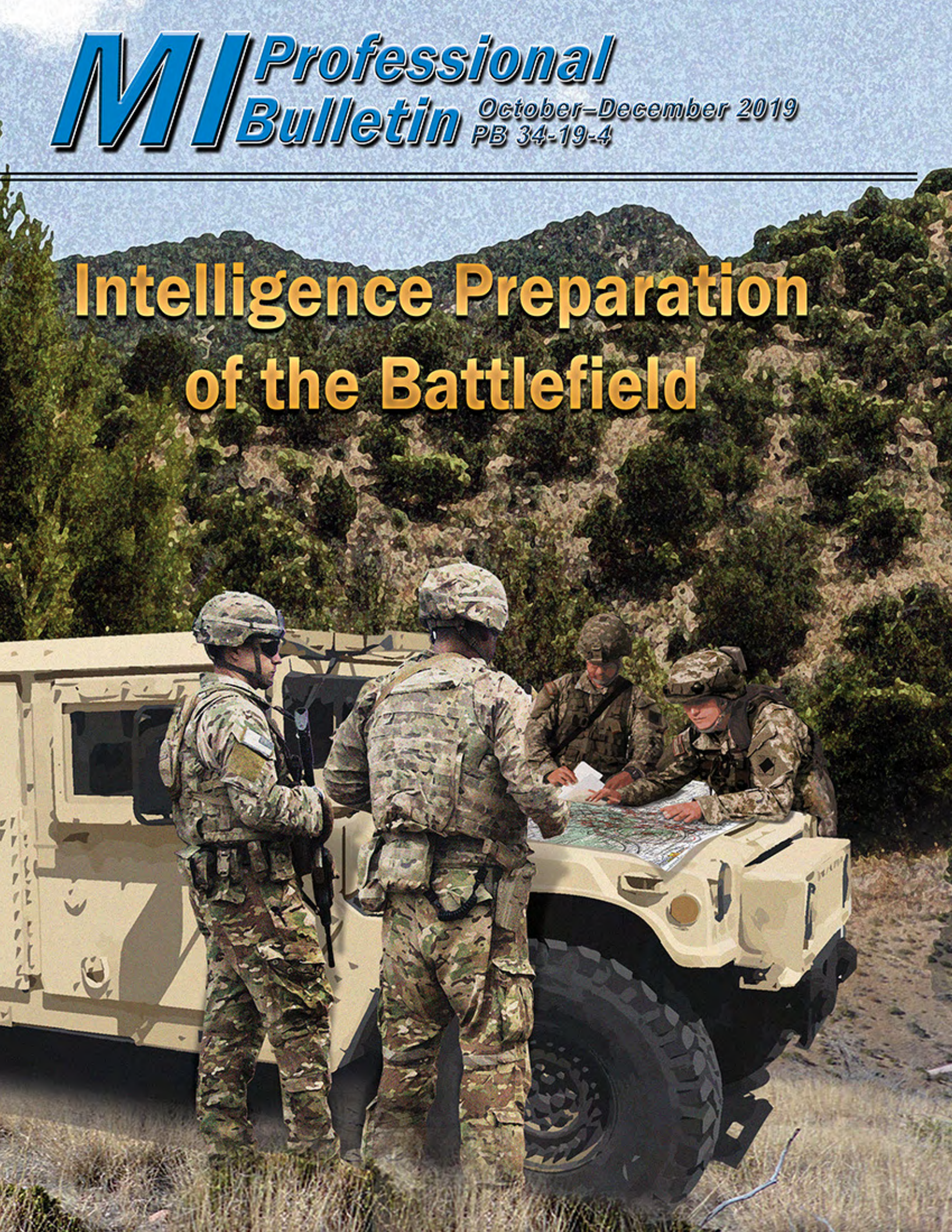
MI Professional Bulletin
October–December 2019
PB 34-19-4

Intelligence Preparation of the Battlefield



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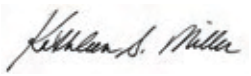
Purpose: The U.S. Army Intelligence Center of Excellence publishes the **Military Intelligence Professional Bulletin** (**MIPB**) quarterly under the provisions of **AR 25-30**. **MIPB** presents information designed to keep intelligence professionals informed of current and emerging developments within the field and provides an open forum in which ideas; concepts; tactics, techniques, and procedures; historical perspectives; problems and solutions, etc., can be exchanged and discussed for purposes of professional development.

By order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:



KATHLEEN S. MILLER
Administrative Assistant
to the Secretary of the Army
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From the Editor

The following themes and deadlines are established:

April-June 2020, *Intelligence Analysis*. This issue will focus on the various aspects of intelligence analysis and their importance to operations. Deadline for article submission is 19 December 2019.

July-September 2020, *Collection Management.* This issue will focus on how the intelligence staff executes the tasks of collection management in support of information collection. Deadline for article submission is 3 April 2020.

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For us to be a successful professional bulletin, we depend on you, the reader. Please call or email me with any questions regarding article submissions or any other aspects of MIPB. We welcome your input and suggestions.

Tracey A. Remus
Editor

MI Professional Bulletin

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We want to express a sincere thank you to MAJ James H. McMillian, Jr., Directorate of Doctrine and Intelligence Systems Training executive officer, for his active involvement as the "stakeholder" for this issue of MIPB. His subject matter expertise and collaboration were vital to the publication's development process.

FEATURES

DEPARTMENTS

Always Out Front

by Major General Laura A. Potter
Commanding General
U.S. Army Intelligence Center of Excellence

Intelligence assists commanders in seeing through the fog and friction of war.
***—FM 2-0,* Intelligence**

I am incredibly honored to take command of the U.S. Army Intelligence Center of Excellence (USAICoE) and join a team of dedicated professionals committed to shaping the future of the Army. When I first came through Fort Huachuca's Buffalo Soldier Gate in August 1989, our doctrine, organization, tactics, materiel, and leadership were oriented on the Soviet threat. In the decades after the fall of the Soviet Union, I served in units across the Army and the joint force while our Military Intelligence (MI) Corps adapted to support conflicts around the globe and, most significantly, the global war on terrorism. My recent tours as U.S. European Command J-2 and U.S. Army Europe G-2 gave me great insights into where the MI Corps and the Army must go to regain our capability to support multi-domain operations with intelligence to enable convergence at echelon. Multi-domain operations includes the ability to "compete, penetrate, dis-integrate, and exploit our adversaries"[1] across all domains—air, land, maritime, space, cyberspace, the information environment, and the electromagnetic spectrum. I can think of no more important task at this point in our Nation's history than to ensure our force is modernized, trained, and ready in order to maintain a competitive edge.

Our Army is shifting focus in order to prioritize capabilities across the force that are required to conduct large-scale ground combat operations and multi-domain operations. I specifically use the word *prioritize* rather than *transition* because our Army will continue to be called upon for limited contingency operations, including counterinsurgency, counterterrorism, and stability operations. The Army and the joint force have men and women in harm's way on a daily basis in support of the counterterrorism fight, and thus, we must continue to man, train, and equip our MI formations for this mission as we also build capacity for large-scale ground combat operations and multi-domain operations. In multi-domain operations, our forces will face an extremely complex environment across all domains.

The National Defense Strategy outlines the revisionist powers such as China and Russia, and the rogue regimes such as North Korea and Iran, in order to emphasize the magnitude and caliber of the threat. "We face an ever more lethal and disruptive battlefield, combined across domains, and conducted at increasing speed and reach—from close combat, throughout overseas theaters, and reaching to our homeland."[2] The emphasis on the threat is linked to the emphasis on the importance of the joint force and strong alliances. "To succeed in the emerging security environment, our Department and Joint Force will have to out-think, out-maneuver, out-partner, and out-innovate revisionist powers, rogue regimes, terrorists, and other threat actors."[3] The National Defense Strategy outlines three lines of effort:

- Rebuild military readiness as we build a more lethal joint force.
- Strengthen alliances as we attract new partners.
- Reform the Department's business practices for greater performance and affordability.[4]

Building a more lethal force means capability, deterrence, and strength. We must have the capabilities to deter aggression and strengthen our forces and allied relationships. Our number one priority as an Army is readiness, and the team here at Fort Huachuca has been ensuring readiness for our Soldiers by preparing for the shift to large-scale ground combat operations and increasing their lethality. We have adjusted our programs

of instruction and implemented rigor into our daily training and tasks. For the officers, we have adjusted the length of the courses in order to fit in more repetitions of intelligence preparation of the battlefield (IPB) and the military decision-making process (MDMP), provide demanding exams focused on analysis and both oral and written communication, and conduct more summative assessments. The scenarios we use are dynamic and require critical thinking. We have also increased the Soldier's time in the field to increase familiarization of their tradecraft in an austere and disconnected, intermittent, and limited environment, requiring students to be able to perform in both an analog and digital battlespace. The training our officers are currently enduring will posture them for the higher operational tempo and demands of large-scale ground combat operations.

We have also increased the time in the field for the 35G10 Geospatial Intelligence Imagery Analyst students. As they have transitioned their training into an austere environment, they have been able to work through different scenarios that require using descriptive geospatial language, executing primary, alternate, contingency, and emergency plans for various problem sets, and practicing the fundamentals—warrior tasks and battle drills, map reading, and land navigation. For the 35F10 Intelligence Analyst students, we have extended their training in the field by providing scenarios for them to "jump" their tactical operations center for 24 hours, conduct overnight operations during a 6-day field training exercise, and perform entry control point operations.

USAICoE, in partnership with U.S. Army Forces Command and U.S. Army Intelligence and Security Command, has also implemented the 2019–2020 Military Intelligence Training Strategy (MITS). In order to allow commanders to evaluate the intelligence warfighting function, MITS certifies intelligence personnel through a four-tier system designed with tables that certify the individual for each tier. As units prepare for training center rotations, MITS allows the commanders to certify intelligence personnel with the specific scenarios they will encounter during their rotations. Completing the certification allows commanders to instill confidence in their intelligence Soldiers to execute the functions required to support commanders' decision.

This issue of *Military Intelligence Professional Bulletin* focuses on intelligence preparation of the battlefield, or IPB. However, "there is far more to intelligence analysis than simply IPB. Intelligence analysis must support the commander's decisions, situational understanding, Army design methodology, MDMP, targeting, and force protection considerations and continuous operational assessments."[5] Repetitions of IPB are crucial for intelligence professionals to understand their fundamentals; however, to prepare for large-scale ground combat operations, we need to learn and prepare to become comfortable in an uncomfortable setting. The training we have implemented and adjusted to contain more rigor and critical thinking will allow the intelligence community to properly and efficiently support any commander's mission, across the continuum of operations.

GEN James C. McConville, 40th Chief of Staff of the Army, emphasizes winning. "Winning matters! We win by doing the right things, the right way…Army leaders have a sacred obligation to build cohesive teams that are highly trained, disciplined, and fit that can win on any battlefield."[6] We have a sound plan to ensure that Army intelligence can meet this obligation.

Epigraph

Department of the Army, Field Manual (FM) 2-0, *Intelligence* (Washington, DC: U.S. Government Publishing Office, 6 July 2018), 5-6 (common access card login required).

Endnotes

1. Department of the Army, Training and Doctrine Command (TRADOC) Pamphlet 525-3-1, *The U.S. Army in Multi-Domain Operations 2028* (Fort Eustis, VA: TRADOC, 6 December 2018), i.

2. Office of the Secretary of Defense, *Summary of the 2018 National Defense Strategy of The United States of America*, n.d., 3 https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

3. Ibid., 5.

4. Ibid.

5. Department of the Army, FM 2-0, 6-2.

6. U.S. Army, "40th Chief of Staff of the Army Initial Message to the Army Team," *U.S. Army Worldwide News*, August 12, 2019, https://www.army.mil/article/225605/40th_chief_of_staff_of_the_army_initial_message_to_the_army_team.

Always Out Front!

CSM Forum

by Command Sergeant Major Warren K. Robinson
Command Sergeant Major of the MI Corps
U.S. Army Intelligence Center of Excellence

We can talk about sensors, big data, analytics, and modernization strategies, but at the core of military intelligence is intelligence preparation of the battlefield (IPB). In 1975, U.S. Army BG Eugene Kelly, Jr., approved the concept of IPB, saying that "IPB is not new; we've been doing much of it all along." Since then, the Army has formalized, documented, and updated the original four-step process, most recently in the March 2019 ATP 2-01.3, *Intelligence Preparation of the Battlefield*. As we switch our focus to large-scale ground combat and multi-domain operations against a peer threat, IPB has become more relevant than ever. This major shift will cause us to relook how the Army conducts business, and intelligence professionals must adapt.

