

# Full-Spectrum Analysis: A New Way of Thinking for a New World

Adrian Wolfberg

*We relied as usual on our own Soviet experts.*<sup>1</sup>

—Sherman Kent, commonly referred to as the “father of modern day intelligence analysis,” commenting in 1964 on some of the reasons why the U.S. intelligence community missed the deployment of Soviet missiles into Cuba.

*...actions we undertake as individuals are closely related to survival, more importantly, survival on our own terms.*<sup>2</sup>

—John Boyd, military strategist, commenting in 1976 on how we create mental models to understand the world.

Adrian “Zeke” Wolfberg leads the Knowledge Laboratory at the Defense Intelligence Agency. A graduate of the National War College, he holds a B.A. from York University, Canada, and an M.S. from the University of Southern California. Mr. Wolfberg has recently published papers on culture, knowledge, and ethics in the intelligence community. He wishes to thank Toffler Associates for helping him design the graphics used in this article.

THIS ESSAY PROPOSES a new cognitive frame of reference for the intelligence community to use in thinking about the world. Such mental frameworks can be double-edged swords. We cannot think without them, but if they create an inadequate paradigm for useful thought, or if we use them uncritically or without appropriate adjustment to square with the prevailing realities of current circumstances, they hedge us into thinking in limiting ways that result in faulty conclusions. This article contends that the prevailing mental framework in the intelligence community is flawed in just this way and must be changed.

We in the intelligence community aren’t receiving the education and training we need to enable us to think effectively about the world’s current security environment. The way we have been taught to think is overly simplistic; in many ways it is disconnected from reality, a fact made all the more apparent by our recent failures to understand the behaviors and motivations of Middle Eastern peoples. Still operating under ways of thinking formulated during the cold war, we are tied to a cognitive framework that is no longer a useful construct; in fact, it is in many cases misleading and destructive.

To develop this discussion further, consider the way we thought about warfighting until just recently. Combat operations—in this case, regime change—were a series of linear events to be dealt with in turn, one after the other: first, pre-combat equipping and training; then combat operations; then actions aimed at providing essential services and promoting stability; then civil-military governance; and finally, establishment of economic pluralism. Underpinning this old, linear cognitive framework were assumptions about the propensities of adversaries who, we assumed, thought like we did about achieving social and political goals via war. We expected these adversaries to behave in a manner consistent with the Western conventions of war, in phased approaches, and in compliance with the conventions and rules of war. That our adversaries did not is not news. The non-state adversaries we face in Iraq and elsewhere do not think or behave in accordance with a framework based on assumptions about war’s conventions and rational conduct in conflict. As a result, our conceptual approach has proven ineffective.

Similarly, since 9/11, intelligence experts have been constantly surprised by adversaries who have been not only more ruthless and unpredictable in their actions than intelligence assessments previously forecast, but also more strategically adept than was thought possible. In short, our intelligence failed because the cognitive framework with which we operate did not allow for our adversaries’ irrational, blatant disregard for the established conventions of

war or for their street-smart adroitness at exploiting the media for strategic gains.<sup>3</sup>

We need to change the way we think if we want to succeed in this new kind of war. Those in the operational field have already begun doing so, and we in the intelligence community can follow their lead to improve our performance.

## Moving Toward a New Approach

Currently, the concept of full-spectrum operations is being introduced (albeit painfully) into the warfighter community.<sup>4</sup> This concept asserts that certain actions are required of the warfighter—not sequentially, as before but simultaneously—prior to, during, and after the unfolding of events associated with any particular conflict. Thus, the warfighter now operates along many lines at once and across a full spectrum of possible actions, either diplomatic, intelligence-driven, military, or economic in nature.

To address shortcomings in the intelligence community, this essay proposes that we move to “full-spectrum analysis,” the intelligence analog to full-spectrum operations. Full-spectrum analysis calls for the development of a mindset that recognizes the need to simultaneously deal with multiple intelligence challenges in an integrated fashion in support of a broad range of focused interests. This approach aims at creating intelligence synergy among disparate intelligence organizations and data banks to produce faster, deeper, more detailed analysis for customers.

