

AU/ACSC/1799/2004-05

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

GLOBAL ISR – A PROCESS-ORIENTED APPROACH TO
ACHIEVING DECISION SUPERIORITY

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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Maxwell Air Force Base, Alabama

18 April 2005

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Report Documentation Page		Form Approved OMB No. 0704-0188
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1. REPORT DATE APR 2005	2. REPORT TYPE	3. DATES COVERED 00-00-2005 to 00-00-2005
4. TITLE AND SUBTITLE GLOBAL ISR - A PROCESS-ORIENTED APPROACH TO ACHIEVING DECISION SUPERIORITY		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER	
	5e. TASK NUMBER	
	5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air University Press (AUL/LP),131 W Shumacher Avenue,Maxwell AFB,AL,36112-6615		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited		
13. SUPPLEMENTARY NOTES		
14. ABSTRACT This paper focuses on leveraging current technology in a process-oriented approach to leveraging capabilities resident in global intelligence, surveillance, and reconnaissance (ISR) assets to meet the increasing demands of Joint Force Commanders (JFC). The pace of current military operations often requires information and intelligence to be available to the JFC faster than supporting communities are capable of providing it. As a result, a seam exists that hinders the ability of today's military commanders to achieve decision superiority over the nation's adversaries. Recent changes in Department of Defense policy and guidance are aimed at closing this seam with a renewed focus on ISR support to warfighters and changes in Combatant Commander (CoCom) missions to highlight this focus. United States Strategic Command has been tasked with integrating global ISR capabilities in an effort to build mechanisms by which JFC requirements can be met in the timelines needed. Concurrently, United States Joint Forces Command has developed the Standing Joint Force Headquarters (SJFHQ) construct with subsequent fielding to each of the regional CoComs. The mission of the SJFHQ is to be a center of excellence that understands the JFC's intent given a specific region or event and can create a collaborative planning and execution environment that can integrate the knowledge available from a variety of subject matter experts to provide the best possible situational awareness to the JFC. By combining these two staffs' efforts and focusing on the processes required to integrate them, the seam between national capabilities and operational problem sets can be eliminated using today's technology to meet today's warfighter requirement.		
15. SUBJECT TERMS		

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 39	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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Preface

As an officer in the United States Air Force whose specialty is communications and information systems, I often see attempts to use technology to solve problems without giving any thought to the underlying processes or strategy. The pace of operations in today's military continues to accelerate in an attempt, often successful, to get our adversaries off-balance and keep them there. Because the information requirements, already massive, are accelerated along with the pace of operations, technology is again looked to in the hope it will solve our problem. My intent with this paper is to look at one aspect of information needs, that of national capabilities supporting Combatant Commander intelligence requirements, and focus on how current technology enabling the right process can meet the demand.

While the message in the paper is mine, the clarity of its conveyance is only possible through the Herculean efforts of those who reviewed my work and offered endless, and extremely valuable, suggestions for improvement. Specifically, I would like to thank General Larry D. Welch, USAF (ret.) for the genesis of so many of my thoughts and his inspiring insights into the subject of global intelligence, surveillance, and reconnaissance and a host of other subjects far too numerous to mention here. I would also like to thank Dr. Richard F. Antonak, University of Massachusetts Boston for his patience in reviewing this work, his generous comments regarding its content, and his brilliant input that went far to turn a "report" into an academic product. I would also like to thank Major Ginger L. Wallace, a great friend who offered a "reality check" regarding the relevance of the topic and the words herein to today's operational environment. Our research seminar on intelligence, surveillance, and reconnaissance was greatly enhanced by our advisor Major Aaron M. "Brain" Prupas. Not only that, my own

efforts benefited from his constant input and attempts to keep me on track and help focus my discussion to something that could be adequately covered in the time and space I had. Finally I would like to thank my wife, Rebecca, for her constant support and her help in turning a poor attempt at writing into something worth reading. Any mistakes in the proper use of the English language are entirely my fault and only exist because I failed to heed her advice.

Abstract

This paper focuses on leveraging current technology in a process-oriented approach to leveraging capabilities resident in global intelligence, surveillance, and reconnaissance (ISR) assets to meet the increasing demands of Joint Force Commanders (JFC). The pace of current military operations often requires information and intelligence to be available to the JFC faster than supporting communities are capable of providing it. As a result, a seam exists that hinders the ability of today's military commanders to achieve decision superiority over the nation's adversaries. Recent changes in Department of Defense policy and guidance are aimed at closing this seam with a renewed focus on ISR support to warfighters and changes in Combatant Commander (CoCom) missions to highlight this focus. United States Strategic Command has been tasked with integrating global ISR capabilities in an effort to build mechanisms by which JFC requirements can be met in the timelines needed. Concurrently, United States Joint Forces Command has developed the Standing Joint Force Headquarters (SJFHQ) construct with subsequent fielding to each of the regional CoComs. The mission of the SJFHQ is to be a center of excellence that understands the JFC's intent given a specific region or event and can create a collaborative planning and execution environment that can integrate the knowledge available from a variety of subject matter experts to provide the best possible situational awareness to the JFC. By combining these two staffs' efforts and focusing on the processes required to integrate them, the seam between national capabilities and operational problem sets can be eliminated using today's technology to meet today's warfighter requirement.

Introduction

Many agencies are trying to solve the problem of how best to fuse intelligence, surveillance, and reconnaissance (ISR) products from national sources and meet ever-increasing intelligence demands across the customer spectrum from battlefield commanders to national policy makers. These agencies' efforts rely on plans for revolutionary data fusion systems to process, catalogue, and push decision-quality intelligence to this demanding, and disparate, customer base. Often these plans are based on as-yet-undeveloped artificial intelligence engines that may, or may not, become a reality in the near future. While the technology is important, the focus of this paper is processes and organizational constructs that leverage existing technology to develop an intelligence fusion process directly tied to Joint Force Commander (JFC) requirements.

The need for more effective integration of national ISR capabilities into modern battlefields and the ongoing Global War on Terrorism is clearly indicated in the Unified Command Plan (UCP) assignment of the Global Command, Control, Communications, Computer Systems, Intelligence, Surveillance and Reconnaissance (C4ISR) mission to United States Strategic Command (USSTRATCOM). USSTRATCOM has been assigned Combatant Command (CoCom) responsibility for this mission and is charged with developing the capability to perform this function on behalf of both regional combatant commands and USSTRATCOM's own Global Strike mission. However, reliance on technology alone, without the right focus on both thought and organization is detrimental to developing a rapid capability.

