# The Last Tactical Mile...and the First



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Serving Intelligence Professionals and their Community

### The Last Tactical Mile...and the First

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#### **Executive Summary**

This paper, the sixth in a series from the AFCEA Intelligence Committee (the Committee), explores both the opportunities -- represented by technology and new operational concepts -- to couple battlefield operators more effectively with the nation's overall intelligence capability, and the challenges that must be overcome to realize these opportunities.

The Committee is aware of the vigorous, current discussion within the national security establishment (both Government and industry) on ways to improve the quality, precision, and timeliness of intelligence available to military forces engaged in the war on terrorism -adiscussion made both more salient and more critical by ongoing battlefield operations in Afghanistan and Iraq. The focus of this discussion most often has been on what is termed "the last tactical mile," implying the need to bridge a perceived gap between what is available at headquarters (or in Washington, D.C.) from national intelligence systems and the intelligence that is actually provided to, and available in, the field by operational units. The Committee, while aware of significant improvements in this area, understands that not all information required by national decision makers is pertinent to field operators. The issue, and challenge, is to get the required information to the field both when it is needed and in a form that is useful. Notwithstanding the improvements that have been made over the past five years, discussions with senior officials reveal that more needs to be done, particularly in the development and deployment of architectures that more effectively couple the needs and capabilities of operators in the field with commanders, national level decision makers, and other intelligence consumers.

Satisfying the requirements of the last tactical mile is critical. Nevertheless, the Committee also believes equally important, but not well served, is the need to address "the first tactical mile" -- getting information *from* the front lines.

This paper offers a view of the opportunities that exist to enrich the national and tactical intelligence pictures by addressing both the "first" and "last" tactical miles. Key to this is an increased appreciation of the fact that the operators in the field have an increasingly important role to play with respect to collected information.

The success of the Joint Intelligence Operations Capability-Iraq (JIOC-I) offers an example of what can be accomplished by placing a more powerful, integrated suite of capabilities in the hands of operators, empowering them as part of a "two-way street" linking the battlefield directly with national capabilities. Developed by an agile government-industry team, the JIOC-I remains, in essence, an experiment – albeit an operational one. The Committee urges the Under Secretary of Defense for Intelligence (USD(I)) and the Director, Defense Intelligence Agency (D/DIA) both to push the lessons learned from the JIOC-I to all the Combatant Commands and to share them across the Intelligence Community in partnership with the Director of National Intelligence (DNI). The Committee likewise urges the USD(I) and DNI to work together both to exploit the potential of the first tactical mile and to develop and deploy an architecture that supports defense intelligence at all levels.

#### Introduction

This paper is the sixth in a series<sup>1</sup> from the AFCEA Intelligence Committee (the Committee). This paper is intended, as are the others, to make a tangible contribution to the ongoing discussion to strengthen the effectiveness of our nation's intelligence capabilities against threats to our national security. It explores the opportunities, represented by both technology and new operational concepts, to couple battlefield operators more effectively with the nation's overall intelligence capability and the challenges that must be overcome to realize these opportunities.

#### The "Last" Tactical Mile... and the "First"

The Committee is aware of the vigorous, current discussion within the national security establishment (both Government and industry) on ways to improve the quality, precision, and timeliness of intelligence available to military forces engaged in the war against terrorism, a discussion whose focus is sharpened by ongoing battlefield operations in Afghanistan and Iraq. The subject of this discussion is most often the perceived gap between national intelligence systems and battlefield operations, what is termed "the last tactical mile." Indeed, the need to better utilize information from national systems continues to drive the discussion on the fundamental requirement to provide operators with a more complete, timely, and useful picture of the battlefield. A RAND study commissioned by the U.S. Army described the existence of a battlefield "digital divide," a situation in which:

<sup>&</sup>lt;sup>1</sup> Access to the preceding papers is at: <u>http://www.afcea.org/mission/intel/committee.asp#papers</u>

"[h]igher echelons with fixed facilities had access to an adequate common operational picture, but units on the move largely had to rely on armed reconnaissance and actual contact for information on enemy forces."<sup>2</sup>

The Committee acknowledges the extent to which improvements have been made; e.g. geospatial and other intelligence products are being made available to battlefield operators to a degree never before experienced. The Committee understands, too, that not all information required by national decision makers is pertinent at the tactical level. Nevertheless, discussions with senior officials reveal that more needs to be done, particularly in the development and deployment of architectures that more effectively couple the needs and capabilities of operators in the field with commanders, national level decision makers, and other intelligence consumers. One area in particular -- getting enough information *from* the front lines ("the first tactical mile") – deserves as much attention as is being paid to getting information *to* the front lines ("the last tactical mile").<sup>3</sup>

#### Joint Intelligence Operational Capability – Iraq

The Committee believes that opportunities exist to enrich the national and tactical intelligence pictures by addressing both the "first" and "last" tactical miles. Key to this is an increased appreciation of the fact that operators in the field have a great deal to offer with respect to information they can provide up the chain of command.