Understanding the different types of operations in a highly expeditionary environment will be a paradigm shift from what most of the current Army has ever experienced. As we prepare for multi-domain operations in 2028, intelligence will be tasked to fill gaps previously not seen because the capabilities of our adversaries are going to be much more sophisticated than those we've experienced in the past 17 years of counterinsurgency operations.

IPB's four-step process (with sub-steps) results in intelligence products that allow staffs to effectively conduct the military decision-making process and assist in developing friendly courses of action and decision points for the commander. It also helps commanders and staffs understand friendly and enemy capabilities and vulnerabilities in each domain. The process involves 1) defining the operational environment, 2) describing the environmental effects on operations, 3) evaluating the threat, and 4) determining threat courses of action.

You might be asking yourself, "In the hectic pace of large-scale ground combat operations, who has time for all these steps and sub-steps?" The answer is, "We do." Remember, the "P" in IPB stands for "preparation." Hasty preparation rarely results in a quality product, so following the IPB process is of paramount importance. In addition, IPB sets the stage for the location of forces, logistics, and required capabilities to offer the advantage of control by evaluating multiple courses of action based on capabilities, effects, and potential/probable circumstances. It is therefore critical to planning information collection and targeting operations. It affects every other warfighting function and ensures a complete view of the operational environment.

Land is not the only domain we must consider in IPB. We need to take into account all the domains—air, land, maritime, space, and cyberspace, as well as the information environment and the electromagnetic spectrum—and we need to understand how these areas interrelate. It's a tall order, but that's why the IPB process is so important. One of the biggest shifts in preparing for multi-domain operations is recognizing our peer threats' cyberspace capabilities and the potential effects on friendly networks. For example, the traditional modified combined obstacle overlays will now likely include cyberspace considerations such as telephone networks, radio stations, internet cafés, and media kiosks, among other things. An entity that controls the flow and content of information in multiple domains has a significant advantage.

Effective IPB does not just happen. It requires training with several sets and reps in multiple environments and scenarios. It is also a collaborative effort, with close interaction between the commander, the G-2/S-2, the G-3/S-3, and the rest of the staff. This offers not only an opportunity to become proficient in conducting IPB, but also provides opportunities for the professional development of officers, warrant officers, and noncommissioned officers of every rank.

The intelligence warfighting function requires each discipline to bring its unique flavor to fill in gaps left by others. Intelligence plays an important role in situational understanding across all domains, and IPB is a great opportunity to showcase how the disciplines create a full picture of an adversary and the battlefield.

Always Out Front!

Technical Perspective

by Chief Warrant Officer 5 David J. Bassili
Chief Warrant Officer of the MI Corps
U.S. Army Intelligence Center of Excellence

Greetings once again from the edge of the frontier. By now, two things should have occurred as we begin the next fiscal year—a vast majority of the 19-02 movers are settling into one of their top choice assignments, and we know our future chief warrant officers 3, 4, and 5 (admittedly, this one might not have occurred). Regardless, congratulations on both accounts! A promotion and a new assignment are opportunities for continued service and the development of your technical expertise in a new environment and with new responsibilities.

Permanent changes of station (PCS) and the annual promotion board are arguably the most stressful events for you and your family. While many factors help produce individual desired results, most are out of our hands at the decisive point of action…assignment slating and board file voting. The only things any of us actually control are our performance and our ability to ensure our "data" is current and available to those making decisions during these two events. To assist in this effort, the Army provides every officer access to the My Board File and the Assignment Interactive Module version 2 (AIM 2.0) tools to ensure our individual and family readiness to compete for a promotion and a new assignment. I cannot stress enough how important it is for each of you to take advantage of these tools.

My mention of Army tools is an excellent segue to the topic of this quarter's *Military Intelligence Professional Bulletin* (MIPB)—intelligence preparation of the battlefield (IPB). IPB is the fundamental tool for all intelligence professionals in understanding how terrain and weather affect friendly and enemy capabilities and in determining threat courses of action. Though doctrinally defined as a "staff" function, more often than not this task falls squarely on the shoulders of the intelligence professionals in the formation. In reality, IPB is all about sense-making—sorting through large swathes of data to portray a clear and understandable picture for a decision maker. We can compare the utilization of IPB as it relates to both a PCS and a promotion board. That's right, I am going to demonstrate how you can use the four-step IPB process to determine your success in getting the job you want or charting a path to that next promotion.

Define the operational environment. Instead of diving into the relative and significant characteristics within the area of operation/area of influence and identifying what we do not know, look at what we know. The first step of IPB for a PCS or promotion board is an email notification from your career coach at Human Resources Command (HRC) and/or a Military Personnel (MILPER) message defining the steps you must take to ensure readiness for the event. In preparing for a PCS, this phase happens in two steps: (1) receipt of an officer-identified-to-move message from HRC and (2) the opening of the AIM 2.0 marketplace to identify available vacancies. For a promotion board, the MILPER message defines when the board will convene and when the My Board File application is open and closed. It also indicates the steps an officer can take to update their file. The area of operation and area of influence are now set, and you should know what gaps exist in your individual and family readiness to prepare for the next steps.

Describe the environmental effects on operations. While not necessarily a threat model, a modified combined obstacle overlay, a weather effects matrix, or an ASCOPE[1] briefing, many tools are available that help describe what assignments are the right ones for an individual and the baseline for career progression and success. These tools include DA Pam 600-3, *Officer Professional Development and Career Management*, and the included career maps and descriptions of expected knowledge and experience by grade; Active Component Manning Guidance messages; military occupational specialty (MOS) shortage messages; and promotion board after action reports describing trends relative to promotion selection. Using these resources, an individual can compare their personnel file, through a critical lens, with their assignment history and career goals. These tools can help assess the likelihood of landing that assignment in Florida or the chance of selection to the next grade. In the end though, much like the enemy always getting a vote, Army

requirements very much drive outcomes for both assignments and promotions…Murphy's Law.

Evaluate the threat. While I make no purposeful attempt to equate Army processes to traditional threats, considerations and actions (or inactions) surrounding an individual officer or their family could prevent a specific assignment or detract from a promotion opportunity. As an example from the PCS standpoint, the Exceptional Family Member Program (EFMP) comes down to capacity at a given assignment location or failure of an individual officer to complete or maintain their EFMP currency. If a location or installation cannot provide specific medical care or has reached patient capacity, an officer's EFMP status will prevent assignment. As an example from a promotion board's standpoint, if an officer is competing for chief warrant officer 4 but has not attended the Warrant Officer Advanced Course and only possesses a high school education, that officer may be at risk for promotion. Similarly, if a chief warrant officer 2 holds an over-strength MOS, promotion opportunity to chief warrant officer 3 will likely be extremely competitive. As in IPB, identifying and assessing those aspects of your career and family that could potentially affect a future assignment or promotion can help define expectations of and threats to success.

Determine threat courses of action. In relation to this final step of IPB, the courses of action for determination are those an officer takes to mitigate the previously identified threats. Hasty IPB against a traditional threat is less than ideal; therefore, waiting until the last minute before a PCS or promotion board is unlikely to result in success. Make a career plan, with branches and sequels. Take time to understand DA Pam 600-3, create a plan to balance your workload with taking those online college classes you keep putting off, have a candid conversation with your rater and senior rater about how to earn that most qualified evaluation, and probably most importantly, maintain your family readiness to maximize your assignment options. The AIM 2.0 marketplace is designed for you and units to interact with one another before any assignment decisions are made. Take the time to fill out your resume and reach out to points of contact for potential assignments, especially if that assignment billet lists the commander or senior intelligence officer. Never forget, you are your best career manager.

The Army's IPB process is a time-tested means of sense-making and predicting outcomes. While my correlation above may not be a perfect representation to all, as you take the time to read this month's contributions to MIPB, as well as ATP 2-01.3, *Intelligence Preparation of the Battlefield*, you may find that IPB has more applicability than simply a process used in military planning. Thank you all for your continued contributions to our Army, the Nation, and the Military Intelligence Corps.

Endnote

1. ASCOPE—areas, structures, capabilities, organizations, people, and events.

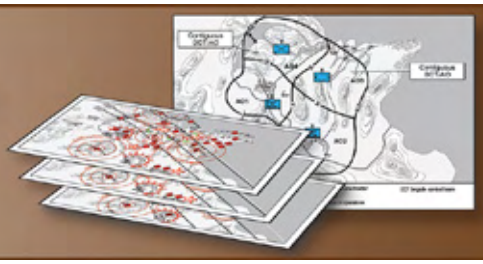
Always Out Front!

One of the most important legacies that today's senior leaders can leave with the Army is to mentor junior leaders to fight and win future conflicts. Mentoring develops great leaders to lead great Soldiers.

—DA Pam 600-3, *Officer Professional Development and Career Management*

ATP 2-01.3, *Intelligence Preparation of the Battlefield:* Why the Update?

by Major James H. McMillian, Jr.



Introduction

Commanders and staffs need timely, accurate, relevant, and predictive intelligence to understand threat characteristics, goals and objectives, and courses of action to successfully execute offensive and defensive tasks in large-scale combat operations.[1]

***FM 2-0,* Intelligence**

Many intelligence professionals recall using FM 34-130, *Intelligence Preparation of the Battlefield*, first published in 1989. This Cold War era publication contained unique products and narratives for the analysis of peer threats conducting conventional warfare. When operations in Iraq and Afghanistan began, counterinsurgency became the priority. Since that time, the proliferation of advanced technologies, such as unmanned aircraft systems, cyberspace warfare, and antiaccess and area denial capabilities, has leveled the playing field in some instances for conducting operations against our adversaries in contested operational environments. The shift from counterinsurgency to large-scale ground combat operations called for a review of the intelligence preparation of the battlefield (IPB) process to ensure we addressed characteristics of the operational environment and complex operations across all steps of the process.

The publishing of FM 3-0, *Operations*, in 2018 marked the return to an emphasis on large-scale ground combat operations. LTG Michael Lundy, Commanding General of the Army Combined Arms Center and Fort Leavenworth and Commandant of the Army Command and General Staff College, states in the foreword to FM 3-0 that the manual "provides the tactical and operational doctrine to drive our preparation, and when necessary, execution."[2] IPB is key to preparing for large-scale ground combat operations described in FM 3-0, and it is the cornerstone of what intelligence analysts do—use the IPB process to develop an accurate picture of threat courses of actions and determine how threat capabilities may be used over time and space.

Updating ATP 2-01.3

The update to ATP 2-01.3, *Intelligence Preparation of the Battlefield*, began in February 2017 with a 3-day workshop at the U.S. Army Intelligence Center of Excellence (USAICoE). Intelligence professionals from across the Army attended the workshop, including representatives from the National Training Center, U.S. Army Cyber Command, 173rd Airborne Brigade, U.S. Army Training and Doctrine Command G-2 Intelligence Support Activity, and Capabilities Development and Integration Directorate at USAICoE. Participants provided insight into how we needed to revise the existing ATP 2-01.3, issued in 2014. Their objectives were to—

- Understand the Army's major trends and intelligence challenges and their applicability with regard to updating ATP 2-01.3.
- Learn about complex operational environments and the effect they have on IPB.
- Acquire an understanding of how intelligence analysts can address a complex operational environment considering all relevant aspects and domains.
- Obtain consensus for the way ahead.

The workshop's primary task was to facilitate a discussion to increase understanding of how IPB addresses the complexities of today's operational environments across all relevant environmental aspects within and across each domain. The purpose of the event was to ensure ATP 2-01.3 would provide guidance for analyzing those complexities and describe the hybrid threats that are likely to exploit areas of technological overmatch. The end state was an open and honest discussion, anchored in doctrine, which was capable of achieving specific solutions to update ATP 2-01.3 so that it would support analysts' needs.

