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E Pluribus Unum: Enhancing Intelligence Support in the Network Centric Environment

By

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

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***E Pluribus Unum*: Enhancing Intelligence Support in the Network Centric Environment**

> ...those who think in depth about all this [the Information Revolution's transformation of the U.S. military] generally recognize that the core of this phenomenon involves the role of intelligence—the processes by which we convert facts, data, insights, and predictions into a better understanding of that most complex of human activities, armed conflict. Because of this, the rate at which the revolution and transformation will proceed depends greatly on what the Intelligence Community does and does not do over the next several years....[1]

Introduction

Historically, technology has limited the degree of information exchange in military operations. Whether a commander used messengers, telegraph, radios or computers, effective command and control depended on sharing information within one's force and denying the same to the enemy. Thus it has been and will continue to be in the network centric environment. The enduring intelligence challenge is how best to use the available technology to provide the commander with the right information at the right time in order to make the best decision possible. To provide the Joint Force Commander (JFC) the right intelligence in the Network Centric Warfare (NCW) environment, the Intelligence Community (IC) must overhaul its processes, procedures, and organizations. This retooling cannot be haphazard, but must be guided by the overriding goal of increasing the speed of command by providing the commander with "actionable knowledge."

The IC has long coveted the capability to seamlessly link its organizations, but until recently, relatively little progress has been made in achieving this goal. However, a fundamental change has occurred which may finally realize real-time information exchange. Prior to the Internet, real-time information sharing was driven by an internal focus: each organization developed unique systems to interconnect their members. The Internet has changed the focus to emphasize networking between disparate organizations, systems, and technologies. Now the marketplace will shoulder the cost of

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[1] William A. Owens, "Intelligence in the 21st Century," Defense Intelligence Journal, Spring 1998, 26.

developing and testing of networking technologies. The result is that technology will no longer be the primary excuse for the IC's inability to exchange information. Policies, procedures, and doctrine will be the primary impediment to supporting NCW intelligence requirements.

Network Centric Warfare (NCW) will dictate how military operations, both conventional and Military Operations Other Than War (MOOTW), are conducted. "Those who can most quickly and effectively process, analyze, prioritize, disseminate, and correctly act upon available information will gain a distinct advantage."[2] Accordingly, intelligence support must extend from the National Command Authority and its focus on the National Strategy to tactical units engaged in combat operations. Although implementation will be slowed by technology (displays, communications systems, bandwidth, etc.), NCW will be the "coin of the realm." As NCW seamlessly integrates all U.S. forces, the IC must also telescope to include all users.

Information or Intelligence?

"Information" as defined in Joint Pub 2-0, is "unprocessed data of every description which may be used in the production of intelligence."[3] "Intelligence," on the other hand, is processed information that results in knowledge and understanding. As shown by the downing of an Iranian commercial airliner in 1988 and two United Nations' helicopters in 1994, information alone is inadequate for making critical decisions. In the NCW environment, with the right organization and procedures, intelligence can inject knowledge (Figure 1), thus affording commanders "understanding" in their decision-making.

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[2] Joint Chiefs of Staff, Concept for Future Joint Operations, Expanding Joint Vision 2010, (Washington, D.C.: May 1997), 9.

[3] Joint Chiefs of Staff, Joint Doctrine for Intelligence Support to Operations (Joint Pub 2-0) (Washington, D.C.: May 5, 1995), GL-8.

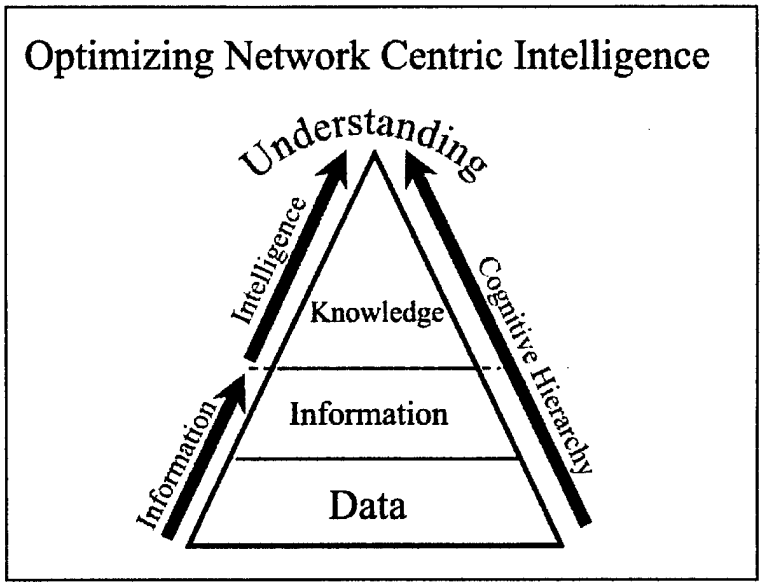

Figure 1

Can the Intelligence Community be Reorganized?