<sup>&</sup>lt;sup>2</sup> See: http://www.afcea.org/signal/articles/templates/SIGNAL\_Article\_Template.asp?articleid=699&zoneid=9

<sup>&</sup>lt;sup>3</sup> The AFCEA Intelligence Committee acknowledges gratefully the insights of Lieutenant General James R. Clapper, Jr., USAF (Ret.), former Director, National Geospatial-Intelligence Agency and Defense Intelligence Agency.

The success of the Joint Intelligence Operational Capability-Iraq (JIOC-I) offers an example of what can be accomplished by empowering operators as part of a "two-way street" linking the battlefield with national capabilities. Developed in concert with operators by an agile industry team, the JIOC-I provides several important benefits:

- It provides operators with access to national systems.
- It gives operators a relatively unfettered view of their operational domain, encompassing information at all levels.
- It is dynamic, enabling time-sensitive tasking and targeting.
- By uniting operations and analysis, it builds analyst-driven collection and operational strategies, focusing collection resources on the information analysts believe is needed.

In effect, the JIOC-I addresses both "last" and "first" tactical mile challenges. The JIOC-I makes national system information available to operators; it combines national information with information gained locally; and information gained locally can be used to focus national collection assets.

The JIOC-I is an important example of horizontal fusion in the field, benefiting both battlefield operators and national intelligence. It also represents what can be accomplished when a robust, trust-based relationship exists among public- and private-sector professionals. Another example of this synergy is the DoD's Joint Improvised Explosives Device (IED) Task Force which has created a set of geographically-based information fusion tools effective in a large number of IED "takedowns." These tools, integrated in the field with a minimum of software engineering, allow operators and analysts to spot information trends. In addition, increasing use is being made of real-time reach back to supporting elements as far away as CONUS.

While these efforts remain largely experimental, they do demonstrate what can be done by integrating battlefield operators into the intelligence picture, offering them unfettered access to national systems (and information), and providing the means to contribute to a national intelligence picture. They also demonstrate the need to serve both the "last" and "first" miles – the vital, two-way link between battlefield operators and the larger Intelligence Community (IC).

#### Challenges to be Overcome

What restrains us from applying the benefits of these "experiments" more broadly within DoD and across the IC? There are several factors, each amenable to a ready solution.

#### Accreditation

First, the need for new tools to be accredited within DoD's security environment represents an arduous challenge, one that can delay even experimental use of new analytic tools, particularly at the battlefield level. Approaches to mitigate the demands of security do exist, however. Practitioners throughout the IC have made effective use of the Research and Development Experimentation Capability (RDEC), a "virtual" network in which new tools (and tool integration) can be tested and evaluated apart from the DoD infrastructure. RDEC allows the contingent employment of such tools without potential harm to the DoD infrastructure, providing both needed information to make the tools operational and the benefits immediate.

#### **Requirements and Acquisition Processes**

Second, the requirements and acquisition processes remain focused principally on the deployment of major DoD acquisition systems. Requirements are slow to develop, and can take just as long (or longer) to vet and approve. Even capabilities-based acquisition has not necessarily accelerated the process of gaining requirements approval. If implemented, the recommendations provided to the Secretary of Defense by the Defense Acquisition Performance Assessment (DAPA) offer the promise of a more efficient acquisition process, one that is especially relevant to the war on terrorism. The Committee renews its call that DAPA recommendations be addressed swiftly by the Secretary of Defense and that they be considered by the Director of National Intelligence (DNI).

In addition, the acquisition process at both DoD and DNI community levels suffers from a lack of clarity regarding the role of information technology (and Chief Information Officers, or CIOs) in the acquisition process. The Defense Intelligence Agency (DIA), for example, is contending with the relationship between IT and acquisition. Resolution of this issue may serve to accelerate acquisition of new technologies.

The requirements process, even in a capabilities-based context, relies on our ability to define needed capabilities prior to their acquisition. Agile technology development, such as that employed by the JIOC-I and Joint IED Task Force have been facilitated by the willingness of developers and operators to test technologies whose capabilities were not described in advance of their acquisition. In essence, these capabilities benefited from a willingness to see what could be done with a new technology – to explore its potential, rather than prescribe its use. Just as

early adopters of personal computers did not know precisely what they might do with the computers they acquired, early adopters at the battlefield level can explore technologies without knowing in advance what benefits the technologies will provide. Making effective use of information gained at the "first tactical mile" makes the need urgent for an acquisition process that does not rely solely on prescribed capabilities and requirements.