The accumulated experience of the workshop's participants included a former chief warrant officer of the Military Intelligence Corps and a senior intelligence officer at the National Training Center. All participants assisted in the review of ATP 2-01.3 and the subsequent identification of areas that needed to be addressed to shift the focus to large-scale ground combat operations. All parties agreed the current steps and sub-steps of IPB remain sound and allow analysts to determine a multitude of possible threat courses of actions based on threat characteristics and capabilities. For example, the four steps of IPB facilitate an analyst's ability to account for advanced technologies, such as the use of cyberspace, antiaccess and area denial capabilities, and precision long-range fires, as well as capabilities typically seen in counterinsurgency environments such as improvised

explosive devices and small arms ambushes. The thoroughness of the four steps speaks to IPB's continued relevancy. Its framework can be used successfully against any threat, environment, and capability.

IPB Process

The IPB process consists of the following four steps:

- Define the operational environment.
- Describe environmental effects on operations.
- Evaluate the threat.
- Determine threat courses of action.

It is important to note that IPB is a continuous process. Continuous analysis and assessment are necessary to maintain situational understanding of an operational environment in constant flux.[3]

The workshop's assessment concluded that the use of advanced technologies also forces analysts to determine how these technologies may affect the operational environment in ways they may not have previously considered. An example of this is how cyberspace may extend the area of influence and the area of interest during a given operation. This occurred during the Arab Spring of 2011 when the use of social media played a part in the Arab uprisings, spreading from Tunisia to other countries in the region. Another example is Hamas's use of the subterranean environment in Gaza to infiltrate Israel, which effectively extended the battlefield and increased course of action possibilities for the threat commander. These examples demonstrate the multitude of possibilities that staffs must account for over time and space when considering how and when threat forces may attempt to affect friendly operations.

The workgroup determined the current IPB framework of steps and sub-steps is optimized to account for any new threat and range of complex environments. The group also determined the need to—

- Discuss the peer threats, operational framework, multi-domain operations, and identification of windows of opportunity.
- Provide adequate details covering all domains, significant aspects of each domain, and potential capabilities of a hybrid threat across the entire publication.
- Emphasize staff inputs and outputs and the importance of leveraging national to tactical intelligence.
- Improve PMESII, ASCOPE,[4] and civil considerations (with an emphasis on the information environment).
- Emphasize the use of the information environment in threat courses of actions.
- Highlight unique environments such as littoral, urban, and subterranean.

Staffing ATP 2-01.3

Using recommendations from the workshop, doctrine writers and subject matter experts created the new document and disseminated it for worldwide staffing, from 25 June to 31 August 2018. The USAICoE Doctrine Division received 580 comments (4 critical, 55 major, 439 substantive, and 82 administrative) from 18 organizations. During the 3-month adjudication process, Doctrine Division personnel determined how best to address each comment, which sometimes required contacting organizations for clarification. They edited and formatted the draft, and then submitted it for review by the USAICoE Commanding General, who approved the document on 18 December 2018.

Photo courtesy of Israel Defense Forces Spokesperson's Unit

An Israel Defense Forces soldier overlooking a Hamas-built tunnel in Gaza during Operation Protective Edge, 20 July 2014.

Additional Considerations

Precise intelligence is critical to targeting threat capabilities at the right time and place to open windows of opportunity across domains. Commanders and staffs receive effective intelligence when they direct and participate in intelligence warfighting function activities…Close interaction between the commander, G-2/S-2, G-3/S-3, and the rest of the staff is essential, as the entire staff supports unit planning and preparation through the integrating processes and continuing activities.[5]

***FM 2-0,* Intelligence**

The intelligence staff cannot conduct IPB in a vacuum. So one of the main areas of emphasis in the updated ATP 2-01.3 is the importance of staff collaboration. Each staff section plays an integral part in determining relevant aspects of the operational environment. Without staff collaboration, it is difficult if not impossible to give the commander a holistic and accurate picture of the operational environment. Chapter 1 of the updated ATP 2-01.3 describes staff collaboration by individual staff sections. Given the complex operational environments and the capabilities that reside within them, it is important to leverage the resident experts in their fields. It is also important to understand the roles and responsibilities of each staff section as well as the commander, executive officer, and G-3/S-3. This ensures synchronization of the staff and facilitates a shared understanding of the threat.

The update of ATP 2-01.3 also involved detailing the same emphasis that ADP 3-0 and FM 3-0, *Operations*, had put on multi-domain operations and large-scale ground combat operations. This included considerations for all domains. For example, in ATP 2-01.3—

- Appendix D, IPB Cyberspace Considerations, discusses cyberspace considerations for each IPB step;
- Chapter 7, Section II, Unique Environments, highlights littoral, urban, and subterranean environments; and
- Chapter 8, Additional Considerations for Operational Environments, discusses additional considerations for each domain (air, land, maritime, space, and cyberspace), the electromagnetic spectrum, and the information environment.

Conclusion

During large-scale ground combat operations, our peer threats will use conventional and unconventional tactics, and our area of operations will likely include unique environments (littoral, urban, and subterranean). We will also rely increasingly on the information environment. Therefore, we must gain a deeper understanding of how the threat will employ capabilities across the domains (air, land, maritime, space, and cyberspace), the electromagnetic spectrum, and the information environment to achieve an end state at a time and place of its choosing.

The updated ATP 2-01.3 will help intelligence analysts to adopt a holistic approach when analyzing operational environments. Providing an analysis of the time and place of this end state will allow friendly commanders to develop multiple courses of action and decision points to identify windows of opportunity outside the threat's decision cycle. Operating outside the threat's decision cycle and providing the friendly commander multiple options across multiple domains is key to conducting multi-domain operations and large-scale ground combat operations.

Endnotes

1. Department of the Army, Field Manual (FM) 2-0, *Intelligence* (Washington, DC: U.S. Government Publishing Office [GPO], 6 July 2018), vii (common access card login required).

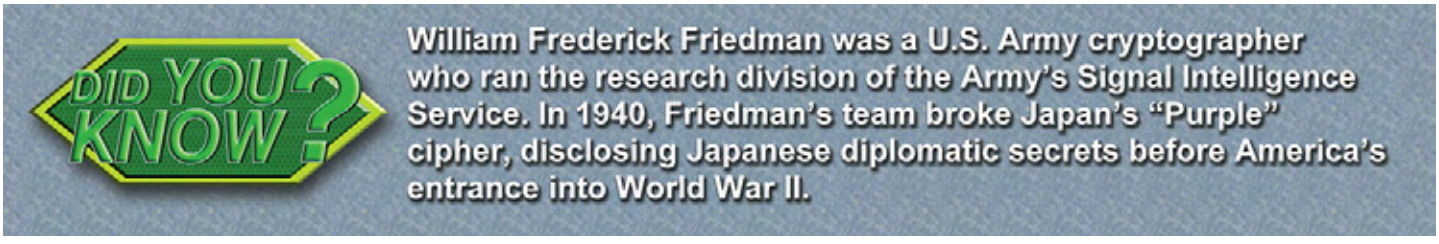
2. Department of the Army, FM 3-0, *Operations* (Washington, DC: U.S. GPO, 6 October 2017), foreword. Change 1 was issued on 6 December 2017.

3. Department of the Army, Army Techniques Publication 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. GPO, 1 March 2019), 1-3.

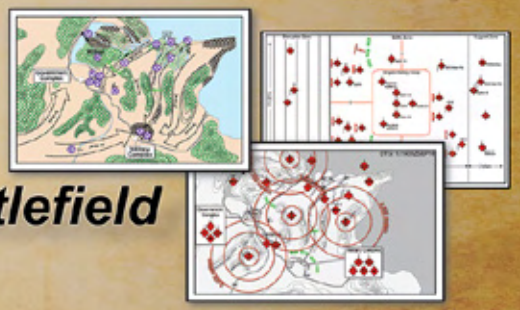
4. PMESII—political, military, economic, social, information, and infrastructure; ASCOPE—areas, structures, capabilities, organizations, people, and events.

5. Department of the Army, FM 2-0, 6-2.

MAJ James McMillian, Jr., is the executive officer for the Directorate of Doctrine and Intelligence Systems Training at the U.S. Army Intelligence Center of Excellence, Fort Huachuca, AZ. He commissioned through Officer Candidate School in 2002. He has a bachelor's degree in philosophy from the University of North Carolina at Chapel Hill. His prior assignments include observer-coach-trainer and intelligence planner at the National Training Center, Fort Irwin, CA, and intelligence officer for Port of Entry Transition Team 4251 in Rabia, Iraq.



An Excerpt from ATP 2-01.3, *Intelligence Preparation of the Battlefield*



Editor's Note: The following text is from ATP 2-01.3,* Intelligence Preparation of the Battlefield, *1 March 2019 (paragraphs 1-54 through 1-60).

Multi-Domain Understanding of the Operational Environment

The interrelationship of the air, land, maritime, space, and cyberspace domains, the information environment (which includes cyberspace), and the [electromagnetic spectrum] EMS requires a multi-domain situational understanding of the [operational environment] OE. (See FM 3-0.) Seeing, understanding, and responding to windows of vulnerability or opportunity within each domain and the information environment can reduce risk to the force and enhance success in chaotic and high-tempo operations, such as large-scale combat operations. This makes situational understanding essential to managing risk.

When commanders and staffs seek to understand friendly and threat capabilities, they consider how, when, and why those capabilities are employed in each domain, the information environment, and the EMS. From this understanding, commanders can better identify windows of opportunity during operations. This allows a portion of the joint force to establish a decisive point for the multi-domain convergence of capabilities, which must be supported by continuous intelligence operations across the domains for the best effect. Since many friendly capabilities are not organic to Army forces, commanders and staffs plan, coordinate for, and integrate joint and other unified action partner capabilities in a multi-domain approach to operations.

Note. *Decisive point* is a geographic place, specific key event, critical factor, or function that, when acted upon, allows commanders to gain a marked advantage over an enemy or contribute materially to achieving success (JP 5-0).

During large-scale combat operations against a peer threat, ground-force commanders may be required to conduct tactical activities, such as a deliberate attack, to shape the OE and gain a position of relative advantage for activities, such as joint fires, within the other domains. Once that position is achieved, operations would continue to increase the position of relative advantage in order to create a longer window of superiority to facilitate follow-on missions and operations across the domains.

Note. *Position of relative advantage* is a location or the establishment of a favorable condition within the area of operations that provides the commander with temporary freedom of action to enhance combat power over an enemy or influence the enemy to accept risk and move to a position of disadvantage (ADRP 3-0).

Intelligence supports the commander by visualizing the threat and detecting possible threat [courses of action] COAs. Army forces must integrate and synchronize these actions across multiple domains to create opportunities to dislocate, isolate, disintegrate, and destroy enemy forces. (See FM 3-0 for more information on these defeat mechanisms.) Army forces strive to use intelligence, mobility, protection, and firepower to strike the enemy unexpectedly in multiple domains and from multiple directions, denying the enemy freedom to maneuver by creating multiple dilemmas that the enemy commander cannot effectively address. Intelligence supports these operations by facilitating situational understanding and supporting decision making. Intelligence assists commanders in seeing through the fog and friction of war.

Importance of Domain Interdependence

Domain interdependence refers to the reliance on one or multiple domains to leverage effects or information. Domains provide a means of viewing the OE based on how capabilities are arrayed and employed. An OE does not comprise a single domain; a capability's effects are not

limited to a single domain; and a capability is not employed in a single domain. For example, a satellite is launched from the ground and uses space as a medium for flight. The satellite may collect information from multiple domains and transmit that information using cyberspace as a medium to reach the ground, where the information can be processed, exploited, and disseminated. It is important for commanders and staffs to understand interdependence in order to visualize when and where capabilities can be leveraged by friendly, neutral, and threat forces.

Because a multitude of effects (including threat, terrain, and weather) can cross multiple domains, the interdependence of the domains, the information environment, and the EMS must be considered when performing [intelligence preparation of the battlefield] IPB. To do this, the S-2, with assistance from other staff members and possibly outside organizations, must address the operational framework considerations and view the OE holistically.

Operational Framework Considerations

A thorough IPB effort and intelligence analysis assist each echelon in focusing operations on all significant aspects of the OE in time and space across multiple domains. This prevents each echelon from focusing only on the close fight and current operations. A broad focus across the operational framework considerations assists commanders and staffs in better identifying friendly windows of opportunity and threat windows of vulnerability within and across each domain and the information environment. An *operational framework* is a cognitive tool used to assist commanders and staffs in clearly visualizing and describing the application of combat power in time, space, purpose, and resources in the concept of operations (ADP 1-01).