It is important to appreciate that the Intelligence Community—the 13 U.S. intelligence agencies—is a mutually supporting, integrated organization. Individual intelligence commands are not self-sufficient. Instead, they synergistically produce intelligence by fusing organically produced information with information from various commands and sources. When executed well, the result is superb intelligence. If, on the other hand, the system breaks down, an intelligence failure is often the result. In either case, the time required to coordinate, process, and disseminate intelligence will be inadequate for supporting the unique requirements of NCW operations.

Arguably, a complete reorganization of the existing IC—an intelligence Goldwater-Nichols Act—could be legislated to better satisfy NCW warfighter's needs. This new organization could centralize intelligence functions such as collection, analysis, production, and dissemination by establishing universal standards and common databases, thereby minimizing redundancies. But would it be worth the costs? Such an organization would run counter to the present trend towards decentralization. In addition to being less responsive to non-combat intelligence requirements, it may be less capable, due to a common institutional culture, of providing commanders with the full range

of an adversary's potential courses of action. Regardless, a dismantling of the existing IC organization is highly unlikely.[4]

Since the establishment of the DIA in 1961, the IC has faced no less than 15 commissions, panels, and legislative initiatives seeking to address perceived shortcomings.[5] Despite these efforts and an ever changing threat environment, the community has remained structurally consistent with little significant change. As a consequence, this analysis seeks to enhance intelligence support within the basic structure of the present intelligence architecture. As the title suggests, the best intelligence will result from weaving the capabilities of the individual intelligence organizations into an intelligence blanket covering the unique needs of each commander regardless of the respective echelon. The Joint Force Intelligence Officer (J2) will continue to be responsible for processing the volumes of information into real-time NCW intelligence. On the other hand, the IC's responsibility includes providing the human, technical, and doctrinal resources to support the J2.

Network Centric Warfare's Impact on Intelligence

Vice Admiral Arthur Cebrowski and Dr. John Gartska articulated in "Network-Centric Warfare—Its Origin and Future" that the network which connects U.S. forces, rather than independent units, will be the means to achieving dominant battlespace awareness and decisive combat force. As a consequence, the network, i.e. the Information Grid, must be populated to support near continuous combat operations. A potential danger of NCW is the emphasis on near-real time targeting information and tactical combat support. The IC must ensure that the final NCW intelligence architecture simultaneously fulfills all the nation's intelligence requirements—tactical ,

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[4] Commission on the Roles and Capabilities of the United States Intelligence Community, Preparing for the 21st Century: An Appraisal of U.S. Intelligence: (Washington, D.C.: March 1, 1996), 54.
[5] U.S. Congress, House, Select Committee on Intelligence, IC21: Intelligence Community in the 21st Century, Staff Study (Washington: U.S. Govt. Print. Off., 1996), 335-379.

operational and strategic. As stated by Ms. Toby T. Gati, Assistant Secretary of State for Intelligence and Research:

> ...Intelligence can play a vital role in identifying opportunities for diplomatic intervention and provide critical support to our nation's policy makers as they seek to resolve problems before they endanger U.S. citizens, soldiers, or interest, and as they negotiate solutions to festering problems.[6]

Another potential pitfall of providing intelligence within the NCW environment concerns the quantity of information available to the commander. NCW will create a new type of friction which even Clausewitz could not anticipate: decision-makers overwhelmed by information. Michael Decker, Deputy Assistant Chief-of-Staff for USMC Intelligence, referring to the 1997 HUNTER WARRIOR warfighting experiment, stated:

> ...there is 'no such thing as an analytical picture of the battlefield,' because everything that was sensed was displayed, and the 'map was all red'. He continued that, 'the common tactical picture was not giving the commander an overview of what was actually going on because it portrayed every sighting down to platoon level...with no analysis and flagging of key information.'[7]

The heaping disparate data and information together will not result in a revelation of "truth." It will only disorient decision-makers and hamper their decision-making. As a consequence, intelligence must endeavor to minimize unconfirmed data on the Information Grid, by stretching to encompass the total of the information umbrella (Figure 2). Thus, the J2 can fuse intelligence with real-time information, filter out spurious data, and identify deception efforts which will enhance situational awareness and minimize confusion. Thus affording each commander true knowledge at the granularity and fidelity necessary to direct, plan, and execute their mission.

