to think about and analyze interactions within and between social systems, and collective action problems in the operational environment. Include in all levels of officer education. Include in Joint and Army doctrine operations and planning publications.
- Reevaluate Joint and Army doctrine publications 3-0 and 5-0. Critically evaluate if it is appropriate for all types of war at all echelons of war. If the theory, concept, or principle only pertains to the tactical level of warfare and/or certain types of war, remove it from Joint and Army doctrine publications 3-0 and 5-0 and place it in the appropriate publication, i.e., ADP and ADRP 3-90 *Offense and Defense* (in Maneuver Warfare).
- Reevaluate Joint and Army doctrine publications 5-0 and 3-24. Further research is needed regarding the planning strategies of “clear, hold, build” and the “phasing model” where forces deter, seize, dominate, stabilize, and enable the civil authority.

**Further research is needed regarding the planning strategies of “clear, hold, build” and the “phasing model” where forces deter, seize, dominate, stabilize, and enable the civil authority.**

## Conclusion

Lieutenant General Rodriguez paints operational pictures of intertwining networks of people. He directs his operational and tactical leaders to understand, connect with, redirect, and in some cases destroy actors and their linkages. Rodriguez emphasizes strong connections as the means to stability, the means to legitimate governance, the means to a trusted police force, and ultimately, the means to successful unified action.<sup>60</sup> Rodriguez does not limit his focus to the enemy, but instead places significant emphasis on the interactions of unified action partners. He shows how these interactions shape, and sometimes create the enemies of Afghanistan through bad international community practices (“alienate people, undermine traditional leaders, feed malign actors, ignore economic conditions, fair prices, and fair salaries at local level; weaken strategy and relationship with Afghans through civilian casualties”<sup>61</sup>). As such, unified partner actions and enemy systems feedback and influence each other. A commander and his staff should think about their own organizations and environment in terms of complex systems theory. **IAP**

# Endnotes

- 1 Serge Loode, "Peacebuilding in Complex Social Systems," *Journal of Peace, Conflict and Development*, No. 18, December 2011.
- 2 Perhaps we must first understand the world simply. "If I turn the key to my car, it turns on. So, turning the key is the cause. If I don't have my key, the car won't run. If I have my key, it will." Then, perhaps, we see it is complicated. "Even though I turned the key, the car won't run. Perhaps something in one of the car's systems is broken." Then it gets complex. "I have the key to my car. I know the parts of the car's systems are all working. But the car won't work because three weather systems collided resulting in Hurricane Sandy. Hurricane Sandy and its intertwining sub-systems interacted with the human built infrastructure system and the tidal flow of the ocean to create flooding where I parked my car. I parked my car on the street because other people had already filled all the spots in the parking garage while I went to get supplies to prepare for the storm. My car won't work because all of these systems collided and my car got flooded with water." Is it emergent causality or, perhaps, systemic causality?
- 3 Tina A. Grotzer and David N. Perkins, "A Taxonomy of Causal Models; The Conceptual Leaps Between Models and Students' Reflections on Them," *The Understandings of Consequence Project*, Project Zero, April 28, 2000, <<http://pz.harvard.edu/Research/UCPpapers/taxnarst.pdr>>, accessed on November 7, 2012.
- 4 Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership*, Headquarters, Department of the Army, Washington, August 2012, pp. 2-5.
- 5 *Ibid.*, pp. 2-5
- 6 Field Manual (FM) 3-24, *Counterinsurgency*, Headquarters, Department of the Army, Washington, December 2006, pp. 4-3. FM 3-24 predates the creation of the term "Army Design Methodology" and uses the Joint doctrine term of "operational design."
- 7 *Ibid.* This would be a good definition for "social systems analysis." Also, this definition incorrectly limits analysis to the insurgency. The value of a social network analysis is in understanding how all actors within each proximate context relate.
- 8 Christy L. Whitfield, "Intelligence Fusion Paradigm: Understanding Complex Operational Environments Implementing the Institutional Analysis and Development Framework," Master of Military Art and Science thesis, Command and General Staff College, Fort Leavenworth, Kansas, 2012, p. 13.
- 9 *Ibid.*, p. 23.
- 10 John Shy, "Jomini," in Peter Paret, *Makers of Modern Strategy*, Princeton University Press, Princeton, NJ, 1986, pp. 143-185.
- 11 Joint Publication (JP) 1-2, *DoD Dictionary of Military and Associated Terms*, Office of the Chairman of the Joint Chiefs of Staff, Washington, 2008.
- 12 ADRP 3-0, *Unified Land Operations*, Headquarters, Department of the Army, Washington, 2011. Wide area security, a newly published term, is "the application of the elements of combat power in *unified action* to protect populations, forces, infrastructure, and activities; to deny the enemy positions of advantage; and to consolidate gains in order to retain the initiative."
- 13 ADP 6-0, *Mission Command*, Headquarters, Department of the Army, Washington, May 2012. The point of mission command, "the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leader in the conduct of unified land operations," is to *decentralize the Army* such that each leader knows the commanders intent and may thus intelligently make decisions as applied within his localized operational environment.
- 14 General James Mattis, Commander of U.S. Central Command, speech, U.S. Army War College, Carlisle Barracks,

Carlisle, PA. General Mattis and others argue that the U.S. will never go to war again alone, i.e., without allies or a coalition.