Table 1-1 lists the operational framework considerations and how IPB and subsequent intelligence analysis support each consideration. (See FM 3-0 for details on operational framework considerations.)

Operational framework considerations	*Intelligence preparation of the battlefield (IPB) and intelligence analysis support*
Physical considerations include geography, terrain, infrastructure, populations, distance, weapons ranges and effects, and known threat locations.	• Intelligence support begins well before the deployment of forces, through generate intelligence knowledge, which addresses the operational variables. Information gained during generate intelligence knowledge is used by commanders and staffs to assist in framing the operational environment during the Army design methodology. • IPB provides detailed analysis of the mission variables of threat, terrain and weather, and civil considerations to determine effects on operations. • IPB and intelligence analysis assist in determining relevant aspects within an area of operations (such as civil considerations characteristics) that are critical in determining how friendly operations may be impacted during the consolidation of gains. • Intelligence analysis is critical to the designation of a deep area, the fire support coordination line, and the area of interdiction.
Temporal considerations are related to time, including when capabilities can be used, how long they take to generate and employ, and how long they must be used to achieve desired effects.	• IPB is a process that is both geographically and temporally specific. • Developing threat courses of action during IPB is based on identifying threat objectives, goals, timelines, and end states. • IPB provides a temporal context using rates of movement, time phase lines, phases of threat fires, and other templates to capture threat timing.
Cognitive considerations relate to people and how they behave. They include information pertaining to threat decision making, threat will, the nation's will, and the population's behavior.	• IPB accounts for aspects associated with the center of gravity and the threat's morale and willingness to continue operations. • Intelligence support to continuous operational assessments considers many relevant aspects of the operational environment, including sociocultural factors. • IPB also considers all significant aspects of the operational environment associated with the various civil considerations.
Virtual considerations pertain to activities and entities, both friendly and threat, residing in cyberspace.	• IPB and intelligence analysis, in coordination with the cyberspace electromagnetic activities section, provide intelligence on the threat's likely activities within the information environment, which includes cyberspace.

Table 1-1. IPB and intelligence analysis support to operational framework considerations

Decision Point Tactics: Intelligence Staffs' Best Practices

Introduction

From 25 October to 9 November 2018, the 3rd Armored Brigade Combat Team (ABCT), 4th Infantry Division, tested their skills at the National Training Center, Fort Irwin, California, by engaging in an intensive collective gunnery and decisive action train-up. The following two articles describe a series of best practices for intelligence preparation of the battlefield and information collection synchronization from 3rd ABCT's training before and during their rotation at the National Training Center.

Intelligence Preparation of the Battlefield in a Time-Constrained Environment

by Captain Jason R. Steimel

Overview

This article describes best practices for maneuver battalion intelligence officers when conducting intelligence preparation of the battlefield (IPB). These recommendations specifically support units conducting decision point tactics in decisive action training environments, but they also apply to all other formations. Although S-2s are responsible for depicting multiple threat courses of action (COAs) to drive the military decision-making process (MDMP), the S-2's main adversary is *time.* The pace of simultaneously planning and conducting operations often overwhelms an intelligence section's capacities. This article outlines three techniques to overcome this by—

- Training a deeper bench of analysts.
- Getting a jump-start to IPB in garrison.
- Incorporating planning standard operating procedures (SOPs).

U.S. Army photo by PFC Angel Sanchez, Operations Group, National Training Center

Soldiers assigned to 3rd Armored Brigade Combat Team, 4th Infantry Division, Fort Carson, CO, put detail into building a terrain model prior to a combined arms rehearsal during Decisive Action Rotation 19-02 at the National Training Center, Fort Irwin, CA, October 26, 2018.

Decision Point Tactics Explained

So what are decision point tactics? In 1997, two opposing force commanders at the National Training Center's 11th Armored Cavalry Regiment defined the term as "the art and science of employing available means at a specific point in space and/or time where the commander anticipates making a decision concerning a specific friendly COA. This decision is directly associated with threat force activity and/or the battlefield environment."[1]

The 11th Armored Cavalry Regiment continues to employ decision point tactics, and the 3rd Brigade, 4th Infantry Division, used this approach during rotation 19-02 from October to November 2018. For 3rd Brigade, anticipated decisive phases were prepared with at least two distinct and feasible branches—typically how to envelop an enemy force or whether to conduct a forward or reverse slope defense. The 3rd Armored Brigade Combat Team's commander used the information as a simple playbook from which to "call an audible."

U.S. Army photo by PFC Taylor McGinnnis, Operations Group, National Training Center

U.S. Army Soldiers assigned to 10th Cavalry Regiment, 3rd Armored Brigade Combat Team, 4th Infantry Division, Fort Carson, CO, observe enemy forces from an observation point during Decisive Action Rotation 19-02 at the National Training Center, Fort Irwin, CA, October 28, 2018.

Build the Bench

S-2 officers in charge commonly conduct IPB with insufficient assistance from their section, a practice that is not sustainable in decisive action training environment scenarios. This is fundamentally an issue of trust, derived from inadequate training. "Building the S-2 bench" as far left of collective training events as possible will mitigate this problem.

Training analysts to conduct all steps of IPB is building the bench. This is necessary because of the reality that military intelligence leaders face—our new 35Fs (Intelligence Analyst) require significant on-the-job training to keep up with, and contribute to, the decisive action training environment. If analysts go into an operation untrained, leaders commonly relegate them to "arts and crafts" functions, such as copying acetate. This is a systemic issue. Lizard 40, the intelligence team's sergeant major at the National Training Center, regularly emphasizes the need for military intelligence Soldiers and noncommissioned officers to serve as analysts, not as tactical operations center support. This begins with their involvement in IPB and carries forward to current operations, when analysts must not only receive, analyze, and disseminate information but also make recommendations. Analysts cannot perform these duties without understanding the operational environment, threat COAs, and the Blue Force maneuver plan. And the S-2 cannot conduct IPB in a time-constrained environment without trained and engaged analysts.

Planning IPB training is the first step. There is no reset period following deployments and no allocation of time for individual skill training in a squadron headquarters and headquarters troop. However, it is critical to set aside garrison or field time in advance for this training in order to limit distractions. Successful planning is deliberate, not merely earmarked. This includes gathering training materials (maps, protractors, markers, acetate, and references); briefing tasks, conditions, and standards; and producing a training timeline. Using a standard IPB product shell facilitates the uniform instruction and completion of IPB steps by analysts. For example, the shell that the Military Intelligence Officer Transition Course instructor uses facilitates instruction as well as product completion. Another best practice is to employ the assistant S-2 and/or S-2 noncommissioned officer in charge as mentors for junior analysts to maximize understanding. S-2s can also use the Central Army Registry's comprehensive list of 35F individual and collective tasks to formalize training standards.

Training analysts for decisive action training environment scenarios requires an emphasis on IPB step 3 (evaluate the threat) and step 4 (determine threat COAs) because of the scenarios' complexity. The process should start with a typical opposing force order of battle (*National Training Center Red Book*) and doctrinal templates from TC 7-100.2, *Opposing Force Tactics*. Next, is to enable analysts to learn the key differences between a maneuver and an area defense, or integrated versus dispersed attacks, by having them

complete their own doctrinal templates using a standard threat composition. This maximizes analysts' learning styles because written and oral instruction augments the kinesthetic of creating a template on acetate. This will allow analysts to subsequently build complete situational templates over terrain, better understand the relationships between warfighting functions, and later recognize COAs during current operations.

Following this training, an S-2 section should be deep enough to complete two situational templates simultaneously in a deployed environment. This allows the collection manager to overlay them quickly to produce the event template.

Garrison Jump Start

Another method to maximize mission analysis planning is to lean forward as much as possible, or simply put, to complete IPB steps 1 through 3 before leaving home station. This technique is feasible from defining the area of interest in step 1 (define the operational environment) to finalizing doctrinal templates with high-value target list and threat capabilities by warfighting function in step 3. Typically, the only significant gap is an accurate weather analysis from step 2 (describe environmental effects on operations). Historical climatological data and current lunar data can provide a foundation to augment a section's analysis of civil considerations and terrain effects for this step.

Evaluate the Weather Effects on Military Operations

"The G-2/S-2 coordinates with the Air Force staff weather officer to provide weather effects to support operations. The following work aids assist in analyzing and describing weather effects on operations:

- Weather forecast charts are guides for determining the weather information needed for planning and operations.
- Light and illumination data tables are guides for determining the light and illumination data needed for planning and operations.
- Weather effects matrices are guides for determining the weather effects on personnel, weapons, and equipment needed for planning and operations."[2]

Conducting the bulk of IPB in garrison not only extends the amount of time a section has to complete it, but also allows a more efficient environment to research and compile products. This includes reliable internet and a litany of office resources. It provides a stable location without daily tactical operations center jumps and austere conditions. Additionally, being at home station affords greater access to higher headquarters intelligence enterprises for requests for information and collaboration. Once deployed, the brigade combat team's S-2 section may not be collocated with, or be within any reasonable distance to, a battalion or squadron headquarters tactical assembly area. Typically, communications infrastructure and unit synchronization both suffer the most during the start of any field operation. This directly threatens the timely completion of initial mission analysis and the rest of the MDMP, further underscoring the need to deploy as prepared as possible.

Reverse IPB

Army doctrine previously described reverse IPB as—

- "How the presence and actions of U.S. forces will affect threat/adversary operations."[3]
- A technique the staff can use to aid in determining the enemy's objectives.[4]
- • Reverse IPB recognizes and takes into account "the enemy's assessment of U.S. forces operating in the [area of operation] AO…This subtle, critical and often missed sub-step ensures that a much more realistic enemy COA sketch and statement is produced during mission analysis [MA]. This will logically carry forward to the later steps of MDMP, most importantly the wargame. Conducting reverse IPB during MA ensures that U.S. forces build in the enemy's initial reactions/counter-reactions, and it produces a much more logical and realistic enemy in the wargame. It also enables better results for U.S. forces on the battlefield."[5]

In order to promote clarity and avoid confusion between IPB and wargaming, the latest version of ATP 2-01.3, *Intelligene Preparation of the Battlefield,* does not include reverse IPB.

There is more to conducting IPB steps 1 through 3 in garrison. One often-touted but underutilized technique is reverse IPB, i.e., "how the presence and actions of U.S. forces affect threat/adversary operations."[6] Once in the field, this practice typically falls apart because of the hectic nature of establishing operations and the frenetic pace of a brigade combat team's planning. In garrison, however, warfighting function representatives have more time and space to collaborate. When directed, typically by the executive officer or S-2, it is possible to capture how and where all corresponding enemy systems, from logistics to electronic warfare, may operate.

Another good tactics, techniques, and procedures is to publish and disseminate an unclassified IPB reference that leaders can read before deploying to gain a foundational knowledge of the operational environment. The format of this smart book should be convenient for leaders to deploy with; it should fit in a cargo pocket for later use in mission planning. If distributed before the mission analysis briefing, leaders will have a better grasp of the terrain, the climate, civil considerations, and the enemy, and be able to ask questions and drive further planning. Once in theater, the

book serves as an enduring reference down to the platoon or section level for junior leaders. Some especially useful additions include—

- Illumination tables.
- Key terrain imagery.
- Likely weather impacts to systems and system-acceptable operating ranges (wind speeds for unmanned aircraft system flight versus launch/recovery).
- Red-light readable gridded reference graphics.
- Conventional and unconventional force orders of battle.
- Threat vehicle identification.
- Weapon range charts.

Critical to seeing this product come to fruition is securing funding for printing. The Defense Logistics Agency or similar garrison facilities will make a high quality, durable product that lasts through the operation or deployment, but the funding and printing process can take up to 2 months. These books are also a great tool for every analyst in the S-2 section. They can eliminate the need to carry several binders of IPB data and Worldwide Equipment Guides. Creating the leader's books also has the benefit of ensuring analysts understand the operational environment, and the books can be used to test analysts' knowledge.

Always Plan

For intelligence to support operations, not having and not adhering to a planning SOP is detrimental to maintaining staff momentum and making recommendations for the next fight. It is akin to not using a tactical operations center SOP for current operations battle drills. Without a plan for how to plan, S-2 sections may find it extremely difficult to look past the first battle—one in which they had more time for and no current operations to distract them. Enforcing these codified processes, however, will ensure S-2 sections can simultaneously execute plans and current operations in sustained operations.