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[6] Ibid., 246.

[7] Alan D. Capen, "Joint Vision Initiates Big Challenge to Acquisition, Integration, Culture," Signal, October 1997, 71.

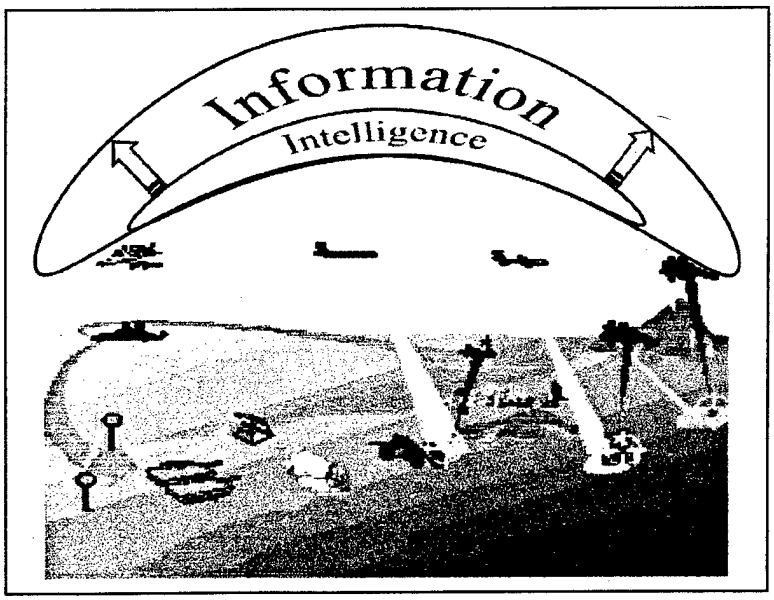

Figure 2

Yet, just as the information management problem promises to become exponentially more difficult, some "Sensor-to-Shooter" proponents are considering excising intelligence fusion from the intelligence, surveillance and reconnaissance (ISR) targeting process: "...anything that slows down the sensor to shooter time is an unmitigated evil. Therefore, we must remove certain command and control elements [Intelligence Community] from the force structure."[8] The consideration of removing the IC from the management of ISR systems is due to a number of operational concerns. First, the fewer intermediaries between the sensor data and the shooter *should* decrease the time between locating and prosecuting the target. Lastly, the apparent unequal sharing of ISR resources between the requirements of strategic intelligence and operational-tactical operations: national and theater assets, responding to higher national tasking, are unavailable to the operational and tactical level commanders. Despite these legitimate concerns, removing intelligence professionals from the sensor-to-shooter architecture is misguided: the ability of ISR system's to detect, locate, and track targets in support of beyond visual range (BVR) employment is quite limited. Single source ISR

systems would dissipate combat power on spurious information and is susceptible to deception: such waste is unacceptable considering the fewer platforms, personnel, and weapon systems anticipated in the future. Human cognition, unlike software programs, can produce valuable information even when faced with new, unanticipated acts by an adversary. Consequently, fused intelligence must remain in the NCW architecture. Again, the IC intelligence must develop the means to concurrently satisfy the specific needs of each level of command.