Full-spectrum analysis is much more than just a convenient analog to its operational cousin. It is vitally needed to keep the intelligence community relevant and to ensure full-spectrum operations ultimately succeed.

## Obsolescence in Action

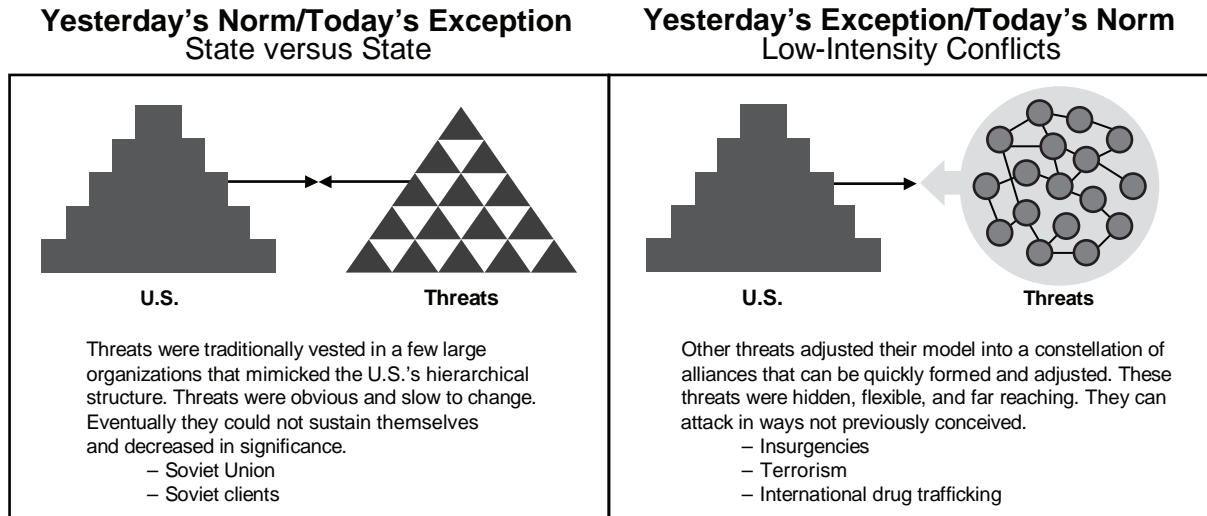
Although the intelligence community lives and works in 2006, it largely operates—almost 5 years after 9/11—with a mental model of the world as it existed in 1985. In other words, the shared mental frameworks that developed our intelligence infrastructure in response to the cold war still influence our intellectual approaches to collecting and evaluating intelligence. In addition, we still use the same compartmented and stovepiped organizational design that distributed finished intelligence to consumers during the cold war. That such an obsolete mindset

and supporting structure persist post-9/11 testifies to the self-perpetuating nature of bureaucracies and should be a cause for concern, if not alarm, for those with a vested interest in intelligence products.

**Hitting the snooze button.** The terrorist attacks on 9/11 should have served as a warning of what can happen when there is misalignment between how the intelligence community perceives reality and the hard reality of reality itself. Unfortunately, although the attacks should have stimulated immediate adjustments in many areas of the intelligence community, relatively little has actually been done. Movement to reapportion or retrain personnel to address the current Middle Eastern threat has been glacial; in fact, much of the intelligence community has resisted efforts to restructure national intelligence organizations to fit the realities of the current security environment.