It is best to nest a planning SOP with the brigade staff's tendencies and to refine it based on battalion/squadron agreed-upon best practices. The best time to capture these observations is immediately upon completion of any culminating training exercise or combat training center rotation. If possible, the staff should develop these during the regeneration period before returning to garrison and losing focus amid myriad home station tasks.

Efficient S-2 current operations enables IPB/MDMP planning and vice versa. An updated tactical operations center SOP should be understood by all analysts and include—

- tactical operations center floor roles and responsibilities,
- primary, alternate, contingency, and emergency plan,
- how-to guides for systems,
- reporting flow diagrams for upper- and lower-tactical internet, and
- significant activities tracker formats.

The performance of roles and reporting processes should be rehearsed ahead of operations.

Similarly, a planning SOP should include timelines for rapid and full MDMP, product shells (the IPB shell from earlier analyst training can be used), and briefing formats. If not identified in the tactical operations center SOP, the planning SOP must delineate a plans space that is physically separate from the current operations floor's bustle. This could be a separate tent, an attached but walled-off tent, or a vehicle. Finally, this area needs a dedicated plans team identified by position in the planning SOP. This ensures the S-2 officer in charge (or whoever is identified as the S-2 plans lead) works mostly with the integrating cell's other warfighting

U.S. Army photo by SPC Keston Alonzo, Operations Group, National Training Center

A U.S. Army Soldier assigned to Bravo Battery, 3rd Battalion, 29th Field Artillery Regiment, 3rd Armored Brigade Combat Team, 4th **Infantry Division, Fort Carson, CO, goes over the details of a fire mission for her crew during Decisive Active** Rotation 19-02 at the National Training Center, Fort Irwin, CA, November 1, 2018.

functions. It is easy for current operations to consume the S-2. This loses the lead for the next battle and degrades the battalion's or squadron's ability to anticipate resources and plan to seize positons of relative advantage.

The cavalry squadron should plan with brigade, physically collocated whenever possible. Typically, the squadron must plan ahead of or with the brigade because of the common necessity of conducting line of departure movement at warning order 2. Planning in parallel with brigade is inefficient and creates information gaps. Just as a cavalry squadron must move to the line of departure early to fight for information, a squadron staff finds itself fighting for the newest version of the plan. The other benefits of planning with brigade are the formation of deeper relationships between echelons and the ability to positively influence the reconnaissance and information collection plan that the squadron will soon execute.

U.S. Army photo by SPC Kyler Chatman, Operations Group, National Training Center

U.S. Army Soldiers assigned to 3rd Armored Brigade Combat Team, 4th Infantry Division, Fort Carson, CO, move to a new location during a simulated attack during Decisive Action Rotation 19-02 at the National Training Center, Fort Irwin, CA, October 28, 2018.

The axiom of "always be planning" can apply to IPB during MDMP itself. After the rush of mission analysis, the S-2 section has completed IPB. It then turns its focus to finalizing the initial collection plan with the Blue Force scheme of maneuver. The section then updates running estimates and supports COA development, analysis, and comparison; however, S-2s should continue refining IPB through MDMP steps 3 through 5 (COA development, COA analysis, and COA comparison, respectively) so that the planning does not go to waste. This is particularly helpful when supporting decision point tactics. Every Blue Force development will possibly influence enemy reactions and either introduce new enemy decision points or significantly change existing ones. S-2s should not change briefed enemy COAs because this is what the enemy is capable of and likely to do, in order to achieve its higher headquarters' end state. What should change is the *how*—i.e., based on the Blue Force scheme of maneuver, what options does the enemy have that may not have existed previously?

Several field craft improvements can dramatically improve the S-2's planning efficiency:

- **First**, building a separate battle board provides the section a separate map area to develop situation templates without interfering with the common operational picture. Although a plans map should also be present, it is much easier to de-conflict its usage by space rather than by time. Mount this board in a command track vehicle or have it be stand-alone in the tactical operations center to facilitate constant planning.
- **Second,** if built with "standard drop" acetate fit, this board further improves productivity and collaboration among the staff, and even the brigade combat team staff (if standard drop is a common feature), by allowing instantaneous acetate transferring. Additionally, a section can make standard drop acetates before deploying, which reduces the amount of "arts and crafts" work its analysts must perform in a tactical environment.
- **Third,** digitally printed modified combined obstacle overlays and line-of-sight acetate overlays from a functioning plotter, if available, directly save analysts hours of hand-drawn work on the map. This directly enables them to develop detailed enemy COAs with situation templates and decision points.

Conclusion

Through planning deliberate analyst IPB training, leveraging garrison time and resources before deploying, and always planning, maneuver S-2s can overcome their greatest threat—time. The coming decades will see nations

continue to develop and adapt new technologies for the conduct of warfare. Fields such as big data, machine learning, and artificial intelligence will exponentially increase the need for military intelligence battlefield efficiency. Building efficiencies and best practices into our Army's intelligence enterprise *today* will make it easier to incorporate new technologies, tactics, techniques, and procedures *tomorrow.*

Endnotes

1. Peter Palmer and Jim Crider, "Decision-Point Tactics (Fighting the Enemy, Not the Plan!)," *CTC Quarterly Bulletin*, 1st Qtr, FY 97, no. 97-4 (1997): 1.

2. Department of the Army, Army Techniques Publication (ATP) 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. Government Publishing Office [GPO], 1 March 2019), 4-22.

3. Department of the Army, ATP 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. GPO, 10 November 2014 [obsolete]), 6-5.

4. Ibid., 6-8.

5. Thomas M. Feltey and Lance C. Rae, "Military Deception and Reverse Intelligence Preparation of the Battlefield: How Staff Integration Creates Advantages for the Brigade Combat Team Commander," *Armor* CXXXI, no. 3 (Fall 2018): 59-60.

6. Department of the Army, ATP 2-01.3, 2014, 6-5.

Squadron Information Collection Synchronization in Support of Decision Point Tactics

by First Lieutenant Evan Shields

Overview

This article describes how to synchronize information collection in an armored cavalry squadron to best support decision point tactics. Specifically, it discusses how to focus information collection planning efforts during various phases of the military decision-making process (MDMP) and create a detailed and synchronized information collection plan while in a time-constrained environment. The author developed these best practices from lessons learned as the collection manager and assistant S-2 for the 4th Squadron, 10th Cavalry Regiment, 3rd Armored Brigade Combat Team, 4th Infantry Division, during his involvement with command post exercise 2, warfighter exercise, Leader Training Program, Military Intelligence Training Strategy, Iron Strike exercise, and National Training Center Rotation 19-02.

Background

Information collection, when done correctly, synchronizes the warfighting functions of intelligence, movement and maneuver, and fires. However, when conducting information collection, many collection managers make the error of focusing on identifying general enemy activity, resulting in unfocused collection that may not synchronize with other warfighting functions. Ultimately, the brigade commander's decision points are what drive the brigade's information collection plan and thus the squadron's information collection plan and scheme of maneuver.

The purpose of information collection in an armored cavalry squadron is twofold:

- To answer the priority intelligence requirements (PIRs) that will enable the commander to exercise mission command (via decision point tactics).
- To support targeting in order to set favorable conditions (shaping operations).

Both of these concentrations enable friendly forces to seize, retain, and exploit the initiative to gain a position of relative advantage over the enemy. In doing so, friendly forces constrain the enemy to a reactive state throughout the operation. To achieve this, however, the collection manager must have an in-depth understanding of the assessed enemy course of action (COA), the friendly COA (including all decisive points, branches, and sequels), and the high-value/high-payoff targets. Throughout the planning process, it is crucial to have full integration of the collection manager with the adjacent staff. This is especially true when it comes to large-scale ground combat operations against peer threats.

Intelligence Preparation of the Battlefield and the Initial Collection Plan

Collection managers need to integrate themselves into both the brigade and the squadron staff during intelligence preparation of the battlefield (IPB). The analysis conducted during IPB and its resulting products are critical to the creation of an effective information collection plan. This is particularly imperative when operating in a time-constrained environment, which is typical of a cavalry squadron. The S-2 staff mitigates the time constraint by completing the first three IPB steps before leaving garrison—step 1 (define the operational environment), step 2 (describe environmental effects on operations), and step 3 (evaluate the threat). Similarly, the collection manager is able to create initial information collection products based on the doctrinal threat templates and reverse IPB products. Using the doctrinal threat templates and assessed order of battle,

an initial information collection matrix is produced for both offensive and defensive operations. It will not be as comprehensive as the final information collection matrix, but it may provide some initial information requirements, indicators, and specific information requirements (SIRs). By the squadron collection manager integrating into adjacent echelons' IPB process, their products will nest with the adjacent echelons' products, which facilitates shared understanding.

Once the initial information collection matrix is completed, the collection manager creates terrain-based areas of interest without regard for friendly or enemy disposition and direction of travel. These areas of interest will identify ideal geographical locations for—

- Position areas for artillery (both fires and counter-fires).
- Command and control nodes.
- Logistics lines.
- Air defense artillery.
- Radars.
- Observation posts.
- Advantageous sites for offensive and defensive maneuver.

All warfighting function staff representatives should participate in this effort to create areas of interest (each with a predesignated color) based on identifying terrain they themselves would use. This product is a reverse IPB overlay (see Figure 1). While this overlay will assist in the future creation of a named area of interest (NAI) overlay, it may also serve as a planning aid for staff sections later during the MDMP. Additionally, current operations should use this product when engaging in the dynamic re-tasking of collection assets by providing the collection manager with alternate locations to identify specific enemy elements.

Upon the receipt of warning order 1 and through the completion of IPB step 4 (determine threat COAs), the squadron collection manager (in conjunction with the S-2 staff) should refine the list of initial information requirements in conjunction with their brigade staff. The event template and decision support matrix are the two most useful planning tools for information collection during this step of the MDMP. The event template depicts snapshots of the assessed enemy scheme of maneuver and decision points in time and space. This allows the collection manager to identify when the enemy is moving at a faster or a slower rate of speed than the collection manager had previously anticipated and to adjust collection times. The decision support matrix will allow the collection manager and the S-2 to identify the enemy's likely collection focus and potential PIRs, which is critical to the cavalry squadron's counter-reconnaissance fight.

Identifying the enemy's information requirements through reverse IPB allows the brigade S-2 to determine how the enemy commander is likely to array his or her assets to collect the needed information. An effective and lethal cavalry squadron will not only answer PIRs and drive decision points, but it will also retain freedom of maneuver for the brigade combat team by degrading enemy collection assets during the counter-reconnaissance fight. This will enable the brigade combat team commander to keep enemy forces reactive to friendly actions either by targeting or by exploiting the enemy's collection efforts. Once squadron and brigade have completed IPB, some of these information requirements may be associated with probable friendly decision points, at which point they become brigade PIRs.

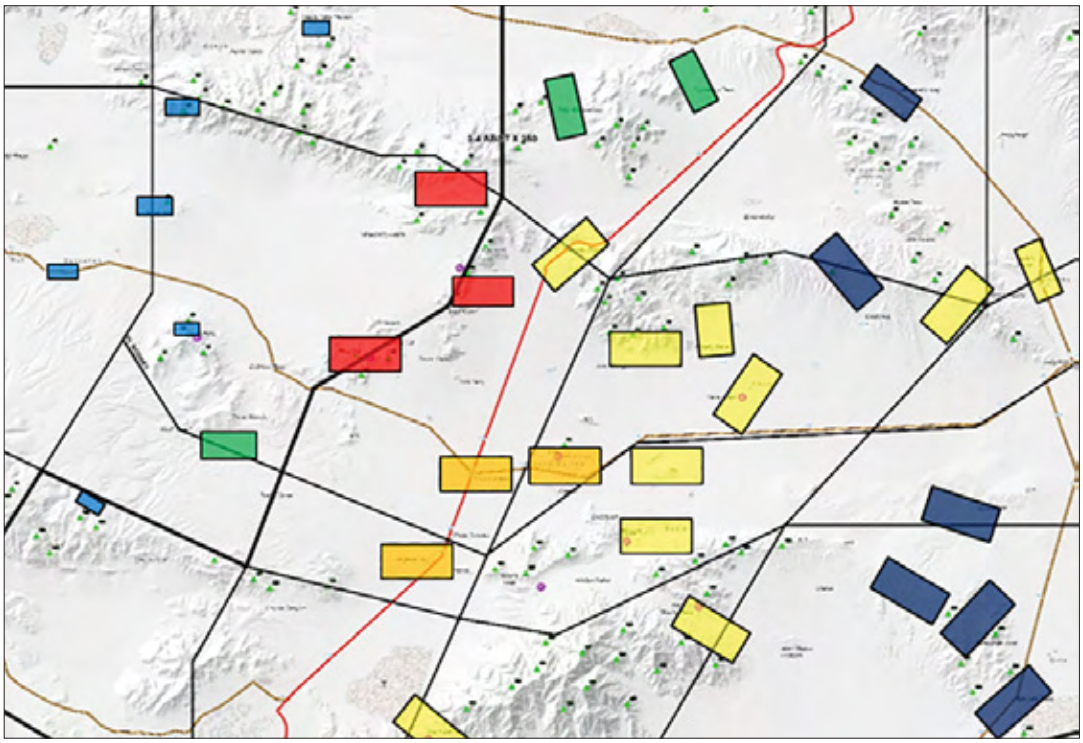


Figure 1. Reverse IPB Overlay

These PIRs are continually refined throughout the MDMP. The collection manager should be able to anticipate how the squadron and brigade combat team commander will fight, and then plan accordingly, because at this point the staff has not developed its COA. MDMP is a commander-driven process.