Intelligence Challenges in the NCW Environment

NCW, Decentralization, and Nodal Intelligence

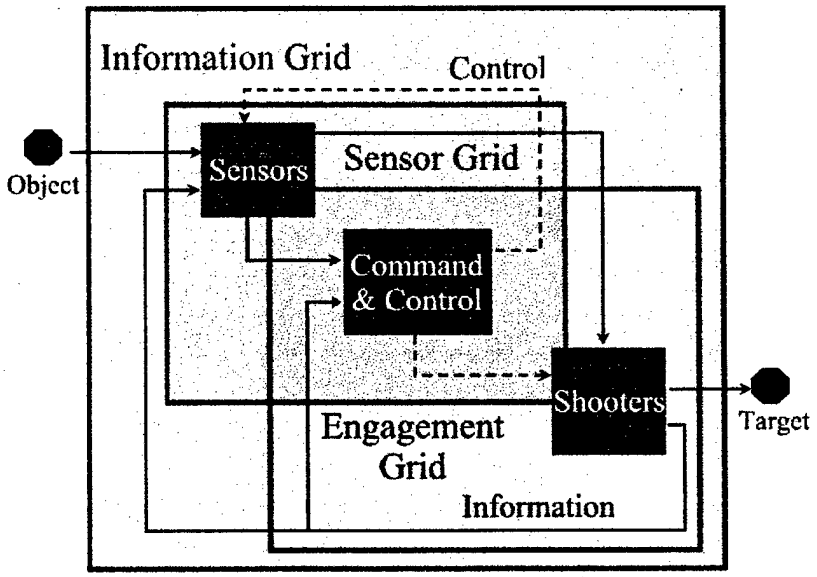

Figure 3

Past intelligence support mirrored the attrition style warfare it supported: concentrated intelligence resources in support of linear, attrition warfare. NCW intelligence architectures should also reflect the type of warfare being supported. The nodal nature and tempo of NCW will challenge the J2's ability to provide support to concurrent campaign planning, multiple operations, and

[8] George V. Echelberger, "Sensor to Shooter: Implications for the Theater J2." (Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1996), 10.

continuous combat operations. Intelligence support will be further hampered as the dispersed, smaller, and more lethal combat forces will now become information nodes feeding the Information Grid (Figure 3). This information will have to be processed into intelligence and posted to the Information Grid.

Which intelligence organization should provide this "symbiotic" intelligence process? The National Military Intelligence Center? The Theater Joint Intelligence Center? Although the answer still needs to be determined, if this organization is not responsible to the JFC J2, either physically or virtually, it is the wrong solution. Unity of effort necessitates that the J2 exercise control of the intelligence supporting the JFC's operations. As no organization is tasked with this responsibility, there are presently no resources programmed to implement it.

Producing "Lock-Out" Intelligence

As proposed by Vice Admiral Cebrowski and Dr. Gartska, the NCW Information Grid reflects the U.S. tendency to focus on near-term, quantifiable information: time, distance, size, and speed. Thus, making it best suited for providing battlespace targeting data. Yet an operational commander's primary needs, especially during pre-hostilities, concerns knowledge which cannot be measured, such as readiness, will, and intentions. During crisis and hostilities, the commander must know how to shape a potential adversary's perceptions, erode his will, and then, if necessary, destroy his military forces. Armed with decisive knowledge, a commander may "lock-out" an adversary's options to include combat. Thus, the J2 must endeavor to provide the commander with more than just targets. Instead, the J2 needs to acquire lock-out intelligence on the intangible factors of intentions, will, and morale in addition to observed tangible factors (armaments, size, disposition, movement, etc.). The J2 must fuse the adversary's tangible near-real time information with historical patterns, cultural norms, and policy statements to divine intentions and probable courses of action.

Lock-out intelligence requires the J2, supported by the IC, to provide more than conventional force-on-force analysis:

> ...the IC will have to be an inch deep and a mile wide, with the ability to go a mile deep on any given issue. To do this, the IC must maintain some level of knowledge on all nations/issues at some level of detail – an intelligence 'base.' [9]

The future promises that U.S. forces will be operating in non-traditional environments—urban terrain, cyberspace, etc.—against unconventional threats. Regions, nations, organizations, and expertise previously neglected or ignored will draw U.S. attention and commitment: mapping the ethnic demographics in an urban center will be just as critical as delineating avenues of approach for a conventional armor threat or submarine patrol areas. Expertise of this granularity must be produced prior to a crisis and be available on-line. Unfortunately, the IC continues to devote most of its available funding towards technical collection at the expense of analysis:

> ...the tendency to favor [technical] collection has grown stronger rather than weaker...Since 1992...as the intelligence budget has declined, collection has taken fewer cuts...and hence consumes a larger share of available resources than previously.[10]

Furthermore, despite the wealth of information gathered by technical collection, the intangible factors of intentions, will, and morale can only be collected by a human. Policies which place a premium on technical collection and short shrift analysis and human intelligence (HUMINT) must be reversed. The IC must better harness the knowledge resident in the U.S. military, academia, private volunteer organizations (PVO), nongovernmental organizations (NGO), and business to collect and process intelligence. Guided by the priorities of the National Command Authority (NCA), Theater Commanders, and Services, the IC must establish an on-line, worldwide baseline of lock-out intelligence. The baseline would be available for long-term operational planning and, in the event of a crisis or contingency, near-real time updating and dissemination.