**A disingenuous apology.** Some have claimed that the intelligence community should be excused for being largely surprised by a world security situation that moved almost instantaneously from the bipolar state-versus-state engagement of the cold war to a multiple, highly networked, asymmetric engagement with agile, flexible, often hidden networks of many types of non-state threats (figure 1). This excuse does not wash. The two broad types of threats—state versus state and non-state versus state—were widely recognized within the intelligence community well before 9/11. However, those who warned of the ascendancy of non-state threats to U.S. interests after the collapse of the Soviet Union were in the minority, and their views were largely discounted or ignored by the majority. Consequently, immediately prior to 9/11, more than a decade after the demise of the Soviet Union, most of our intelligence community’s attention and resources were still focused on prospects of interstate conflict in ways reminiscent of the cold war.

**Comfortable blindness.** This framework for seeing the world persisted primarily because it was what the intelligence community knew, what it had worked with for generations, and what it was most comfortable using. This mindset was so entrenched that even mounting attacks, including those against U.S. embassies in Africa and against the USS *Cole*, were largely dismissed by most of the intelligence community as little more than annoying, albeit tragic, anomalies.



**Figure 1. Evolution of threats, cold war to Global War on Terrorism.**

A good example of what's wrong with the old framework can be found in the current state of intelligence analysis. Because we still frame today through yesterday's lens, we are unable to identify significant trends. We simply do not have the right mental framework to tell us what is really going on. There does, however, seem to be general agreement within the intelligence community that, (1) we need to change the highly fragmented way we view the world, and (2) we must reorganize. In fact, it is time to break rice bowls, knock down stovepipes, and pull the disparate pieces of the intelligence community together. To begin this process in earnest, we first need to reframe how we think in a way that will lead to sweeping change in the intelligence culture.

### Convergence of Focus

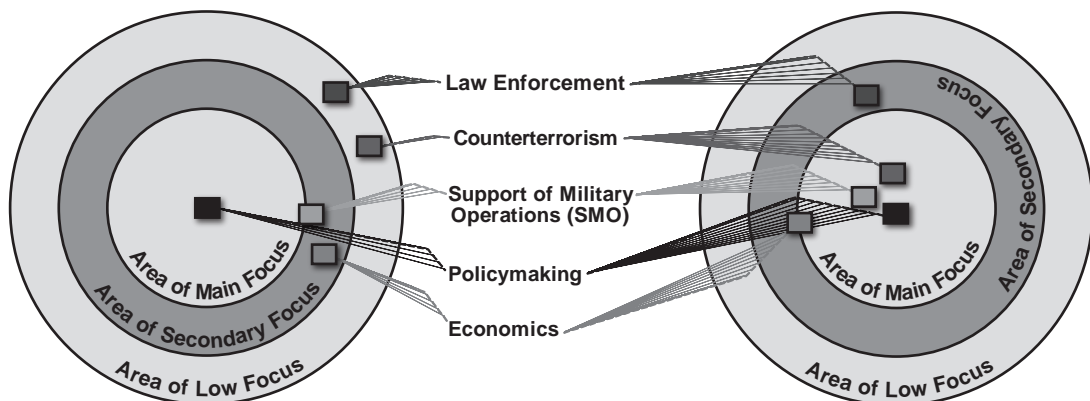
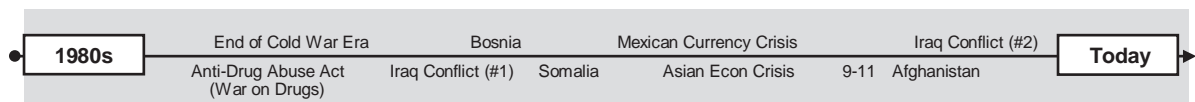
As we retool our thought processes, we need to admit two things: There has been a dramatic lessening of the likelihood of "normal" state-versus-state conflict and a corresponding increase in the likelihood of conflicts described under the rubric of "low intensity"; and there is a need to converge a broad spectrum of intelligence requirements on a flattening plane of policy concerns that now overlap in many different ways.