Information Collection Matrix

Following the mission analysis briefing, the collection manager begins further development of the information collection plan from the initial IPB effort. These products will eventually lay the groundwork to prepare the information collection order, also known as Annex L. The collection manager produces this in parallel with friendly COA development. To achieve information collection synchronization from this point in the MDMP, the collection manager must be collocated and integrated with the operations and fires staffs. The first step in building the information collection plan is completing the information collection matrix, which takes little time because an initial matrix was already prepared in garrison.

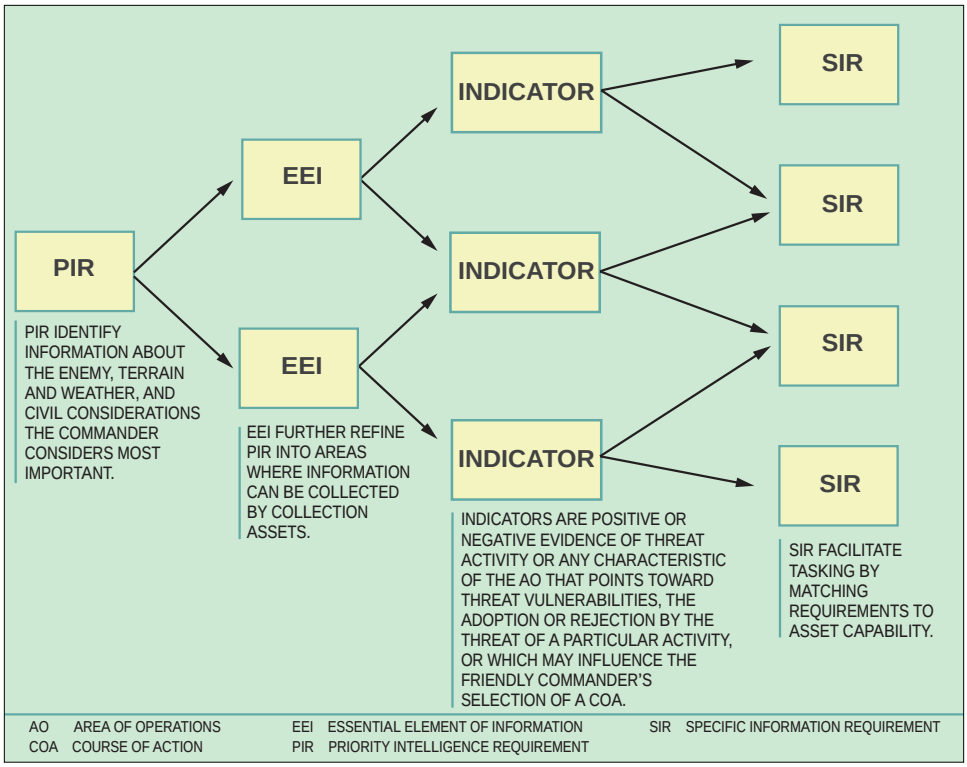


Figure 2. Relationship of SIRs to Indicators, to EEIs to PIR[1]

A Note on Essential Elements of Information

FM 3-98, *Reconnaissance and Security Operations*, and joint doctrine use EEIs as a bridge between PIRs and indicators that are eventually captured as SIRs as a part of the information collection plan. However, ATP 2-01, *Plan Requirements and Assess Collection*, dated 19 August 2014, eliminated EEIs, and does not include the step of dividing PIRs into EEIs.

The squadron collection manager then refines the brigade PIRs into essential elements of information (EEIs), as shown in Figure 2.

EEIs focus the information collection to specific areas within the area of operations that are likely to become objectives in the upcoming operation. Indicators are a further refinement of EEIs, focusing collection on positive or negative evidence of enemy elements and activity in the area. Because of the specificity of indicators, once answered these indicators may confirm or deny an enemy COA. Moreover, they will provide the brigade combat team commander with information needed to support his or her decision-making cycle. When developing indicators, it is best to think of them as how the various warfighting functions associate with each EEI. Indicators will then be further refined into SIRs. SIRs focus information collection by matching the possible indicators to available collection assets. Think of SIRs like three of the five senses:

- What does it look like (cavalry squadron, full motion video, and imagery intelligence)?
- What does it sound like (communications intelligence)?
- What does it feel like (measurement and signature intelligence and unattended ground sensors)?

The final product must nest with the squadron commander's reconnaissance guidance. To improve the common understanding and association of PIR to decision points, decision points should be included as the first column of the information collection matrix.

Named Area of Interest Overlay

Upon completion of the information collection matrix, it is time to develop the NAI overlay. The previously discussed reverse IPB overlay may be useful at this point because many of the color-coded areas of interest may now be NAIs. It is important to collaborate with the squadron S-3 section to ensure that the scheme of maneuver supports the operation's information collection requirements and that it is feasible to collect on the NAIs under development. The two most important mistakes to avoid when developing NAIs are oversizing and saturation.

Large NAIs will not focus collection assets enough to facilitate timely and accurate reporting. If higher echelons

develop and task the squadron with NAIs that are too large, it may be necessary to create smaller, more focused squadron NAIs inside them. Alternatively, a quick and effective approach is to use the quadrant method of dividing an oversized NAI into four quadrants (A, B, C, and D). Ideally, the size of an NAI is dependent on the size of the enemy or terrain being collected upon, not the capability of the collection asset.

The collection manager develops NAIs that are of an appropriate size and orientation by drawing from the SIRs generated for the information collection matrix and the terrain without expanding the NAIs to encompass an entire grid square for convenience. Dissemination of the NAIs will be down to the lowest echelon; the NAIs will eventually become objectives for the troopers and other collection assets. They require diligence and precision. It is also important to consider the amount of terrain a single cavalry troop can cover during a zone reconnaissance mission. Each troop's frontage should be 5 to 7 kilometers—anything outside that range will degrade their reconnaissance capability. A focused and prioritized scheme of collection will rarely task a troop with more than three to four NAIs per phase.

Generally, each brigade combat team has a predetermined naming convention for its NAIs, as well as their subordinate units' NAIs. Squadrons need to create an internal naming convention as well. Creating a naming convention that correlates the NAIs to their corresponding PIRs works best. For example, brigade allocates the squadron NAIs 3100 to 3199. Internally, the squadron allocates NAIs 3110 to 3119 to answer PIR 1, 3120 to 3129 to answer PIR 2, and so on. The squadron reserves NAIs 3100 to 3109 for information requirements, which are associated with targeting and shaping operations rather than specific PIRs and decision points. Using this naming convention makes it far easier to generate a common understanding of the task and purpose of each NAI, as well as the PIR and decision point with which they are associated.

The final step in completing the NAI overlay is to synchronize with the S-2, S-3, and fires staff to identify preplanned targets and desired effects in and around the NAIs. Once the fires staff plans a target within an NAI, it will become a target area of interest (TAI). The type of fires and desired effects on the target will depend on the operational requirements and templated enemy within the TAI. Because of staff manning and time constraints, it is difficult to hold formal target working groups at the squadron level. A good practice is to combine the fires and NAI overlays onto the same sheet of acetate as a forcing function for this synchronization.

Named Area of Interest Matrix and Worksheet

Once the NAI overlay is complete, the collection manager must record the grid coordinates to each corner of every NAI/TAI to produce the NAI matrix. Employing available Soldiers from multiple staff sections is a good practice to mitigate this tedious process. The NAI worksheet comprises a list of the task and purpose of each NAI/TAI. To maximize efficiency, it is a good idea to combine these two products to include all the information and to identify the TAIs in red, as shown in Figure 3.

NAI	Top Left	Top Right	Bottom Right	Bottom Left	Task/Purpose
3120-TAI	11SNV 42900 04800	11SNV 43600 04000	11SNV 43300 03700	11SNV 42700 04000	Area Recon – Identify presence of AT systems utilizing key hole shots
3128-TAI	11SNV 47200 08600	11SNV 48100 08600	11SNV 48100 08000	11SNV 47200 08000	Area Recon – Identify presence of AT systems And enemy Maneuver assets
3129	11SNV 56100 04300	11SNV 57000 04300	11SNV 57000 03700	11SNV 56100 03700	Area Recon – Identify presence of AT systems And enemy Maneuver assets
3135	11SNV 58500 10100	11SNV 59400 09700	11SNV 59000 08900	11SNV 58200 09200	Area Recon – Identify presence of enemy Maneuver assets
3040-TAI	11SNV 57200 07800	11SNV 58100 07100	11SNV 57000 05200	11SNV 56200 05800	Observe enemy HPT – Enable deep targeting
3042-TAI	11SNV 36400 14600	11SNV 37500 15500	11SNV 37900 14800	11SNV 36800 14000	Observe enemy HPT – Enable deep targeting
3043-TAI	11SNU 47100 99100	11SNU 47100 97900	11SNU 45900 97900	11SNU 46500 98600	Area Recon – Identify Composition, disposition, and orientation of Obstacles
3044	11SNU 45500 98900	11SNU 45700 97700	11SNU 43700 97700	11SNU 44500 98500	Area Recon – Identify Composition, disposition, and orientation of Obstacles
3047	11SNV 36100 02100	11SNV 35700 01400	11SNV 34800 02300	11SNV 35500 02200	Area Recon – Identify enemy counter attack force
3048	11SNV 38800 07500	11SNV 38800 06900	11SNV 37400 06900	11SNV 38400 07400	Area Recon – Identify enemy counter attack force
3150-TAI	11SNV 48900 06300	11SNV 49900 06300	11SNV 49900 05400	11SNV 48900 05400	Area Recon – Identify enemy simple or complex battle positions
3151	11SNV 48000 04000	11SNV 50000 04000	11SNV 50000 03000	11SNV 48000 03000	Area Recon – Identify enemy simple or complex battle positions
3152	11SNV 49800 08800	SNV 51000 08800	11SNV 51000 08000	11SNV 49800 08000	Area Recon – Identify enemy simple or complex battle positions
3054	11SNV 41000 01800	11SNU 41000 99500	11SNU 39500 99600	11SNV 40300 00600	Area Recon – Identify enemy counter-attack force
3160-TAI	11SNV 53000 08800	11SNV 54400 07900	11SNV 54100 07100	11SNV 52500 08200	Area Recon – Identify enemy simple or complex battle positions
3061	11SNV 50700 10500	11SNV 52200 10000	11SNV 52000 09400	11SNV 50600 09800	Area Recon – Identify enemy simple or complex battle positions
3162	11SNV 54500 02800	11SNV 55800 02800	11SNV 55800 01100	11SNV 54500 01100	Area Recon – Identify enemy simple or complex battle positions
3163-TAI	11SNV 50800 04800	11SNV 52000 04800	11SNV 52000 03500	11SNV 50800 03500	Area Recon – Identify enemy simple or complex battle positions
3164-TAI	11SNV 53000 04500	11SNV 54000 04500	11SNV 54000 03500	11SNV 53000 03500	Area Recon – Identify enemy simple or complex battle positions

Figure 3. Example NAI Matrix and Worksheet

Information Collection Synchronization Matrix

Using all the previous products, along with the operation's scheme of maneuver, the collection manager produces the information collection synchronization matrix (ICSM), typically during step 4 (COA analysis), step 5 (COA comparison), and step 6 (COA approval) of the MDMP, with constant refinement throughout the operation. The ICSM tasks each collection asset, graphically depicting the scheme of collection in time and space. Current doctrine lacks a good example of an ICSM, which prompted us to create a new template for the squadron's planning standard operating procedure.