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[9] IC21: Intelligence Community in the 21st Century, 26.
[10] Ibid., 105.

On first review, the creation of a corps of area specialists through robust training programs appears to be the best means of fulfilling baseline intelligence requirements. However, the combination of language skills, regional experience, and the number of countries, not to mention Service and Joint military requirements, has made wide-scale implementation prohibitive. Instead, the IC needs a new approach. In addition to using military personnel (active duty, Reserve/Guard) and civilian intelligence specialists, the IC must contract civilian experts. Countries which the IC has an existing intelligence expertise or could develop the requisite expertise should be the accomplished within the IC. The remaining countries and regions should be contracted out. Admittedly, these initiatives—expanding HUMINT collection, developing an on-line intelligence baseline, and contracting intelligence support—will have costs, but the opportunities missed due to collection-analysis mismatch and technical collection overemphasis are even more expensive.[11] The bottom line is that the improved intelligence provided to the decision-makers and warfighters will be worth the additional cost.

A Picture is Worth a Thousand Words

In addition to empowering the J2 with a better baseline of information, the IC must provide finished intelligence products to exploit the Information Grid's inherent "pull" capability. Such products, whenever possible, should be graphics so that substantive intelligence can be more easily digested, understood, and decisions made. The use of graphics has an added benefit of minimizing the problem of disseminating classified imagery to subordinate commands and Coalition partners. Additionally, the warfighters will require a battlespace template library consisting of communications links, lines of communications, electrical power grids, terrain and elevation data, port facilities, and airfields. Overlapping these templates on digital maps and charts with real-time, U.S., Coalition, and adversary information should increase situational awareness and enhance decision-making.

[11] Ibid.

Unfortunately, graphical templates are produced from imagery and most imagery, due to the limited number of imagery analysts, is never examined for intelligence value.[12] Hence, if imagery is to be available via the Information Grid, the IC will have to automate imagery processing. Specifically, Automatic Target Recognition (ATR) and Assisted Target Recognition (ASTR) technology should be employed to filter the massive volumes of imagery for intelligence value, processing, and dissemination .[13] The synergism resulting from an imagery analyst's cognitive abilities and the computer's ability to continuously sift though volumes of digital data would allow imagery to contribute to the information grid in the near-real time NCW environment. Yet, ATR/ASTR technology may only provide the "what," "when," and "where." The critical exploitation functions, "who" and "why," must still be provided by well trained human analysts.

Separating the Wheat from the Chaff

Sifting through the volumes of existing information confounds the present intelligence architecture. With NCW's even greater information through-put, this challenge will only be exacerbated. Consequently, the application of ATR/ASTR technology must not be limited to imagery; better algorithms must be developed to screen and cue intelligence analysts in exploiting digitized information in general. Presently, the National Ground Intelligence Center has developed a software package called "Pathfinder" to glean through volumes of open-source material for critical information.[14] Similarly, at Fort Bragg, translator software focuses the limited number of linguists on harvesting information from the most useful foreign documents. Foreign language documents are scanned, digitally analyzed, and the most lucrative products identified. Although translating foreign

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[12] Ibid.

[13] Ultimately, ATR technology must be the solution to analyzing the volumes of images generated. However, ATR's dependence on cognitive artificial intelligence precludes it from being realized in the foreseeable future. The mid-term solution is ASTR. Where ATR systems would operate independent of human intervention, an ASTR system would examine digital imagery for target indications and if a possible target is detected, the imagery analyst is alerted.

documents remains a time-consuming process, such software focuses the few linguists on the most lucrative documents.[15]

Another challenge for the J2 revolves around accessing the IC's various databases. These stove-piped systems are often platform dependent with unique protocols and interfaces. A great deal of progress has been made with the implementation of new systems like the Modern Integrated Data Base (MIDB) and Migration Defense Intelligence Threat Data System (MDITDS). Additionally, the National Security Agency and Air Intelligence Agency have been working with enterWorks.com ™ in the development of software, *Virtual DB,* to access and mine heterogeneous sources of information from various databases via a common, user-friendly interface.[16] *Virtual DB* should help fulfill the IC's near-term needs in accessing information from disparate data sources. The long-term solution, however, revolves around integrating intelligence databases into the Information Grid with an open architecture allowing cross-platform, cross operating system, and cross database capabilities.