**Obstacles to convergence.** The primary obstacle to achieving intelligence convergence is lack of interagency cooperation. Although this shortcoming is widely understood in the intelligence community, there has been little real effort to make the adjust-

ments necessary to create a mindset and a culture that encourage habitual, substantive cooperation between intelligence agencies. Among the most commonly voiced remedies is that the intelligence community must become more integrated. It should, but merely voicing what ought to be done has resulted in little real action, perhaps because there are too many well-entrenched and politically protected fiefdoms in the intelligence community.

**Cold war hangover.** Perhaps the old adage of "what you see depends on where you sit" is a suitable metaphor for describing the highly divergent mindset our intelligence community inherited from the cold war. During that time, intelligence was regarded as a specialized commodity for discrete, often stovepiped, purposes. Intelligence organizations serving military decisionmakers focused primarily on acquiring data of purely military interest such as troop strengths, states of training, weapons systems capabilities, and analysis of enemy doctrine. Law enforcement officials asked for and got specialized intelligence on criminals and criminal syndicates. Diplomats and statesmen required intelligence of a completely different nature not formerly considered germane to the parochial operations of military and law-enforcement officials.

**What must be done.** In today's security environment, military, law, and government officials need much broader intelligence to deal effectively with non-state adversaries or with other national-security issues. Those who deal with the insurgency in Iraq require intelligence assessments that address not



With the Cold War still waging in 1980, intelligence focused on the Soviet threat.

- Policymaking took a central role for the IC.\*
- Other responsibilities were beginning to emerge.

Today, many new responsibilities span the different roles the IC\* must fill. For example:

- Joint warfare
- Preemption policies
- Trade negotiations/foreign currency monitoring
- Homeland security
- Emerging threat estimates
- Weapons of mass destruction

\*IC: intelligence community

**Figure 2. A convergence of focus.**

only adversary troop strengths, but also adversary associations with criminal networks and funding from criminal enterprises, as well as economic and cultural data explaining the non-state actor's relationship to populations potentially sympathetic to terrorist activities. The intelligence community must understand that intelligence requirements in the tactical-to-strategic continuum overlap and are, in fact, interdependent (figure 2). This understanding must shape the internal intelligence culture; it will promote the convergence of operations needed to produce integrated products for use by policymakers, operational commanders, and others dealing with national security.

To begin transforming itself, the intelligence community needs to instill through training and practice an ethos of integrated, collective effort. Two imperatives should drive transformation: the need to move the intelligence community along the continuum from fragmentation toward integration and the need to move from divergence to convergence in actual collection and processing. The first imperative emphasizes the requirement for connectivity among all sectors of interest within the intelligence community, while the latter stresses

the necessity of a broader focus on collating intelligence in more diverse categories of relationships.

## Two Different Ways of Thinking

With these new intelligence imperatives in mind, how should we, the intelligence community, begin to prepare ourselves to think more effectively about our current world? Before showing how full-spectrum analysis might improve intelligence processes, we must first consider the nature of two different analytic processes: puzzle-solving and mystery-solving.

**Puzzle-solving.** Most of us in the intelligence community viewed the intelligence problems of the 20th century as a set of puzzles, each puzzle by nature having only one right answer. Thus, those who focused on the former Soviet Union and its allies tried to explain the world by filling out the parts of a sophisticated matrix possessing an internal logic of its own. The pieces included hard technological data and articulated behavior patterns based on our understanding of Soviet doctrine and other sources. Having a puzzle solver's mentality, we took it as an article of faith that if we could just collect enough data and observe enough samples of

all possible behavior, we would be able to fill in the puzzle blanks of the matrix to produce an accurate model of the Soviet menace, which we could then use with great surety to predict Soviet behavior. Eventually, we persuaded ourselves that we had conceived of virtually all possible scenarios and, by having observed a wide range of the pieces of the scenario, that we could effectively extrapolate a behavior that was underway or being planned. This was the puzzle approach we used in an attempt to understand the cold war world.