Often, current doctrine and literature refer to the need to gain and maintain information superiority over the nation's adversaries. A better goal is to surpass the requirement for

information superiority and gain and maintain decision superiority for the JFC and his subordinate commanders. A key enabler of decision superiority is the information available from global ISR assets. However, this information is an enabler only if it is available to the JFC when he needs it, and continues to be available at a rate consistent with his pace of operational execution. A process-oriented approach is available that maximizes recent efforts of both USSTRATCOM and United States Joint Forces Command (USJFCOM) and is aimed at linking these global ISR capabilities and JFC requirements with the aim of providing intelligence that enables decision superiority. It is an approach that facilitates the move from intelligence, to knowledge, to wisdom, and is immediately available with the added benefit of supporting current efforts to streamline Department of Defense (DoD).

To examine this process-oriented approach, the need is first defined based on the current methods by which global ISR capabilities are brought to bear on operational problem sets. A seam exists between national intelligence and its support to military operations; however, recent DoD guidance changes make this an opportune time to address this gap. During this same time, USSTRATCOM and USJFCOM have independently launched initiatives which can also be used to address this gap. These initiatives, leveraging existing technology, can maximize the lessons learned from recent examples of process-oriented approaches that involve collaborative environments to solve complex problems. Applying these general lessons learned with some specific recommendations will go far in closing the seam between global ISR capabilities and JFC requirements.

Why a New Approach?

Cold War Strategic Mindset

The individual organizations that comprise the National Intelligence Community (NIC), and their associated global ISR capabilities, were created primarily to work national strategic problem sets, not to support operational military commanders. Although these organizations have successfully provided critical support to military operations, they still function within the original strategic support construct. Most notably, their primary limitation is the inability to anticipate the operational commander's requirements based on a lack of understanding his commander's intent. Instead, these organizations tend to collect on particular targets and analyze the resulting intelligence based on the capabilities of the systems themselves. The result is voluminous amounts of data and information that must then be processed into intelligence. It is impractical to analyze collected data properly across such a broad scope so the emphasis then becomes refocused on the collection efforts. This creates the need to "pull" specific information from a broad, poorly organized, base of data to meet the commander's needs. To refine their focus and gather more relevant intelligence, these organizations must wait for the operational commander, usually through his J-2, to define a specific requirement they can attempt to satisfy. The issue then is the amount of time necessary to task, collect, process, analyze and disseminate the intelligence that satisfies the commander's requirement. As it often takes longer to discover, analyze, and disseminate than it did to collect, the resultant information may not be the intelligence the commander needs because the situation has changed and it is no longer relevant.¹

It becomes obvious that unity of effort is essential for successful ISR support to operations. According to Joint Publication (JP) 2-0, Doctrine for Intelligence Support to Operations, “Joint Force Commanders (JFC) have the responsibility and authority to determine, direct, and coordinate all mission-related collection and analysis through centralized or apportioned collection and production management efforts. When liaison personnel are provided by national intelligence or combat support agencies, the J-2 should integrate their efforts with the Joint Intelligence Center (JIC) or Joint Intelligence Support Element (JISE).”² In addition, JP 2-01, Joint and National Intelligence Support to Military Operations, states “The objective of joint intelligence operations is to integrate Service and national intelligence capabilities into a unified effort that surpasses any single organizational effort and provides the most accurate and timely intelligence to commanders.”³ In recent conflicts, this marriage of JFC’s intent, or ends, and national intelligence capabilities, or means, has been accomplished by deploying national intelligence support teams (NIST) to a JFC’s headquarters. While there have been notable success stories, there are limitations to how effective NISTs, which are by their nature temporary coordinating groups, are with maximizing global ISR capabilities to satisfy JFC requirements.

Modern Information Requirements

In 1996, the Defense Science Board (DSB) convened a task force to look at Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) integration. The DSB task force concluded national intelligence support to JFCs needs to be converted from temporary, ad hoc, support to a systematic approach. At the same time, the DoD needs to develop a better mechanism for the mutual understanding of JFCs’ requirements and how national capabilities can be relevant for satisfying those requirements. At the operational level, all forms of information should be integrated into the commander’s planning and execution

processes and not be treated merely as an input. This integration is the task of the operational organizations, the CoComs, not the NIC. The task force's recommendation was for "DoD to work with the NIC to develop new ways of providing information support to operational commanders which effectively and efficiently integrates the rich array of assets available within the United States and for DoD to develop mechanisms that facilitate the introduction of such revolutionary changes into warfighting capability."⁴

The issue is more than just making the output of global ISR assets available to operational commanders. It extends to managing the increasing amount of data so the JFC gets what he needs, when he needs it. Increasing sophistication and numbers of sensors, without integration, leads to data saturation and obscures needed actionable intelligence; consequently, information leading to decision superiority is lost. There are new sensor systems in the developmental pipeline that will greatly enhance United States' capabilities,⁵ however, the downside is these new platforms will further complicate the intelligence community's challenge to turn massive amounts of data into information and ultimately into "knowledge and wisdom."⁶ The "knowledge management" processes that fuse this information into what the JFC really needs to accomplish his mission are missing.

OIF Lessons to Teach

Operation IRAQI FREEDOM (OIF) offers several examples of successes and limitations in supporting operational JFCs requirements with current global ISR capabilities. In April 2003, two air strikes in Iraq highlighted the potential of an effectively employed global ISR capability with rapid intelligence dissemination: "In the first, the destruction of an enemy surface-to-air missile site began with the transmission of a Global Hawk image. Two minutes after receiving it, a US-based imagery analyst spotted the SAM [Surface to Air Missile]. Ten minutes after that,

the image was forwarded to the combined air operations center (CAOC) for targeting. Less than an hour after the picture was taken, B-2 stealth bombers hit the SAM site. In the second, airpower needed even less time to destroy a pair of Iraqi tanks. A Predator searching for missile transporters instead found two tanks in a tree line. A DGS passed positive identification of the tanks to the CAOC, which, a minute later, gave the target data to aircraft already orbiting over the area. Within 17 minutes of discovery, the tanks were destroyed.”⁷

These examples highlight the quality of ISR support during OIF. However, timeliness of analysis and dissemination of relevant intelligence was still a limiting factor. While OIF benefited from an unprecedented ability to collect intelligence for combat operations, it was still saddled with a cumbersome collection bureaucracy. The impractical collections hierarchy remained dependent on individual servicing organizations’ systems and offered operational users inadequate feedback on the status of the intelligence requests. Even though NISTs facilitated needed processes, the JFC still relied on the practice of requesting support and then waiting for results, which often arrived well after the support was needed. On the global level, ISR assets, and their controlling organizations, were largely managed to respond to specific requests for support as they emerged since the tasking authorities did not have access to the JFC’s intent and plans for current and future operations. As a result, the JFC only received what he asked for, not what the community was capable of giving him.⁸