#### A Common Architecture

Third, a common architecture serving all levels remains an elusive goal. Although the JIOC and the Distributed Common Ground Station (DCGS) approaches can provide operators with information architecture and interoperable intelligence tools, the ability to link operators with higher echelons and national decision makers remains an inconsistent process, relying in some cases on the availability of Trojan Spirit II (AN/TSQ-190(V)). Trojan Spirit, developed by the Army's Communications and Electronics Command (CECOM) is a tactical Army system "capable of supporting the warfighter's mission critical military intelligence dissemination and communications requirements on a worldwide basis."<sup>4</sup>

#### Supporting Combatant Commands

Finally, there is the issue of Service providers and Combatant Command users. Despite the rise of joint Combatant Commands and their growing role in the planning and execution of combat, U.S.C. Title 10 reserves for the Services the acquisition of new capabilities (they have the responsibility to "recruit, train, and equip"). Thus, while the operational responsibility for the "last" and "first" tactical mile resides with the Combatant Commands, the capabilities needed in

<sup>&</sup>lt;sup>4</sup> See: "Long-range capabilities enable forces to conduct reconnaissance missions while remaining outside of adversary's reach" by Scott R. Gourley, in Military Information Technology Online Archives, Volume: 7 Issue: 6.

both domains are derived from requirements and acquisition programs managed by the Services. Although there is anecdotal information that aspects of the Joint Transformation Roadmap, authored by the U.S. Joint Forces Command, are finding their way into system requirements baselines, the bulk of requirements (and capabilities) addressed by acquisition programs deal with Combatant Commands needs as derived from those of the Service components that may support these Commands. As noted in the DAPA study, Combatant Commands have not been included in the JROC process, nor have they been staffed or resourced to play a major role in that process commensurate with their other responsibilities. Some mechanism must be found to place the resources in the hands of Joint elements to develop capabilities appropriate to the needs and initiatives of battlefield operators. Such a mechanism must be agile and "excused" to some extent from the need to drive acquisition from capabilities embodied in Service-centered considerations. The JIOC-I and tools developed by the Joint IED Task Force serve battlefield operators, connect them to national assets, and were developed with reference first to their own, joint needs.

#### **Technology Can Provide Solutions**

Technology offers unprecedented opportunities if we can address and successfully resolve the impediments described above. New storage formats, such as JPEG 2000, allow data to be streamed efficiently, reducing the necessity to download full data sets before they can be used. XML allows users to subscribe to information more easily, giving them the means to view dynamic information in the form of "tickers." The use of Web Services within Service Oriented Architectures (SOAs) reduces the need for customer client-loaded software, focusing instead on the use of a robust browser to access, view, and transact. Internet Protocol Version 6 (IPv6),

fast becoming the baseline in other parts of the world, is only now being implemented in the U.S. The use of IPv6, however, has been mandated by the Office of Management and Budget and, when introduced, will make more efficient use of available bandwidth and allow for more flexibility in addressing and managing resources throughout a network. But this will take time and the resources of the private sector. These tools can give battlefield operators an even greater ability to build context-rich views of their environment, enhance these views with data from national agencies and other operational theaters, and share these views throughout the IC and other operational theaters.

#### Summary

The AFCEA Intelligence Committee acknowledges the progress that has been made across the Intelligence Community to facilitate the flow of intelligence up and down the chain of command, including progress along many vectors at the tactical level. A new, top-level Community architecture is emerging reflecting the "enterprise" aspect of the vision described by the National Intelligence Strategy. Efforts are underway to rationalize Community-wide "certification and accreditation." Joint "mission managers" for counter-terrorism and WMD are proving their mettle. Still, the lack of a detailed architecture and accompanying implementation continues to force the military to rely on tactical solutions, such as Trojan Spirit. We urge the Community to redouble its efforts toward the development and deployment of a true, global architecture that supports intelligence requirements.

In addition, the Community remains vulnerable to security constraints, requirements and acquisition models that reflect legacy needs and make difficult the exploration of new technologies with potentials not fully known in advance. Addressing this situation and challenges will yield rich benefits. Complex and dynamic environments call for the use of tools that allow battlefield operators to share with national agencies and other theaters what they know and to benefit from the knowledge of others. No technological impediments to these reforms exist, neither do intellectual impediments. The real obstacles are cultural, policy, bureaucratic, legal and social. What remains is our recognition that these challenges remain unresolved – and that resolved they must be.

To complete a short feedback survey on this White Paper, please click here.

The AFCEA Intelligence Committee is a group of government and private sector volunteers which oversees AFCEA International's outreach to the Intelligence Community. By providing alternate means for the exchange of ideas of interest to intelligence professionals, the Committee seeks to make a contribution to national security.