Unfortunately, great confidence in the model and the prognostications it generated did not enable anyone in the intelligence community to foresee the rapid collapse of the Soviet Union. What kept us from seeing clearly was a lack of healthy respect for the principle of uncertainty. Taking uncertainty into account—approaching a problem as a mystery and not as a puzzle—is at the heart of full-spectrum analysis (figure 3).

**Mystery-solving.** Why should we emphasize uncertainty so much that it drives how we approach our understanding of the world? John Boyd, an American military strategist best known for creating the OODA (Observe, Orient, Decide, and Act) Loop, provides insight.<sup>5</sup> According to Boyd, the fundamental dynamic that motivates individual and group behavior is survival. Uncertainty results from recognizing the extraordinary complexity of human relations as people work with and against each other, both individually and in groups, each

individual being driven by his own perception of what it takes to ensure survival.<sup>6</sup> For Boyd, how we compete against or cooperate with each other can be considered not as contradictory behaviors, but rather as techniques adapted to survive.<sup>7</sup> As a result, it is not incongruous when we observe individuals competing on one level and cooperating on another, sometimes in very high stakes situations.

Human behavior should therefore be perceived as being multifaceted, not binary; moreover, we must recognize that the variables associated with behavior are so varied and complex that they might not reveal themselves until a threat of conflict arises. In Boyd's formulation, the world of human behavior is essentially a dynamic mystery, not a static puzzle.

**The boundary-less environment.** For the analyst, the notion of expanding our horizons and then focusing into a conclusion over an iterative process without being constrained by boundaries (analysis and synthesis) is the primary method for solving a mystery (figure 4).

When the analyst adopts a full-spectrum mindset, any initial question, whether self-generated or not, opens up a universe of possibilities. Some of these possibilities can be envisioned immediately, while others cannot; thus, an iterative approach of successive questioning and surmising is necessary. The next step is to come to an initial conclusion about the question. But the analyst should then expand and deepen the set of possibilities to question and refine