OIF highlighted the same problems of data overload and inadequate access to relevant information seen in previous conflicts. US military forces now have an amazing view of the battlespace provided by tactical, operational, and global ISR assets. The ability to sense relevant objects and activities with a variety of capabilities, coupled with human intelligence, comes as close to “ground truth” as any time in modern warfare. What is missing is the ability to

determine if this “truth” being presented is relevant to the commander’s needs in current operations. If that truth is not the knowledge the JFC needs, then it is nothing more than noise.⁹ That is, if the truth the JFC needs is still clouded in uncertainty because it has not been identified and accepted as a priority, then by the time the area is sensed, exploited, and the intelligence disseminated it will be too late for the JFC to do anything with that information. OIF offers a further example of this shortfall; three different ISR assets imaged one particular target even though imagery from the previous day that could have satisfied the requirement had not been analyzed and disseminated.¹⁰ Commanders need a method that allows global ISR collection and management to stay in synch with their execution by understanding their requirements and intent for immediate and follow-on operations.

Notes

¹ Carl M. Bradley, “ISR In support of OIF: Challenges for Rapid Maneuvers and Joint C4ISR Integration and Interoperability.” Research Report no. ADA422709 (Newport, RI: Naval War College, 2004), 3.

² Joint Publication (JP) 2-0, *Doctrine for Intelligence Support to Joint Operations*, 9 March 2000, IV-4.

³ JP 2-01, *Joint and National Intelligence Support to Military Operations*, 7 October 2004, I-1.

⁴ Robert Hermann and General Larry D. Welch, USAF (Ret.), *Report of the Defense Science Board 1996 Task Force on C4ISR Integration*, (Washington D.C.: Defense Science Board, 1997), 14-15.

⁵ Robert K. Ackerman, “Advanced Surveillance Spawns New Challenges”, *Signal Magazine*, March 2004, 23.

⁶ Ibid., 24.

⁷ Adam J. Hebert, “Operation Reachback”, *Air Force Magazine*, April 2004, 56-58.

⁸ Anthony H. Cordesman, *The Iraq War - Strategy, Tactics, and Military Lessons* (Washington D.C.: The CSIS Press, 2003), 188.

⁹ Williamson Murray and Major General Robert H. Scales, Jr., *The Iraq War* (Cambridge, MA: The Belknap Press of Harvard University Press, 2003), 239.

¹⁰ Bradley, 8.

Global ISR Support to Warfighters - Today

Current Doctrine

Joint Publication 2-01, Joint and National Intelligence Support to Military Operations describes the current processes by which global ISR capabilities can support JFCs. In doctrine it is clear the JFC's J-2, Director of Intelligence, will rely on both theater and national intelligence organizations to satisfy their commander's information and intelligence requirements. The resources of the National Military Joint Intelligence Center (NMJIC), the Defense Intelligence Agency (DIA), various national intelligence agency command representatives, and NISTs provide the methods by which national intelligence capabilities are leveraged to support the JFC. Doctrine places the burden of understanding these processes and successfully exploiting these capabilities on the J-2.¹¹

Often the first step of national agency support to the JFC resides in their representatives to the CoCom's headquarters. The Central Intelligence Agency (CIA), DIA, National Security Agency (NSA), National Geospatial Intelligence Agency (NGA), and the National Reconnaissance Office often provide full time representatives at this level. These representatives advise the CoCom and his staff on how best to employ their organization's capabilities and liaise with their parent organizations. During contingencies, NISTs are deployed to serve this liaison function at headquarters other than the CoCom's. The NIST mission is to provide national level, all-source intelligence support from throughout the intelligence community to deployed commanders. NISTs are comprised of intelligence and communications experts from DIA, CIA, NGA, NSA, and other agencies as required to support the specific needs of the JFC.¹²

The Joint Staff J-2 operates the NMJIC Alert Center collocated in the Pentagon with the National Military Command Center (NMCC) and DIA's Defense Collection Coordination Center (DCCC). The NMJIC is the focal point for all defense intelligence activities supporting joint operations and is composed of regional analysts, target analysts, operational specialists, terrorism analysts, warning intelligence officers, and collection managers from the Joint Staff J-2. The NMJIC's responsibilities include providing intelligence and early warning support to the Secretary of Defense, Chairman of the Joint Chiefs of Staff (CJCS), the Joint Staff, CoComs, and Military Service secretaries and chiefs. It orchestrates the capabilities inherent in global ISR assets to ensure complete target coverage and event reporting. It facilitates national support to the JFC during crises through its link to the deployed NIST.¹³

DIA's DCCC is collocated with the NMJIC and operates 24 hours a day. The DCCC's primary mission is to facilitate the coordination, validation, approval, and submission of time-sensitive collection requirements supporting the CoComs, Joint Staff, Military Services, and other DoD agencies. As the DoD focal point for time-sensitive collection, the DCCC's specific responsibilities include: "(1) Formulating and validating time-sensitive intelligence collection and reporting requirements in coordination with the user, (2) Managing the submission of time-sensitive collection requirements to satisfy user needs, (3) Assigning appropriate priorities to available collection and reporting resources, (4) Recommending reallocation and use of collection assets and resources, (5) Monitoring satisfaction of collection requirements."¹⁴

As discussed previously, the JIC is the JFC's primary focal point for leveraging national intelligence assets in support of his requirements. After determining a global ISR capability is needed to satisfy a specific information requirement, the JIC prepares a formal request in the form of a Request for Information (RFI). In peacetime situations, DIA serves as the "portal" for

requesting this global ISR capability; during crises, the NMJIC is the focal point for intelligence support. If the RFI involves a time-sensitive collection requirement, DIA's DCCC, collocated with the NMJIC, is the focal point. Additionally, deployed NISTs may serve as a direct link to the NMJIC and DCCC when the JFC's J-2 determines that time-sensitive collection requirements or RFIs require national support.¹⁵