15 JP 5-0, *Joint Operational Planning*, Office of the Chairman of the Joint Chiefs of Staff, August 11, 2011.

16 It is sadly funny that we continue to fight wars expecting that if we just kill the president (Iraq), the terrorist leader (Bin Laden), or destroy the logistics train (Vietnam) or people's will (Germany), we will win. We are always "surprised" when a new leader steps in, a people uses unexpected means of sustainment, or a population continues to fight.

17 Some systems important to modern warfare: global energy production and distribution systems; local, regional, national, continental, and global governance systems; economic systems; legal systems; ethnic diaspora systems; religious systems and subsystems; food production systems; and entwining ecological systems.

18 Dale Eikmeier, "Redifining the Center of Gravity," *Joint Forces Quarterly*, Issue 59, 4<sup>th</sup> Quarter, 2010, pp. 156-158.

19 Ibid.

20 Ibid.

21 Ibid.

22 Shy, pp. 143–186.

23 Arthur Lykke, Jr., "Toward an Understanding of Military Strategy," in Joseph R. Cerami and James F. Holcomb, Jr. (eds.), *U.S. Army War College Guide to Strategy*, Strategic Studies Institute, Carlisle, PA, 1998, pp. 179–186.

24 "Snapshot time" and "contemplative time" are my own terms based on my understanding of concepts introduced by William E. Connolly, *A World of Becoming*, Duke University Press, Durham, NC, 2011.

25 David M. Rodriguez, "DoD News Briefing with Rodriguez from the Pentagon," U.S. Department of Defense, Office of the Assistant Secretary of Defense (Public Affairs), February 1, 2011, <<http://www.defense.gov/transcripts/transcript.aspx?TranscriptID=4764>>, accessed on October 15, 2012.

26 Ibid.

27 At this point in punctual time Rodriguez refers to the "partner team" as the combined team and then lists this group.

28 Rodriguez, "DoD News Briefing with Rodriguez from the Pentagon."

29 Ibid., pp. 1 and 3.

30 Ibid.

31 Colonel Christopher Toner, interview, U.S. Army Counterinsurgency Center, Fort Leavenworth, KS, 2011, p. 9.

32 Ibid.

33 David M. Rodriguez, "Operational Environment," PowerPoint presentation, International Security Assistance Force Joint Command, 2011.

34 David M. Rodriguez, "The Operational Commander's Perspective," Voices from the Field Keynote Address: An Update from Afghanistan 2011, Center for New American Security, June 20, 2011; "Operational Environment," 2011; and "DoD News Briefing with Rodriguez from the Pentagon."

35 Rodriguez, "The Operational Commander's Perspective."

- 36 U.S. Counterinsurgency Center, 2011, p. 9.
- 37 Rodriguez, “DoD News Briefing with Rodriguez from the Pentagon.”
- 38 Rodriguez, “The Operational Commander’s Perspective.”
- 39 Rodriguez commanded Regional Command East (2007–2008) prior to Commanding the International Security Assistance Force Joint Command (2009–2011).
- 40 Rodriguez, “Operational Environment,” 2011.
- 41 Ibid.
- 42 U.S. Counterinsurgency Center, 2011.
- 43 Toner interview.
- 44 Rodriguez, “DoD News Briefing with Rodriguez from the Pentagon.”
- 45 Ibid.
- 46 Rodriguez, “The Operational Commander’s Perspective.”
- 47 Rodriguez, “Operational Environment,” 2011.
- 48 Rodriguez, “DoD News Briefing from the Pentagon.”
- 49 Celestino Perez, Jr., “A Practical Guide to Design,” *Military Review*, March–April, 2011, pp. 49–51.
- 50 Whitfield.
- 51 There were many other efforts going on in other areas that still had the initial sequencing. Once each localized engagement had begun and the systems collided, the “wake of the security gains” could not be removed.
- 52 Rodriguez, “DoD News Briefing with Rodriguez from the Pentagon.”
- 53 Ibid.
- 54 International Security Assistance Force, *About ISAF*, <<http://www.isaf.nato.int/mission.html>>, accessed on November 7, 2012.
- 55 Tina A. Grotzer and David N. Perkins, *A Taxonomy of Causal Models: The Conceptual Leaps Between Models and Students’ Reflections on Them*, Harvard University, Cambridge, 2000.
- 56 President and Fellows of Harvard College, “Mapping Simple Linear Causality,” *Harvard Curriculum Resources*, 2005, <[www.pz.harvard.edu/ucp/curriculum/density/52\\_resources\\_mapping\\_linear\\_causality.pdf](http://www.pz.harvard.edu/ucp/curriculum/density/52_resources_mapping_linear_causality.pdf)>, accessed on November 4, 2012.
- 57 George Lakoff, “Global Warming Systemically Caused Hurricane Sandy,” *Huffington Post*, October 30, 2012, <[http://www.huffingtonpost.com/george-lakoff/sandy-climate-change\\_b\\_2042871.htm](http://www.huffingtonpost.com/george-lakoff/sandy-climate-change_b_2042871.htm)>, accessed on November 8, 2012.
- 58 Connolly, p. 44.
- 59 Craig Parsons, *How to Map Arguments in Political Science*, Oxford University Press, New York, 2007, p. 12.
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