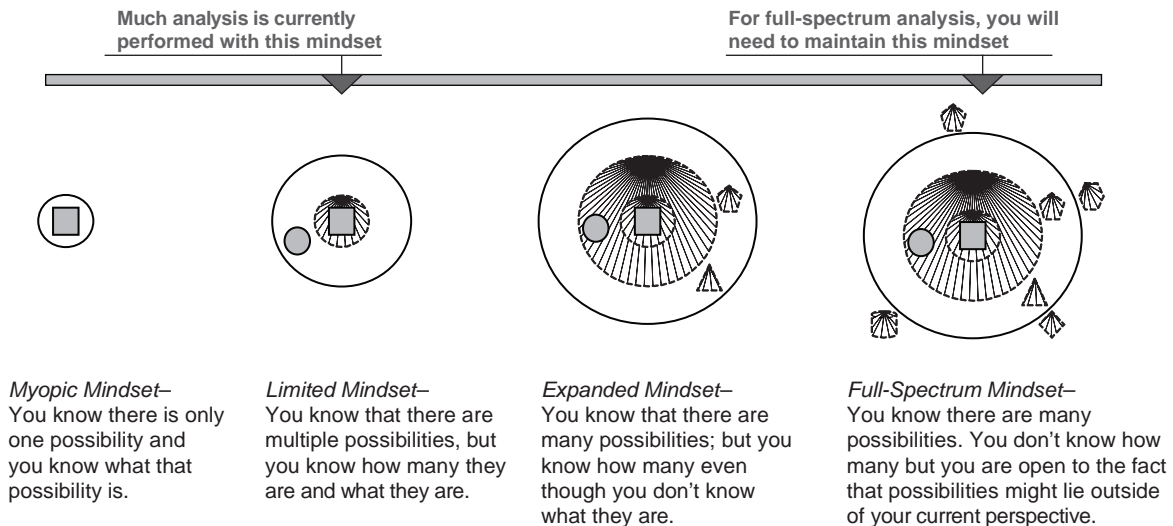
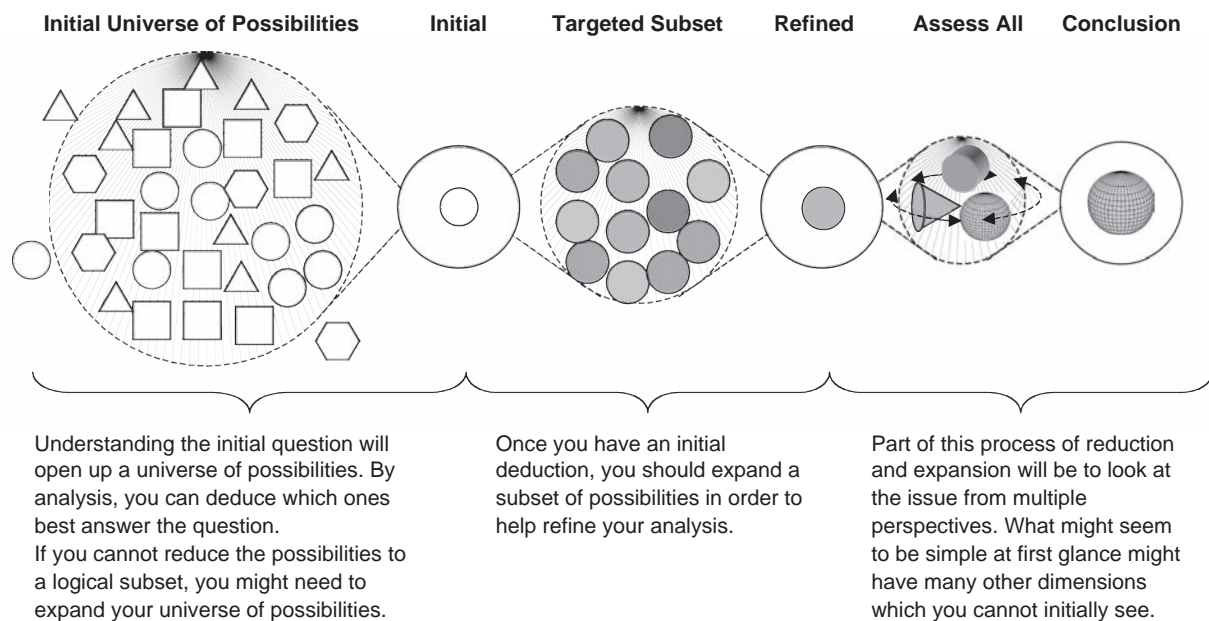


Figure 3. Approaching the world as a mystery (not a puzzle).



**Figure 4. The new analytic process: iterative mystery-solving.**

his analysis, eventually resulting in a refined deduction. At every step, he assesses his interim and final conclusions from multiple perspectives to ensure that he does not miss a less obvious interpretation.

In full-spectrum analysis, the analyst not only examines multiple, possibly interrelated intelligence problems simultaneously, but also considers contextual and influential factors that could affect the interim analysis of information and its interpretation. He constantly seeks to expand the intellectual box from which he draws his tentative conclusions. This step is not necessarily observed in the more static process employed to analyze puzzles in matrixed depictions of the world. In that approach, all assumptions about a problem or mission are built into the matrix at the start, thereby limiting the range of eventual deductions.

## From All-Source to Full-Spectrum Analysis

How then do we do create useful intelligence products by solving mysteries while simultaneously avoiding the temptation to solve puzzles with matrixes? To help answer that question, we must quickly review the evolution of our current process, known as “all-source analysis.”

**All-source analysis.** Generally, all-source analysis is defined as “consideration of every type of

available information that helps in understanding a specific problem, recognizing that there has not been, nor will ever be, a single perfect piece of data that will reveal everything one wants to know about something.” All-source analysis requires drawing upon as many data sets or sources as one can to arrive at conclusions in a given time frame. That analysts actually use “all” available data sets is far from the reality, but it is a guiding ideal.