Mapping the World

Despite the vast amount of imagery that is never viewed, J2's still require additional imagery products to support military operations. For example, counter-Theater Ballistic Missile (TBM) operations and Global Positioning System (GPS) Guided Munitions (GGM) have unique imagery requirements. Imagery analysis can be used to determine mobile TBM geographic constraints and TBM "no-go" areas. Armed with this intelligence, counter-TBM assets may then be deployed to maximize force protection of U.S. forces. In the case of GGMs, their all weather operational fires

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[14] Barbara G. Fast, "Building Situational Awareness in Force XXI," Military Intelligence, October-December 1997, 10-11.
[15] Ibid., 11.
[16] Clarence A. Robinson Jr, "Intelligence Agencies Concoct Virtual Collaboration Benefits," Signal, October 1997, 45.

capability may only be realized if imagery provides GPS coordinates.[17] Presently, only a few organizations are capable of supporting GGM targeting requirements: National Imagery and Mapping Agency (NIMA); the two Cruise Missile Support Activities (CMSA); and forward deployed carrier embarked CMSA Afloat Planning System detachment.[18] Because the limited real-time production capabilities precludes generating the volumes of data required during a crisis, every potential target must be mensurated (correlating geospatial coordinates to an image for targeting purposes) *prior to crisis and conflict.* The existing GGM quality targeting information is presently maintained by NIMA's Digital Point Positioning Data Base (DPPDB). However, DPPDB does not cover most of the world.[19] Thus, if GGMs are to employed worldwide, this database must be expanded. Although counter-TBM imagery support and expansion of the DPPDB will be resource intensive, the U.S. is committed to TBM defense and GGM employment. Consequently, the IC must allocate imagery analysts and technical resources to effect these policies.

Threat Identification

The IC, in an effort to leverage the capabilities of NCW, should develop real-time Measurement and Signatures Intelligence (MASINT) to maximize combat power and Nuclear, Biological, and Chemical (NBC) threat detection. Maximizing combat power in the smaller NCW force is dependent on employing weapons at maximum effective range. However, political concerns, as articulated in Rules of Engagement, often preclude employment outside the warfighter's visual envelope. If air, naval or ground personnel must visually confirm each threat, the quantitatively smaller U.S. force may unnecessarily be put at risk or overwhelmed by a numerically superior threat. MASINT technology could provide the means to confirm a target by unique its emissions, thus

[17] The present GGM inventory includes the Joint Stand-Off Weapon (JSOW), Joint Direct-Attack Munition (JDAM), Tomahawk BLOCK III, and the Extended-Range Guided Munition (ERGM).

obtaining threat confirmation without unnecessary risk to U.S. and Coalition forces. Similarly, MASINT could be incorporated in area sensors to detect NBC threats to friendly forces. Thus, the IC must commit to developing near-real time exploitation of MASINT.[20]

Information Operations Intelligence

Lastly, the JFC's dependence on information for operational planning and execution requires the J2 to identify potential Information Operations (IO) threats to the Defense Information Infrastructure and the Information Grid . Accordingly, NCW Intelligence Preparation of the Battlespace must address: information on an adversary's IO capabilities; commercial information systems (IS) technical data; threat IS vulnerabilities and critical nodes; indications and warning of impending Information Warfare (IW) attack; and IW battle damage assessments. Although it is not necessary that the J2 staff retain the technical experts, the means of accessing national IO expertise must be established and routinely exercised.

A Look at the Future

A Virtual Intelligence Organization

As stated above, a physical reorganization of the IC may achieve efficiencies of scale, but fail to adequately support NCW intelligence requirements. Consequently, the benefits of a single organization must be achieved using the Information Grid, procedures, and doctrine. DIA is moving in this direction with the Joint Intelligence Virtual Architecture (JIVA) which "... is designed to enable worldwide, electronic, interactive intelligence production and dissemination... users would find a transparent, virtual, collaborative and seamless electronic connection among national, theater

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[18] Gene H. Edwards, "GPS Guided Munitions and Precision Engagement: Do National and Theater Targeting Agencies Fully Support the Joint Forces Commander?" (Unplublished Research Paper, U.S. Naval War College, Newport, RI: 1998), 8.
[19] Ibid., 11-12.
[20] IC21: Intelligence Community in the 21st Century, 155.

and tactical elements."[21] Yet, despite the exponential improvement promised by JIVA, unless it allows for adequate J2 control and self-synchronization it will not be effective in the NCW environment.