Recent Policy Changes

The NIC has made important progress in providing direct support to Regional CoComs through proliferation of national support liaison functions – both inter-agency and teams supporting CoCom staffs. Since operations in the Balkans in the late 1990s, military commanders expect, and often enjoy, the benefits of information superiority. The concepts spelled out in the doctrine above have worked.¹⁶ But again, these efforts to support warfighter requirements with global ISR assets have been accomplished on an ad hoc basis. In an August 2004 hearing on the position of National Director of Intelligence and support to warfighters, Secretary of Defense Donald Rumsfeld stated “DoD and its counterparts in the intelligence community are forging, during a war, a strong interlocking relationship between intelligence and operations, between national and tactical intelligence, and between foreign and military intelligence. And we’ve worked hard to close the gaps and seams that these terms imply.”¹⁷ Chairman of the Joints Chiefs of Staff (CJCS), General Richard Myers added, “I believe we depend in large measure on personal relationships and memoranda of understanding to force information-sharing across organizations and agencies. In fact, I’ve dropped a roll of duct tape on the podium during a speech to emphasize this point because, in a sense, we’re duct taping together organizations and processes that weren’t designed to be well-connected. We’ve made progress, but there’s more to do.”¹⁸ There have been many actions within the DoD over the last

two years that directly affect global ISR support to warfighters with the intent of removing the need for “duct tape” from the relationships.

Unified Command Plan 2002, Change 2

Unified Command Plan (UCP) 2002, and its Change 2, signed by President Bush in 2003; was one of the most sweeping changes to how the United States fights since the Goldwater-Nichols Act in 1986. UCP 2002, Change 2, assigned all areas of the globe to one of the five regional CoCom’s areas of responsibility, assigned previously unassigned missions, and broadened authorities of the functional CoComs.¹⁹ In February 2003 Congressional testimony, General Myers specifically discussed how UCP 2002, Change 2, effects two key CoComs. He emphasized the assignment of four emergent missions to USSTRATCOM; global strike, missile defense, information operations, and global C4ISR.²⁰ He also discussed how USJFCOM’s mission and focus had changed to concentrate on improving joint warfighting capability, addressing policy and procedures, and championing technical system interoperability.²¹

USSTRATCOM

UCP 2002, Change 2 tasked USSTRATCOM to plan, integrate, and coordinate DoD ISR in support of strategic and regional operations.²² To meet the challenge inherent in this assignment, they must constantly balance the tasks of satisfying CoCom requirements with national priorities.²³ USSTRATCOM has approached this problem with a variety of adjustments. They integrated operations and intelligence into a single ISR division to increase synergy between those who determine requirements, those who conduct collection operations, and the end users of the processed intelligence.²⁴ They also formed a Joint Functional Component Command for C4ISR led by the Director of DIA. These new organizations are part of USSTRATCOM’s focus

on developing a mission-centric process that looks at worldwide requirements, adjudicates regional CoCom and national priorities, and seeks to better utilize high demand global ISR assets to better satisfy all user communities.²⁵ Towards this end, they built a Global Operations Directorate that coordinates the former STRATCOM JIC and all intelligence operations formerly associated with USSPACECOM into a single collection facility.²⁶ Adding to this technical capability, USSTRATCOM is seeking new service, agency, and theater relations to leverage capabilities of DoD and national agencies, and also enhance understanding of regional CoCom missions. A special relationship is growing between USJFCOM and USSTRATCOM to integrate ISR fully into developing technical architectures and warfighting operations concepts.²⁷

USJFCOM

USJFCOM has been assigned a greater role in the development of joint force enabling constructs in ISR, command and control, and planning.²⁸ They have been developing the Joint Intelligence, Surveillance, and Reconnaissance (JISR) mission to produce relevant information from all sources so that commanders may gain and maintain information superiority. Specifically, the JISR approach emphasizes quick exchanges between information gatherers and users and replaces the single-intelligence-specific tasks, techniques, and procedures that currently exist. The seven components of JISR are a robust information infrastructure, incorporation of operational processes into ISR processes, cross-domain integration (space, maritime, airborne, and terrestrial), ISR integration to clarify target status, movement, and intent, interactive collection management, investment strategies in new collectors and new capabilities, and multi-intelligence collaboration.²⁹

USJCFOM has also led the effort to build and refine the Standing Joint Force Headquarters (SJFHQ) concept. The SJFHQ is a revolutionary concept that gives a regional CoCom the

ability to fuse information regarding his areas of responsibility and interest to truly understand how best to prosecute operations and achieve desired strategic and operational effects. It is a 50- to 60-person team of operational planners and information experts aimed at focusing on a CoCom's trouble spots and developing contingency plans implementing the commander's intent regarding those areas. In the event those trouble spots require more direct action, the SJFHQ can transition to become the core of a JTF responsible for executing operations. Alternatively, the SJFHQ can support a joint task force as a reachback function where expertise in the area of operations resides.³⁰

Under Secretary of Defense for Intelligence

The creation of the Under Secretary of Defense for Intelligence (USD(I)) position has focused DoD's efforts on enhanced global ISR support for warfighters. The USD(I), Dr. Stephen Cambone, spelled out six critical goals for DoD Intelligence in an April 2004, testimony before the Strategic Forces Subcommittee of the Senate Armed Service Committee:

- (1) Know something of intelligence value about everything of interest to us, all the time: Current collection capabilities predominantly reflect a Cold War era reconnaissance paradigm – one of periodic looks and sampling. Persistent is essential for planners, operators, and policy makers.
- (2) Develop reliable strategic warning: Competence in strategic warning across the full spectrum of potential threats is critical.
- (3) Pursue agile and adaptable intelligence collection and analysis capability: Our intelligence capability needs to be less dependent on linear processes and more prepared to respond to surprise. The amount of information available to collectors and analysts requires a horizontally integrated, network-centric environment. Today's transforming military and intelligence environment demands rapid conversion of data to information and information into actionable knowledge.
- (4) Provide an intelligence capability that supports a national strategy of forward deterrence and agility: It is now Department policy that the national intelligence agencies and service intelligence centers have broad access to collected theater intelligence data along with the authority to store and distribute. This will

facilitate the horizontal integration of ISR information making the analytical power available to assist where needed.

(5) Ensure military forces receive intelligence in a fashion and in a format that enables them to defeat an adversary swiftly—this includes delivering, nearly instantaneously, critical data from sensitive sources directly to the warfighter so that prompt action can be taken based on that data.