All-source analysis isn’t a new idea; it grew up in the cold war, when analysts used multiple sets of data collected from sensors and human sources. The data and the conclusions drawn from them were generally kept classified. The most well known of these data sources were SIGINT (signals intelligence—electronic and voice intercepts), IMINT (imagery intelligence), and HUMINT (human intelligence).

All-source analysis evolved into its current incarnation when it expanded to include other types of data, most prominently from unclassified or “open” sources such as public media (print, radio, television, the Internet), and data collected by private and public organizations.

**All-source drawbacks.** Although the expansion marked an improvement over specialized, stove-piped intelligence collection and analysis, contemporary all-source analysis was effectively shaped

and reinforced by the matrix mindset, to which it remains shackled. The matrix the intelligence community created using this process is the equivalent of linear combat operations among warfighters: It doesn't share the simultaneous multiple-actions mindset of full-spectrum operations. Therefore, intelligence analysis tends to be viewed within the community as a puzzle-solving process undertaken in a phased linear sequence. This mindset results in analysis that is relatively slow and not conducive to addressing multiple complex intelligence problems simultaneously.

**Full-spectrum analysis.** If we adopt Boyd's suggestion and view the world not as a puzzle but as a mystery, we need to move from all-source to full-spectrum analysis. The latter method is more comprehensive and better able to develop intelligence to meet the broad, interrelated requirements of the current security environment. The full-spectrum analytic approach begins by assuming that we cannot construct a meaningful matrix in the first place. It regards whatever conclusions are drawn at each step of data collection as suspect and considers all data to be pieces of a rapidly changing intelligence landscape. Conclusions are therefore permanently tentative and subject to repeated challenge and reexamination.

**Broadening the analyst's mindset.** Full-spectrum analysis avoids a mindset and methodology that approach intelligence as a linear sequence of puzzles to be solved. Having such a mindset compels the analyst to assume that he is looking for only one possible explanation, which he must find before moving on to the next puzzle. In full-spectrum analysis, the analyst assumes from the outset that there are multiple interrelated mysteries that must be solved simultaneously across a broad spectrum of intelligence requirements; he understands that the solution for each mystery might lie in many possible explanations or in overlapping pieces of explanations. Moreover, one must assume from the outset that for some of the mysteries being explored, no data for a plausible explanation may be available before the analyst has to produce conclusions needed for a decision.

The downside to full-spectrum analysis is greater risk due to the admission of large segments of uncertainty. The upside, however, is that full-spectrum analysis can create a broader intelligence picture

faster with data that has been repeatedly challenged and refined and is, hence, more reliable.

**Implementing full-spectrum analysis.** How do we move full-spectrum analysis from concept to practice? It is vitally important to conceptualize a problem or process anew, but it is quite another thing to design a learning strategy to implement the resulting product. The usual approach is to offer classes, but that's not a good short-term answer to changing the way we think and do business. Right now, with a war going on, our main challenge is to ensure that full-spectrum analysis is introduced, tested, and then applied by actual practitioners.

## Make the Move Now

Some skeptics might assert that the intelligence community doesn't need to change, that the legacy mental framework for thinking about the world and the intelligence process will eventually identify the dynamics behind terrorism, much like we eventually understood, for the most part, the threat presented by the former Soviet Union. Put another way, what is now unknown will eventually be known given patience and enough time to organize ourselves.

Such an argument is untenable. We should never adopt passive "wait-and-see" complacency as an intelligence strategy. To the contrary, the intelligence community must actively pursue a better, more aggressive mental paradigm, one that facilitates a more assertive approach to providing analytical intelligence products that keep pace with the initiative intrinsic to full-spectrum operations.

Some warfighters might react to the proposals in this essay by saying, "It's about time for intelligence to come around." In response, it is useful to observe that full-spectrum operations have not been warmly received by all quarters of the warfighting community. Both full-spectrum operations and full-spectrum analysis will take a while to gain full currency.