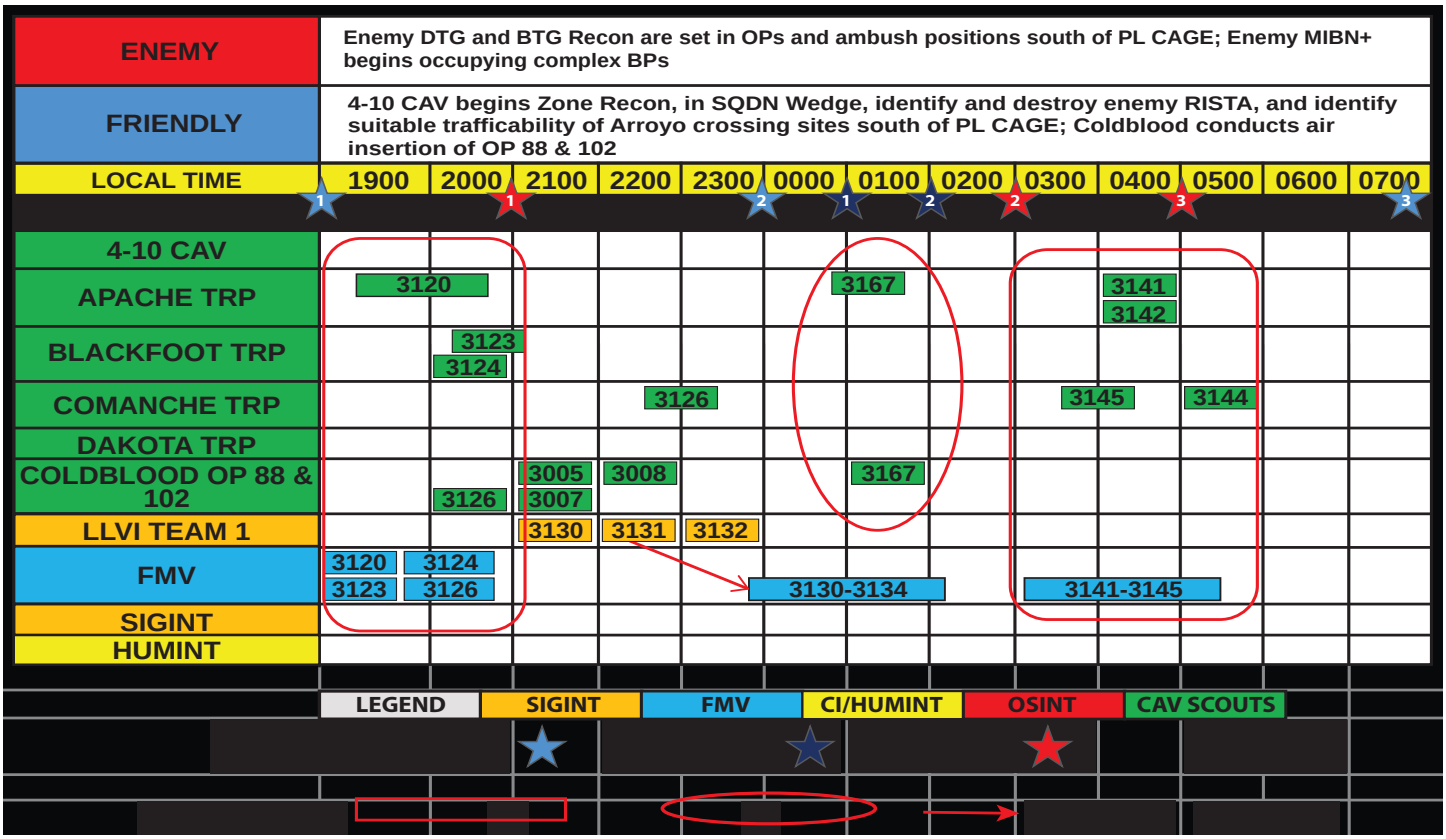


Figure 4. ICSM Example

A best practice is to refine the format of the ICSM after each training exercise with the goal of depicting as much critical information as possible while retaining a visually intuitive product. The first and second rows of the ICSM, shown in Figure 4, are a good place to include a brief summary of the enemy and friendly COAs during each phase of the operation. This aids in the continuous planning process and serves the information collection manager as a script during the various rehearsals before movement to the line of departure. It also helps to frame the friendly action, enemy reaction, and friendly counteraction cycle. This cycle helps to incorporate cueing, mixing, and redundancy into the ICSM, shown with specific symbols identified in the legend. Color-coding each category of collection asset results in quick and easy referencing. Last, but most important, the friendly (squadron and brigade) and enemy decision points in time and space are depicted along the third and fourth rows of the ICSM.

Depicting decision points on the ICSM helps everyone to visualize how the operation will develop and optimizes the timing of collection assets. Before friendly decision points, the collection manager tasks assets to collect on NAIs that contain the information requirements needed to reach that specified decision point. For enemy decision points, collection assets are tasked to exploit and maximize the desired effects of friendly actions as they provoke enemy reactions or decision points. For example, the squadron S-2 may determine that friendly forces seizing a certain objective or key terrain will meet the criteria for the enemy commander's decision point to mass indirect fires on that area. Then it is imperative that the squadron collection manager, being predictive, request assets from higher to collect on the assessed points of origin (using the reverse IPB overlay) of enemy fires before friendly forces seize the objective. The brigade's geospatial intelligence capabilities may be able to provide the assets, or a request may be submitted to echelons above brigade for a national- or theater-level collection asset. If done correctly, this cycle will identify high-payoff targets for prosecution by appropriate shooters and ultimately neutralize any indirect fires threat while friendly forces seize the objective. Once again, this will keep the enemy in a reactive state.

Annex L and Orders Production

According to Army doctrine, Annex L includes the NAI overlay, NAI matrix, NAI worksheet, information collection matrix, ICSM, and information collection overlay. During the creation of Annex L, the goal of squadron collection managers is to generate a product from which troop commanders can fight. The following are additions and recommendations for a squadron's information collection products:

- ✦ Include the enemy and friendly decision support matrices with Annex L, as well as the friendly decision points

in the first column of the information collection matrix, to aid in the association of PIRs to decision points.

- ✦ Ensure NAIs are focused and are supported by a realistic troop frontage.
- ✦ Adjust squadron NAI naming conventions so that NAIs are easily associated with designated PIRs.
- ✦ Combine the NAI matrix and NAI worksheet to save time and effort.
- ✦ Combine the information collection overlay and the fires overlay to reinforce synchronization and targeting, in lieu of a targeting working group.
- ✦ Describe the assessed friendly action and enemy reaction by phase in the first and second row of the ICSM.
- ✦ Depict friendly and enemy decision points by phase, as well as cueing, mixing, and redundancy, in the ICSM.
- ✦ Disseminate all information collection products across all mission command systems (Distributed Common Ground System, Command Post of the Future, Advanced Field Artillery Tactical Data System, and Joint Capabilities Release). A true synchronization of information collection products across echelons and warfighting functions is not achievable without this dissemination up, down, and across.

Conclusion

Information collection is a critical component of decision point tactics. It aims to answer the commander's PIRs necessary to making informed decisions, as well as enabling targeting to set conditions for each phase of the operation. By using the recommendations described in this article, a collection manager can expect to produce a nested, synchronized, and tactically sound information collection plan. In doing so, the collection manager can prevent the all too common problem of "chasing the shiny object" when dynamically re-tasking collection assets. This will ensure the information collection plan remains focused on driving decision points and maximizes the brigade combat team's lethality.

Endnote

1. Department of the Army, Field Manual (FM) 3-98, *Reconnaissance and Security Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 1 July 2015), 4-17.

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Department of the Army. FM 2-0, *Intelligence*. Washington, DC: U.S. GPO, 6 July 2018.

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Department of the Army. ATP 2-19.4, *Brigade Combat Team Intelligence Techniques*. Washington, DC: U.S. GPO, 10 February 2015.

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Enemy Course of Action Development

by Major Matthew Fontaine

Introduction

Time. It's the staff's most finite and critical resource when planning operations. This is especially true for the S-2 during the mission analysis step of the military decision-making process. Throughout mission analysis, the S-2 leads the intelligence preparation of the battlefield (IPB) process to determine all valid enemy courses of action (COAs), also known as threat COAs. The enemy COA is just one of various overlays, charts, matrices, and sketches identified in doctrine as IPB outputs.[1]

Time-constrained environments, like those at the Joint Readiness Training Center (JRTC), compound the challenge of developing quality enemy COAs. During JRTC rotation 18-08, the 2nd Brigade, 10th Mountain Division's brigade combat team staff adhered to the general rule, and the brigade commander's explicit order, to allocate a minimum of two-thirds of available time for the subordinate units to conduct their planning.

In accordance with this guidance, our brigade executive officer strictly allocated mission analysis time based on the receipt of the higher headquarters orders. This resulted in just 12 hours to prepare our initial mission analysis briefing. Toward the end of the operation, the time allocated for mission analysis was only 2 hours. Under these time constraints, waiting for the higher headquarters to publish an order was not an option.

At JRTC, our S-2 section kept pace by anticipating how our operation would unfold and by developing a series of potential enemy COAs *before* the receipt of mission. These enemy COAs were developed with the understanding that some, if not most, of their details would later require significant refinement. Others would be discarded wholesale after the receipt of the mission. This was OK. When conducting operations, we found it better to spend at least 2 hours early on, to save an hour later when planning time was severely limited. What follows is the five-step framework (see Figure 1) we used to rapidly generate and refine enemy COAs.

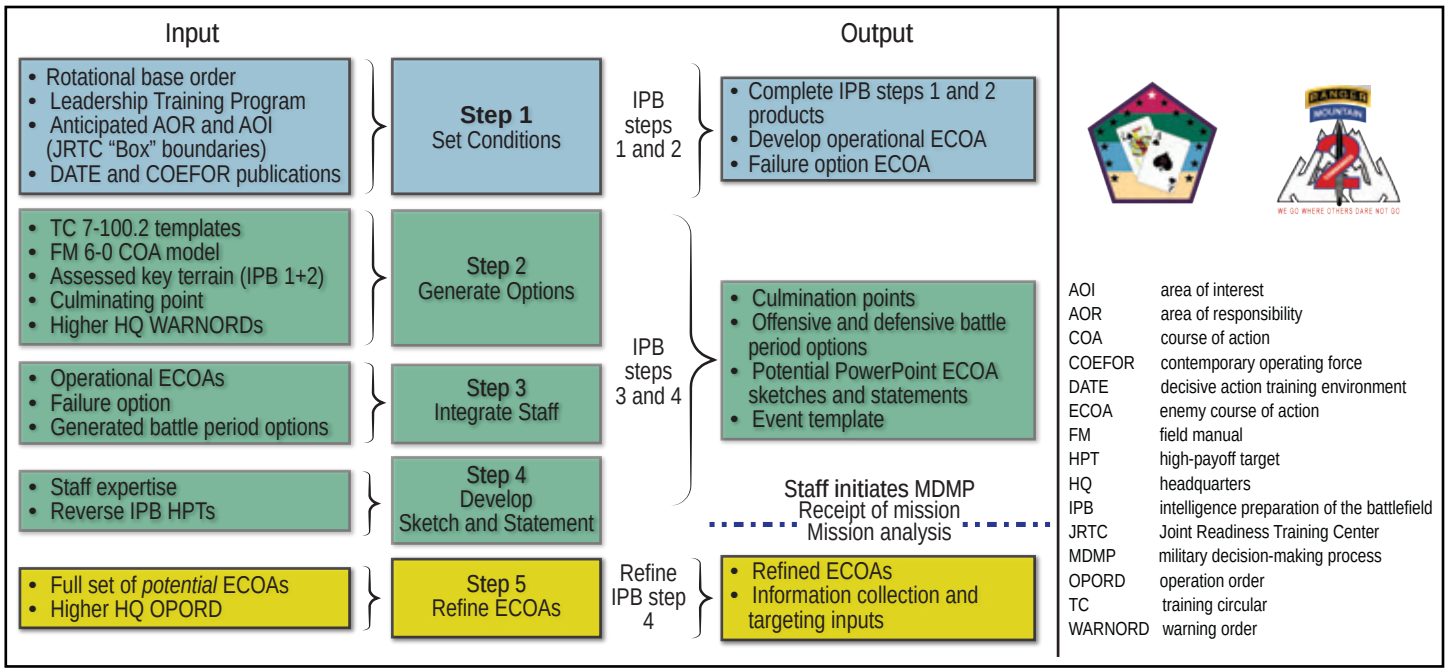


Figure 1. Enemy COA Development in a Time-Constrained Environment

Step 1: Set Conditions

We leveraged spare time to the fullest to plan during reception, staging, onward movement, and integration (RSOI). Specifically, four efforts enabled the rapid development of enemy COAs later on.