(6) Ensure knowledgeable adversaries do not compromise our secrets.³¹

These six goals are important in that they describe a shifting priority in the DoD with respect to ISR support to operational commanders. Along these lines, the USD(I) also defined aggressive efforts in the areas of ISR process investment and horizontal intelligence integration. New ISR capabilities will be enabled by an overarching horizontal integration strategy that covers both new system acquisition, making sure they can communicate laterally, and ISR management processes. Among these processes, several principles guide DoD's approach, "emphasis on the tailored mission needs of consumers, shifting the focus from data ownership to data usability, and urging net-centric standards for data interoperability and availability."³²

Director of National Intelligence

A discussion of recent policy changes effecting global ISR support to operational commanders would be incomplete without referencing the December 2004 Intelligence Reform and Terrorism Prevention Act. There are a variety of provisions in this Act but it is the creation of the Director of National Intelligence (DNI) and his authorities that are of particular significance.

The first authority of note is that the DNI shall be responsible for building and executing the intelligence budget. This is significant in that almost all of the global ISR assets are programmed, developed, operated, and their output managed by this funding line. As only one

community of users of global ISR capabilities, CoCom requirements for current and future support must ultimately be supported by the DNI and his staff.³³

The second DNI authority of interest is his responsibility for establishing objectives and priorities for the intelligence community. He also is responsible for managing and directing tasking of collection, analysis, production, and dissemination of all forms of national intelligence. Most notably, the DNI is charged with approving collection requirements. How DoD methods for applying global ISR capabilities to operational problem sets fit with this new approval process may have significant impact on CoComs and the operational community.³⁴

Finally, the DNI's responsibility to establish national intelligence centers to address priorities and provide all-source analysis and oversight of collection and production requirements for that center's area of responsibility is worthy of note. The efforts of USSTRATCOM should make it a candidate to assume the role of a "national global ISR center for support to military operations." However, how the DNI approaches this particular issue, if it is even addressed, may have a significant impact on the current efforts of USSTRATCOM to leverage this national capability to support CoCom requirements.³⁵

The relevance of many of the issues raised in the previous paragraphs is as yet undetermined. What is important to note is the DNI will have a certain influence on how global ISR capabilities are developed, built, operated, and supported. The ultimate question of how the DNI will continue to meet warfighter requirements, given his task to support the Global War on Terrorism and other strategic problem sets, remains to be answered.

Notes

¹¹ JP 2-01, *Joint and National Intelligence Support to Military Operations*, 7 October 2004, II-1.

¹² Ibid., II-10 – II-12.

¹³ Ibid., II-15.

Notes

¹⁴ Ibid., II-22.

¹⁵ Ibid., II-22 – II-23.

¹⁶ Denis A. Clift, “Intelligence in the Internet Era”, *Center for Studies of Intelligence: Unclassified Studies* 47, no. 3 (2003): n.p., on-line, Internet, 17 February 2005, available from <http://www.cia.gov/csi/studies/vol47no3/article06.html>.

¹⁷ Senate, *Defense Intelligence Reorganization: Hearings before the Senate Armed Services Committee*, 108th Cong., 2nd sess., 17 August 2004, 10

¹⁸ Ibid., 16

¹⁹ General Richard B. Myers, “A Word from the Chairman, Shift to a Global Perspective,” *Air and Space Power Journal* 17, no. 3 (Fall 2004): 7.

²⁰ House, *Posture Statement of General Richard B. Myers, USAF, Chairman of the Joint Chiefs of Staff on Defense and National Security: Hearings before the House Armed Services Committee*, 108th Cong., 1st sess., 5 February 2003, 6.

²¹ Ibid., 14.

²² House, *Statement of Lieutenant General Thomas B. Goslin, USAF, Deputy Commander of United States Strategic Command: Hearings before the House Permanent Select Committee on Intelligence Technical and Tactical Subcommittee on Intelligence, Surveillance and Reconnaissance*, 108th Cong., 1st sess., 3 March 2004, 1.

²³ General Larry D. Welch, USAF (ret.) and Dr. Robert Hermann. *Defense Science Board Task Force Report on Enabling Joint Force Capabilities – Phase II* (Washington D.C.: Defense Science Board, 2004), 12.

²⁴ Ibid., 2.

²⁵ Ibid., 3.

²⁶ Commander Bruce A. Derenski, USN, “The Missing CoCom...Who’s fighting the GWOT?” Research Report no. ADA420150 (Newport RI: Naval War College, 2003), 4.

²⁷ House, *Statement of Lieutenant General Thomas B. Goslin*, 4.

²⁸ Welch and Hermann, 7.

²⁹ United States Joint Forces Command (USJFCOM), “JFCOM Fact Sheet: Joint Intelligence, Surveillance, and Reconnaissance,” n.p.; on-line, Internet, 15 January 2005, available from http://www.jfcom.mil/about/fact_jisr.htm.

³⁰ United States Joint Forces Command (USJFCOM), “JFCOM Fact Sheet: Standing Joint Force Headquarters Core Element,” n.p.; on-line, Internet, 15 January 2005, available from http://www.jfcom.mil/about/fact_sjfhq.htm.

³¹ Senate, *Statement of Dr. Stephen A. Cambone, Under Secretary of Defense for Intelligence, on Intelligence, Surveillance, and Reconnaissance: Hearings before the Senate Armed Service Committee Strategic Forces Subcommittee*, 108th cong., 2nd sess., 7 April 2004, 4-6.

³² Ibid., 12.

³³ Senate Committee on Governmental Affairs, *Summary of Intelligence Reform and Terrorism Prevention Act of 2004*, 108th Cong., 2nd sess., 6 December 2004, 1.

³⁴ Ibid., 2.

³⁵ Ibid., 8.

Eliminating the Seam

Eliminating the seam in planning and conducting global ISR support to regional CoComs is essential to form the necessary integrated operations-intelligence structure and process that gives commanders the capability to rapidly discover and assimilate the best available information for operational planning and execution. Many existing tools can support closing this gap. The task is to understand how those tools can be applied to a key relationship to integrate global ISR capabilities and JFC decision processes.