For the intelligence community, the proposal laid out here is an invitation to test and experiment with full-spectrum analysis. Critical thinking is an essential ingredient in the practice of full-spectrum operations.<sup>8</sup> It is equally vital for full-spectrum analysis. The intelligence community has long conceived itself to be an activity that supports the warfighter, but we need to move beyond that. We

need to forge a genuine partnership in the building of two full-spectrum concepts that should work in tandem. Creative thought can be a major venue where we interface, connecting and applying our best minds to the problems we all face. In contrast to our enemies, we currently do not do a terribly good job of connecting.

The initial conceptualization offered in this essay may not finally lead in the direction we eventually find we must go, but it does provide an initial tipping point for getting “unstuck.” *MR*

## NOTES

1. Sherman Kent, “A Crucial Estimate Relived,” *Sherman Kent and the Board of National Estimates: Collected Essays* (CIA, Center for the Study of Intelligence, 1994). This essay was initially published in *Studies in Intelligence*, V36:5-111-119 (Spring 1964), <[www.cia.gov/csi/books/shermankent/9crucial.html](http://www.cia.gov/csi/books/shermankent/9crucial.html)>, accessed 5 Nov 05.

2. John R. Boyd, “Destruction and Creation,” 3 September 1976, <[www.belisarius.com/modern\\_business\\_strategy/boyd/destruction/destruction\\_and\\_creation.htm](http://www.belisarius.com/modern_business_strategy/boyd/destruction/destruction_and_creation.htm)>.

3. Those who have grown up with a linear conceptual framework have been very resistant to change; thus, linear thinking remains a deeply entrenched feature of American doctrine. See Major General Peter W. Chiarelli, U.S. Army and Major Patrick R. Michaelis, U.S. Army, “Winning the Peace: The Requirement for Full-Spectrum Operations,” *Military Review* (July-August 2005): 4.

4. Chiarelli, 16.

5. Boyd.

6. Frans Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd* (The Netherlands: Eburon Academic Publishers, 2005), 3.

7. Boyd.

8. Chiarelli, 15.

# EMPLOYMENT OPPORTUNITY

The Combined Arms Center (CAC), Fort Leavenworth, Kansas, is looking for an individual to fill the new **“Ike Skelton Distinguished Chair of Counterinsurgency.”** This position will be the focal point for the diffusion of counterinsurgency knowledge in the US Army Command and General Staff College (CGSC) and CAC. The chair-holder will interact with national and international governmental and private agencies and collaborate with the CGSC commandant, deputy commandant, school directors, staff and faculty, course and lesson authors, curriculum developers, and various CAC agencies in the development and delivery of instruction addressing counterinsurgency subject matter. He or she will serve as a professor, sit on thesis committees, and advise and assist student monograph development. The chair-holder will also provide recommendations on CAC’s and CGSC’s role in changing Army culture through experimentation and the creation and sharing of knowledge and experiences.

## POSITION REQUIREMENTS:

Applicants should have a mastery of counterinsurgency concepts, theories, and studies; should possess a combination of academic and/or military experience in education at senior levels; must have an earned Ph.D. in a research discipline in the social sciences or the humanities; and will have a strong background in counterinsurgency studies. Operational counterinsurgency experience is a plus, but not required. Strong interpersonal and communications skills will be required to interact effectively with the elements of CGSC, CAC, and external audiences. Applicants should have proven teaching ability; demonstrated academic achievement, to include publication in the field; knowledge of national security issues; and have made active contributions in the on-going discussions on counterinsurgency. The successful candidate must hold or be eligible for a high-level security clearance.

### Application details:

- By accessing CPOL online: <http://www.cpol.army.mil/>  
Select Employment tab. Use Search Announcement criteria and type announcement #: SWEX06395196. Click on Announcement tab data.
- Questions can be addressed by calling 913-684-3454