The Supported J2 must be empowered to coordinate IC-wide support and even direct lateral intelligence support from Supporting commands. Joint Pub 2 states that the JFC is responsible for the intelligence in an assigned Area of Intelligence Responsibility (AIR), "...an area allocated to a commander in which the commander is responsible for the provision of intelligence within the means of the commander's disposal."[22] Unfortunately, Joint intelligence doctrine emphasizes "corporateness" rather than control in addressing the degree of support given to the Supported J2 relative to the Supporting J2s. In contrast, a Warning Order or Operations Order focuses operational support by clearly identifying the Supported and Supporting Commands. Intelligence support should be consistent with operational support. NCA orders should also reflect the degree of intelligence control. Such a doctrinal change would allow the Supported J2 to better coordinate and even task the Supporting intelligence commands. This is especially critical in targeting support, Battle Damage Assessment, and accessing regional expertise. For example, upon the receipt of mission, the J2 could achieve intelligence Unity of Effort by drawing on National and Theater expertise in developing target sets via the J2's homepage [addressed below] and collaborative planning. Similarly, NCW architecture will allow the J2 to coordinate Battle Damage Assessments (BDA) by brokering targets to National, Theater, Supporting , and Subordinate intelligence nodes. Finally, BDA and re-attack recommendations could be fed back into the Information Grid and the Supported J2.

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[21] Robert Ackerman, "Military Intelligence Expands Collection and Analysis Focus," Signal, October 1997, 22.
[22] Joint Pub 2-0, GL-4.

Synchronizing Intelligence

In the NCW environment, the J2's homepage would go beyond intelligence dissemination: it could be a primary means of intelligence synchronization. Presently, intelligence requirements are satisfied by a combination of "push-pull" intelligence and Requests for Information (RFI). National and Theater intelligence centers broadcast or "push" information to other commands. Conversely, intelligence requirements may also be satisfied via an on-line query or "pull" from a command's available intelligence products. Lastly, a command may request information from producing commands. Each method has shortcomings which impact the intelligence value to the J2. Push intelligence is often determined by the producing command rather than the J2's needs. Likewise, due to the *ad hoc* organization of intelligence (JWICS and SIPRNET) and open source (INTERNET) networks, there is little certainty that on-line pulls would find an available product. In the case of the RFIs system, some of the pitfalls of "push and pull" intelligence are avoided. However, the RFI system tends to be stove-piped: either the answer is disseminated only to the requesting organization or restricted to specific systems such as the Community On-line System for End-Users Managers (COLISEUM).

Presently, J2's use homepages primarily for intelligence dissemination. In the NCW environment, the J2's homepage could be used to synchronize the intelligence effort. The J2 could direct and control the products pushed by supporting commands via the homepage by providing requirements and direction to supporting intelligence nodes. Equipped with delegated "write" access, supporting intelligence commands could post, tailored products such as BDA, directly on the homepage, with minimal J2 interface, yet adequate J2 control.

Recommendations and Conclusion

The NCW environment requires faster, more agile, and regionally focused intelligence support. Although challenging, such support will be more easily achieved if the J2 has more control

over the IC's efforts. Accordingly, Joint doctrine must establish the Supported J2's control over intelligence efforts as well as identify the specific support relationships within the IC. Paralleling this doctrinal change will require J2s to refine and test methods of intelligence synchronization, such as the interactive J2 homepage.

The virtual intelligence organization, with integrated databases and intelligence baseline, must be implemented and fully integrated into the Information Grid. This integration will require the J2s to develop organizations responsible for maintaining the Information Grid. The IC must determine the best paradigm for the organization: to include location, manning, and training, and allocate human and technical resources for implementation.

Lastly, the IC must develop a program to continuously examine, test, and implement new technologies, such as MASINT and ATR/ASTR, in an effort to better harness the available analytical capabilities. When combined with a robust program to exploit available regional expertise, contract civilian experts, and develop imagery analysts, the right mix of analytical knowledge and technology will enhance intelligence support in the NCW environment.

Although the U.S. is on the road towards NCW, the final destination cannot be known. Yet, the analysis provided and the recommendations made, regardless of the extent of NCW's implementation, are valid for the foreseeable future. The extent of the Intelligence Community 's integration in the production of real-time, fused, focused, and actionable intelligence will determine to what degree the U.S. is able to "lock-out" effective opposition to its interests.

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