Leveraging the Principles of Network-Centric Warfare

Network-centric warfare is about human and organizational behavior that focuses on attaining access to gather, process, and manage information to support decision superiority. The concepts of network-centric warfare have often been misstated, detracting both from support of its principles and its validity. Network-centric warfare is often touted as a panacea for all of the ills of the modern battlefield. It is not; rather it is a means to enable strategies to better achieve military objectives.³⁶ According to Admiral Arthur K. Cebrowski (ret.), a key player in DoD's transformation efforts, network-centric warfare supports decision superiority over the enemy by providing shared awareness of battlespace activities and shared understanding of the commander's intent at each level. Network-centric warfare serves as a key enabler of decision superiority by increasing the timeliness, accuracy, and relevance of the information presented to the JFC and minimizing the timeliness, accuracy, and relevance of the information available to the enemy. The key components of getting the right, relevant information in this timely manner

is directly tied to the ability to share relevant awareness (relevance depending on the level of command viewing the information) and the JFC's intent for current and future operations.³⁷

In its simplest definition, network-centric warfare describes “the combination of strategies, emerging tactics, techniques, and procedures, and organizations that a fully or even a partially networked force can employ to create a decisive warfighting advantage.”³⁸ It is not merely the networking of computer systems and information stores. In this context, “networking” is a verb, not a noun. Hence, network-centric warfare describes how organizations work in an environment where the various subject-matter experts are networked through command and personal relationships to enhance overall missions. It is about a networked force that has a common reference point, a common understanding of the commander's intent, a common understanding of events, and a shared situational awareness. Because of these factors, the networked force has a significant advantage over the enemy. The rapid exchange of information between support functions, decision makers, and combat forces enables faster and more accurate decision-making and, as a result, increased speed of execution.³⁹

The Collaborative Information Environment

The Collaborative Information Environment (CIE) is a virtual group of individuals, organizations, systems, infrastructure, and processes to create and share the data, information, and knowledge needed to plan and execute joint operations. It is this framework of processes, enabled by network-centric warfare, which supports decision superiority. CIE capabilities transform joint planning from a sequential process based on command hierarchies (e.g. the current DoD Deliberate Planning Process) to a collaborative approach that allows virtual interaction by all organizations regardless of their location.

Components of CIE include a virtual information store, decision-support and situational-awareness tools, and an “enterprise portal” that manages access to the information. These components are designed to allow planners, from a variety of command and support organizations, to provide input to a single planning process, rather than through a series of review and comment iterations. The advantage is that the entire planning community sees the inputs and benefits, with the result being a more robust effort. Another advantage is that the planning process, because of this simultaneous situational awareness, maintains this robustness even if the planning is constrained by short timelines in support of an emerging contingency.⁴⁰

While the CIE is fundamentally a technology and computer based process, a key component is the rule sets and processes that define how a particular CIE accesses information from widely dispersed subject matter experts and organizations based on formal relationships. A fundamental objective of a collaborative environment is to create a “virtual warehouse” as a repository for information.⁴¹ Virtually all questions have an answer, somewhere. The CIE construct brings the best of those with answers together to satisfy JFC requirements.

The Case for Decision Superiority

Previously in this paper, the term decision superiority has been used to describe a concept beyond information superiority. This term is far superior in describing the needs of the JFC because success on the modern battlefield requires more than just information superiority. It requires relevant information and knowledge, presented at the right time, to allow the JFC to make decisions that support his pace of execution and allow him to disrupt his adversaries’ ability to get information in time to support their pace of execution. Too often, the term information superiority connotes massive amounts of information needed to command and control United States’ forces. The term does not address the asymmetries in information needs

between United States' forces and the forces of her adversaries. For example, a JFC may need access to relatively large amounts of information to effectively command and control forces and achieve operational objectives while his adversary could be successful with a much smaller force needing a minimum of information. This is clearly the case in dealing with insurgent activities in Iraq. The focus should be on the critical information the JFC needs to make the right decisions at the right pace of operations. It is the marriage of this information with the judgment of trained and informed personnel that sets the conditions for achieving decision superiority.⁴²

Decision superiority is critical to the success of combat operations. Relevant information in support of decision superiority has to flow at a pace consistent with the needs of operational execution. The commander does not have the time to assimilate masses of raw intelligence and data. JFCs must evaluate relevant information within the context of their operations to make the right decisions for future actions. The right processes allow the commander to focus on decision execution and his intelligence support functions to focus on keeping his knowledge updated, even if this intelligence support function is several thousand miles away.⁴³ This common understanding of current operations and the JFC's intent regarding future operations synchronizes these two efforts.⁴⁴ Global ISR support to decision superiority is maximized by matching the commander's knowledge requirements with the right assets to satisfy them.⁴⁵

A Model for A Process-Oriented Approach

The account of Navy Captain Eileen MacKrell, the Carl Vinson Battle Group intelligence officer, illustrates the power of developing processes and leveraging existing technology to build a collaborative environment where intelligence support, linked with operational awareness, enhances the ability of leaders to make decisions. Specifically, her use of information technology to enable a CIE proved effective during battle group support to Operation Enduring

Freedom (OEF). Captain MacKrell's initial exposure to network-centric warfare began at the Global 2000 War Game at the Naval War College. During that exercise, participants used network-centric tools to build a knowledge wall displaying web-based feeds from several operational and intelligence anchor desks. When the battle group began preparing for deployment, they applied the lessons from the exercise to their daily intelligence operations. Instead of the standard methods of intelligence support, sending daily intelligence summaries and spot reports by record message or e-mail, building daily intelligence briefings, and using voice networks to report tactical activity, the battle group intelligence office began shifting to a network-centric model for providing intelligence to decision makers. With a minimum investment in equipment, software, and time to develop processes, the knowledge wall of Global 2000 became the knowledge Web (KWeb).

The battle group used KWeb for planning, briefing, and execution. They built an extensive series of pages showing current activity in OEF, political and diplomatic developments, and relevant intelligence support materials including graphics, analysis, photographs, maps, and reference materials. They tapped into the capabilities of the national centers and the CoCom's JIC to access graphics and analysis information so they did not have to duplicate effort in the fleet. The successes of the network-centric approach to intelligence then began to influence other aspects of operations as commanders and staffs began to place information on unit status in KWeb. The operational impact can best be stated in Captain MacKrell's own words, "I did not need to use the meeting to tell the warfare commanders that Mazar-e-Sharif had been taken; they already knew that from the Web pages. I could click to the Mazar-e-Sharif section of our Web site during the morning meeting, highlight an activity of interest, and use the Web as a springboard to discuss the likely implications of our current operations, and what to expect next.

As a result, the admiral's briefs turned into tactical discussions and planning and guidance sessions — a relevant use of the formidable brainpower and experience assembled in the war room — versus a venue to disseminate information.”⁴⁶

Captain MacKrell acknowledges the benefits of network-centric warfare with respect to intelligence. She also acknowledges the fact national and CoCom JICs have been using the classified Web for several years to move products and analysis at the theater level. What the intelligence teams for the Carl Vinson Battle Group did was to extend the concepts of theater-level network-centric intelligence to the operators and increase the timeliness of the flow, bringing a faster and more tightly tailored intelligence feed that greatly enhanced warfighter decisions.⁴⁷

Ensuring Decision Superiority Throughout the Battlespace

The key to ensuring decision superiority throughout the battlespace is to leverage the various lessons learned from efforts like the one cited above and normalize them into a joint warfighting construct. The efforts of USSTRATCOM and their global ISR mission, coupled with the concepts integrated into USJFCOM's SJFHQ provide this construct.

USSTRATCOM is developing processes to link the national intelligence community ISR capabilities to work operational problem sets. The intent is to aid the military not just with enhanced intelligence, but actual knowledge. The efforts of the Global Operations Center mentioned earlier work in concert with the Global Integration Center to focus existing global ISR assets and products to meet existing warfighter needs. Added to this, USSTRATCOM has established those formal organizational relationships between national subject matter experts and centers of excellence at key intelligence agencies so that additional capabilities can be prioritized and focused on warfighter support. Recent successful operations in both USCENTCOM and

United States Pacific Command areas of responsibility highlight progress towards creating a global ISR focused collaborative information environment.⁴⁸

For future operations, USSTRATCOM is working closely with USJFCOM to determine requirements for advanced ISR needs. Their daily rapport with regional CoComs provides visibility into theater needs so these requirements can be fully integrated into USJFCOM's ISR architecture and JISR mission development for future programs. The obvious goal of this effort is an "effective, responsive, and coordinated DoD ISR capability across the globe." All of these efforts directly support the USD(I)'s objective for horizontal integration of theater and national intelligence capabilities.⁴⁹

USSTRATCOM is working closely with DoD and national intelligence partners to develop and institutionalize the processes and systems necessary to maximize the capabilities of existing systems and assess intelligence collection priorities.⁵⁰ As evidence of its priority, this task has been echoed by the CJCS in recent discussions regarding DoD transformation. General Myers emphasized how horizontal integration is breaking down organizational and cultural barriers to information sharing. Linking geographically separated staffs into a single CIE realizes horizontal integration and ultimately supports planning and execution of regional CoCom operations.⁵¹ This single CIE can be realized by integrating USSTRATCOM's vision for DoD ISR with the principles of knowledge management and information superiority within USJFCOM's SJFHQ.⁵²

Within the SJFHQ, there are six administrative divisions: command, information superiority, plans, operations, knowledge management, and logistics. These members of these administrative divisions are then task organized into four primary teams: information superiority, plans, operations, and knowledge management. It is the interaction between these four teams, utilizing

critical enabling capabilities, which make the SJFHQ a powerful tool linking JFC requirements with national capabilities. This unique functional construct focuses the SJFHQ staff on five key tasks: effects-based planning, situational understanding, enhanced command and control capabilities, operational network assessment, and training and exercise support. These five key tasks are performed both in peacetime and during crisis, the true strength of the SJFHQ construct. Of these five key tasks, situational understanding utilizes the CIE to gather information and intelligence and contribute to the overall knowledge and wisdom regarding emerging events, or crises, in areas of interest. This knowledge becomes an input to the effects-based planning process to refine assessments continuously. Enhanced command and control capabilities involve utilizing the latest knowledge management tools, within the CIE to minimize the forward command and control footprint, and develop a precise, knowledge-centric response to each crisis or contingency. Operational network assessment includes information from a variety of relevant sources to determine critical nodes and links and document that assessment in a series of products available to all of the SJFHQ teams, the CoCom's staff, the JFC, and other service and agency components. Participation in training and exercises focuses on applying lessons learned, refining processes and tools, and enhancing working relationships necessary for successful joint operations.⁵³

During a crisis, the SJFHQ focuses their five key tasks on the situation at hand. Because the SJFHQ has conducted this daily assessment and planning cycle, it can immediately provide initial analysis and information regarding key nodes and links, and the best force structure and operational approach to support strategic objectives based on the JFC's intent.⁵⁴ The power of the SJFHQ construct is that it enables, and actually realizes, the promises of network-centric warfare. Its continuous assessment and planning cycle, separate from the CoCom staff,

leverages the concepts of CIE and operational net assessment, and develops tangible products that are immediately available to all of the concerned parties whenever a situation develops. The various teams' understanding of strategic objectives and the JFC's intent throughout this process means that crisis planning and support are continuously synchronized with CoCom objectives in an area of operations.

Seams in current global ISR support to JFCs can be minimized, if not eliminated, by linking the results of USSTRATCOM's Joint Force Component Command for C4ISR with the construct of the SJFHQ. Under this joint operations concept, USSTRATCOM's Global Operations Center performs ISR planning, understands the capabilities and limitations of the global ISR "system", and understands the regional CoCom's requirements through its relationship with that CoCom's SJFHQ. The global ISR system is focused not only on providing information identified by the JFC and his staff but also on building the knowledge base the JFC needs to make the right decisions when he needs to make them to support his desired pace of execution.

There are several steps USJFCOM can take to further the ability of global ISR assets to support CoCom requirements for decision superiority. The first and most obvious task is to refine the processes and procedures inherent in the SJFHQ construct. Although it is important to have a structure for the SJFHQ, USJFCOM must understand each CoCom will have different requirements based on their missions. What is important is not that each of the SJFHQs look the same, rather it is their ability to enable decision superiority through processes like effects-based planning, knowledge management, and the implementation of an effective collaborative information environment. Establishing these processes, and then training each of the CoCom staffs in their utility and function is the next step. As the lead command for the SJFHQ concept, USJFCOM must maintain its role as a center of excellence and not just provide guidance but also

actively partner with CoCom staffs to establish a viable, functioning SJFHQ at each command. Finally, USJFCOM should focus on leveraging existing technology and build tools to enable an effective CIE to support a shared situational awareness and knowledge of the JFC's intent. As demonstrated in Captain MacKrell's account above, existing technology can go far in meeting the requirements of a CIE. While plans for future tools, even artificial intelligence, are important, delivering a capability now, based on advanced processes and using existing technology, can go far in meeting the JFC's decision superiority needs.

USSTRATCOM can also support efforts to eliminate this particular seam. As the Joint Force Component Command for C4ISR integrates the global ISR capability to meet operational needs, they must focus not just on cataloguing and managing the products, but also on developing methods by which the capability itself can be brought to bear directly on a particular operational problem set. They must determine the answer to the question, "What is the right, best capability to achieve the specific (informational) effect desired by the JFC?" By asking this question, USSTRATCOM identifies a key awareness the command needs to gain and maintain with each of the other CoComs, "What is the desired informational effect?" That question is best answered through a continuous, collaborative relationship with that CoCom's key planning function, the SJFHQ. By understanding the needed effect through knowledge of that CoCom's intent, USSTRATCOM can better utilize the integrated global ISR capabilities to support requirements. Finally, USSTRATCOM must take on the role of educating operational commanders on national intelligence capabilities in a realistic manner and in terms they understand. Included in this is an education of changes in how these capabilities can be utilized as the Office of the NDI becomes established and asserts their influence over the NIC and its support to military operations.

Notes

³⁶ Admiral Arthur K. Cebrowski, USN (ret.), “Network Centric Warfare – An Emerging Military Response to the Information Age.” *Military Technology* 27, no. 5 (2003): 16.

³⁷ Ibid., 18.

³⁸ Department of Defense, *The Implementation of Network-Centric Warfare* (Washington, D.C.: Office of Force Transformation, 5 January 2005), 3.

³⁹ Ibid., 4-5.

⁴⁰ Joint Warfare Center Pamphlet 5, *Operational Implications of the Collaborative Information Environment (CIE)*, 1 June 2004, 9-13.

⁴¹ John H. Admire, “Command and Control in the Collaborative Information Environment”. Paper to the 2004 Command and Control Research and Technology Symposium, 5.

⁴² Donald Latham and General Larry D. Welch, USAF (ret.), *DSB Report – Joint Operations Superiority in the 21st Century* (Washington D.C.: Defense Science Board, 1998), 39.

⁴³ Ibid., 40-42.

⁴⁴ Ibid., 43.

⁴⁵ Donald Latham and Larry Lynn, *DSB Report – 21st Century Defense Technology Strategies* (Washington D.C.: Defense Science Board, 1999), 27.

⁴⁶ Captain Eileen F. MacKrell, USN, “Network-Centric Intelligence Works,” *Proceedings of the United States Naval Institute*, July 2003, 47.

⁴⁷ Ibid., 44-48.

⁴⁸ Senate, *Statement of Admiral James O. Ellis Jr., USN, Commander, United States Strategic Command on Fiscal 2005 Budget on Defense Strategic Programs: Hearings before the Senate Armed Services Committee*, 108th Cong., 2nd sess., 24 March 2004.

⁴⁹ Ibid.

⁵⁰ Senate, *Statement of Admiral James O. Ellis Jr., USN, Commander, United States Strategic Command on Fiscal 2004 Budget on Defense Strategic Programs: Hearings before the Senate Armed Services Committee*, 108th Cong., 1st sess., 8 April 2003.

⁵¹ General Richard B. Myers, “Transforming for the War on Terrorism,” *Military Technology*, October 2004, 8-15.

⁵² House, *Statement of Brigadier General Marc Rogers, USAF, on Military Command, Control, Computers, Communications and Intelligence Systems: Hearings before the House Armed Services Committee*, 108th Cong., 1st sess., 21 October 2003.

⁵³ Joint Warfare Center Pamphlet 3, *Doctrinal Implications of the Standing Joint Force Headquarters (SFJHQ)*, 16 June 2003, 12-13.

⁵⁴ Ibid., 13-14.

Conclusion

Information technology continues to progress at an accelerating rate, yielding significant advantages for achieving decision superiority on the battlefield. The massive amounts of information available must be transformed into knowledge that is key to the JFC's needs at a particular time to be effective. However, absolute reliance on technology, without more thought to the processes and procedures needed to catalogue, integrate, and deliver this information, will only achieve a faster flow of irrelevant data that does not contribute to the overall effectiveness of JFC decisions.

The efforts of the last two years on both the USSTRATCOM and USJFCOM staffs can be leveraged to close this particular seam. The global ISR integration efforts at USSTRATCOM are already presenting national capabilities to support JFC requirements and deconflict these requirements with those of the national leadership. At the same time the SJFHQ construct developed by USJFCOM, and being implemented at the regional CoComs, provides a unique opportunity to build the network, both personal and technical, of subject matter experts and centers of excellence. This collaborative environment links the right people with the right information simultaneously so the resultant plan and subsequent execution produces the desired effects articulated in the JFC's intent. The global ISR integration effort of USSTRATCOM, embodied in the Global Operations Center, is a center of excellence critical to this CIE and is needed by the JFC and his staff to leverage the full set of capabilities available from global ISR assets. It is the interaction of the organizations represented by these two staffs' efforts that will be key to eliminating the seam that currently exists between global ISR capabilities and warfighter requirements.

The paper has examined successes from OIF and other models to explore the relationship between these two constructs and how information from global ISR capabilities can rapidly and efficiently support JFC requirements. Several topics are worthy of further discussion yet are outside the scope of this paper. One of which is the fact technical aspects of machine-to-machine interfaces required to enable the collaborative environment present significant challenges to USJFCOM and the NIC. This topic's, and others', ultimate resolution is key to building an environment where shared situational awareness, understanding of the JFC's intent, and knowledge of global ISR capabilities all contribute to a seamless "system." A system that anticipates commander requirements and leverages the capabilities inherent in ISR assets to provide relevant and timely intelligence and information to enable decision superiority.

As cited in the previous section, it is not enough to just identify the criticality of this relationship between the global ISR integration efforts at USSTRATCOM and the SJFHQ construct, and all it entails, of USJFCOM. There are several specific tasks each staff must complete to maximize benefits inherent in this operational concept. USJFCOM must (1) refine the processes and procedures inherent in the SJFHQ construct, (2) train each of the CoCom staffs in their utility and function with the aim of establishing a functioning SJFHQ at each staff, and (3) focus on leveraging existing technology and build tools that enable an effective CIE to support a shared situational awareness and knowledge of the JFC's intent. USSTRATCOM must (1) focus not just on cataloguing and managing the global ISR products, but also on developing methods by which the capability itself can be brought to bear directly on a particular operational problem set, (2) establish a continuous, collaborative, relationship with that CoCom's key planning function, the SJFHQ, to understand needed effects through knowledge of that CoCom's

intent, and (3) educate operational commanders on national intelligence capabilities in a realistic manner and in terms they understand.

The intent of this paper is to illustrate how the efforts occurring at two of the functional CoComs can be leveraged to meet a critical warfighter need. Many of these efforts are far along the path towards an actual operational capability. Future technologies will only make this capability better, but the United States military does not have the luxury of waiting for those technologies to become available before addressing the problem. Focus must be on the processes and leveraging existing technology to create a CIE that provides the shared awareness of the JFC's intent and the global ISR capabilities available to satisfy his requirements. By providing relevant information to the JFC, at the proper time, and at a pace matching the JFC's speed of operational execution, his intelligence needs can be met and his overarching requirement for decision superiority will be satisfied.

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