- **First**, we completed IPB steps 1 and 2 for the entire training area.
- **Second**, we fully developed the assessed Joint Task Force 21 enemy COA for the brigade combat team area of operations (see Figure 2 on the next page). This enemy COA described in broad terms how the enemy could achieve its end state. Working out the joint task force enemy COA details better enabled us to visualize how our entire operation would likely unfold.
- **Third**, we developed a "failure option" COA, anticipating what actions the enemy might take if unable to achieve its end state (see Figure 3 on the next page).
- **Fourth**, we templated anticipated enemy positions within key terrain and population centers to get ahead on microanalysis in support of the subordinate units (see Figure 4 on the next page).

These efforts enabled us to visualize how the entire operation was likely to unfold. We predicted the next series of offensive objectives and likely locations of defensive arrays for the next phase using key terrain as a guide. Thinking about the enemy's objectives holistically from the start, and the enemy's failure option, improved our ability to define the brigade's close and deep fights throughout the rotation.

Step 2: Generate Options

We began the process of developing potential enemy COAs with a short brainstorming session. Brainstorming for the next battle period occurred once we issued the brigade order but before the combined arms rehearsal. Using key terrain and assessed enemy strength to inform our analysis, we anticipated where and when friendly and enemy forces would likely culminate during the current phase. We then generated a series of enemy options using the offensive and defensive templates described in TC 7-100.2, *Opposing Force Tactics*. Sketches helped the team to quickly think and identify the full range of actions the enemy could take to accomplish their next mission. After generating options, we brought the rest of the staff into the IPB process.

Step 3: Integrate the Staff

IPB is most effective when the full staff is integrated into the analysis.[2] However, a formal reverse IPB process is time-consuming, and in our experience, it offers few results if the S-2 section has not already generated an initial framework. We found that a 30-minute reverse IPB session immediately following brainstorming efficiently and effectively incorporated expertise across the staff.

We began the working group by presenting our generated options. Having this common enemy framework at the start enabled the staff to quickly build on our initial ideas. We recommend that warfighting function leads come prepared with reverse IPB checklists that identify aspects of their areas most relevant to the fight. For example, a sustainment IPB checklist ensures that potential high-payoff targets, such as sustainment command posts, are included in the overall analysis. The unit standard operating procedure contains the checklist, and it is updated as particularly significant aspects of each warfighting function are brought to light. With staff input, an initial enemy COA for each generated option is developed.

Step 4: Develop the Sketch and Statement

As with friendly COAs, enemy COAs are best framed using statements and sketches. A good enemy COA tells a story. It succinctly describes the enemy's aim, means, and approach to achieving its end state. The enemy COA title captures the key elements of the enemy narrative and serves as an aid to distinguish one enemy COA from another. Memorable enemy statements and sketches rapidly develop shared understanding in time-constrained environments so that solutions can quickly be produced and acted upon.

While unit standard operating procedures vary, we found that a single PowerPoint slide per enemy COA was the best tool for shared understanding. These slides were an excellent briefing tool, better than acetate over a map, and superior as a deliverable—easy to disseminate in both digital and hardcopy formats for future study. Each enemy COA slide contained only the essential elements necessary for framing the problem and was free of the minutia that tends to obfuscate briefings conducted under severe time constraints.

ATP 2-01.3, *Intelligence Preparation of the Battlefield*, notes that doctrinal friendly COA development models are an excellent tool when developing enemy COAs.[3] While true, simple modifications to the friendly COA statement and sketch in FM 6-0, *Commander and Staff Organization and Operations*, produce more effective and timesaving enemy COAs.[4] In a time-constrained environment, we recommend that each enemy COA sketch and statement include the following information:

- Type of attack or defense to be used—*integrated attack* and *dispersed attack* or *maneuver* and *area defense*.
- Organization of the enemy area of operations using the three basic zones: *battle, disruption,* and *support*. The sketch may also include *attack* and/or *kill zones*.

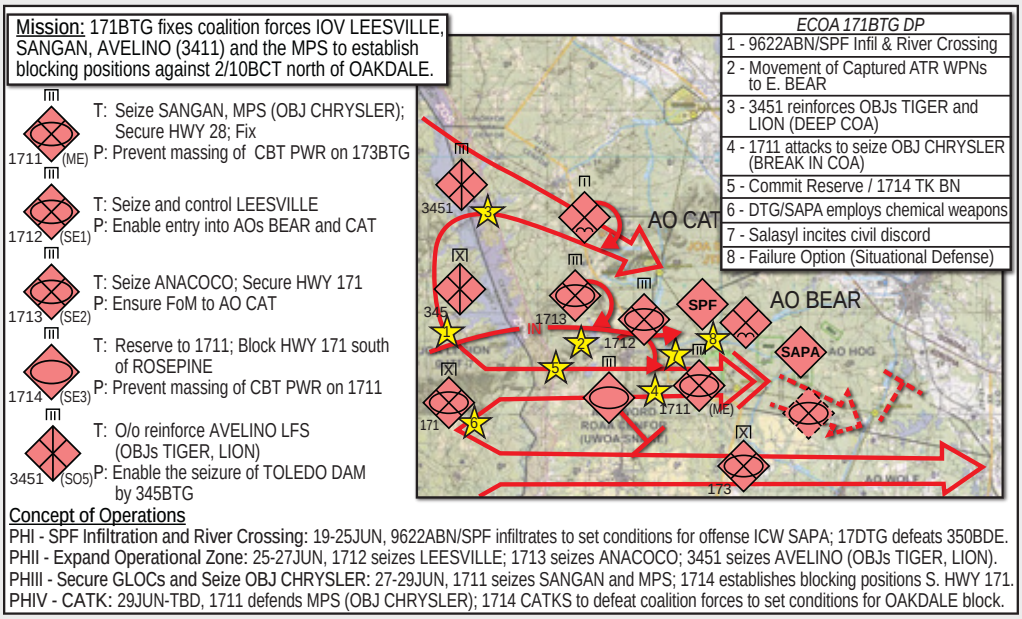


Figure 2. Assessed Joint Task Force Enemy COA

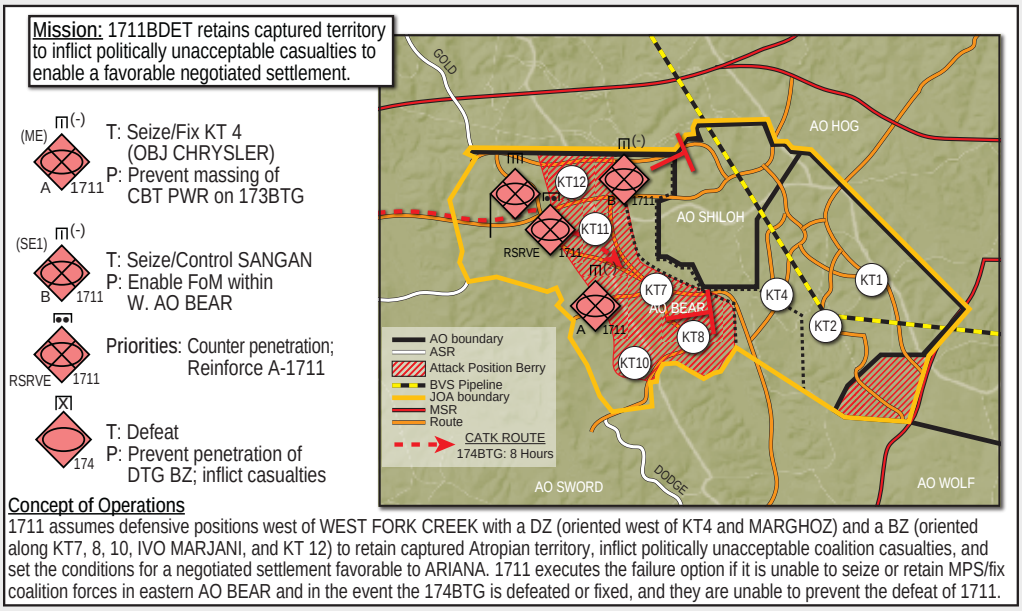


Figure 3. Failure Option Enemy COA

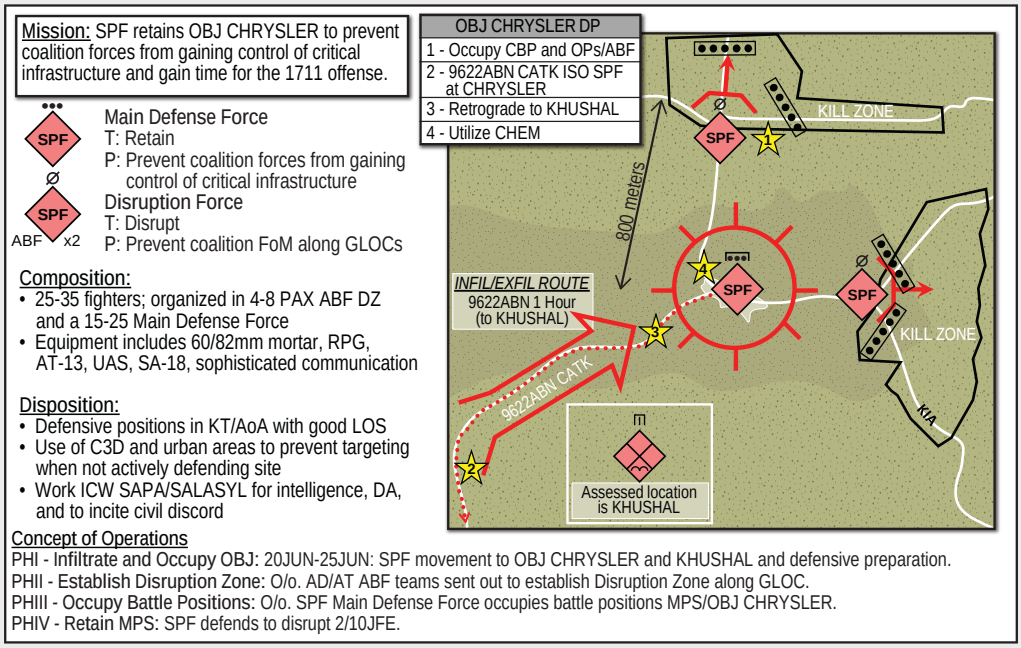


Figure 4. Key Terrain Enemy COA

Mission: 9622ABN/SPF retains OBJ CHRYSLER and controls KT4 to retain critical infrastructure and set the conditions for the 1711BDET attack.

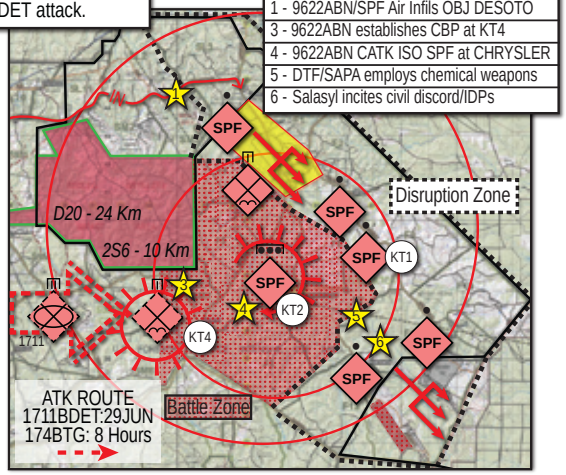
9622
T: Control KT4
P: Enable 1711 FoM into eastern AO BEAR

(-) SPF
T: Retain MPS; Disrupt OBJ DESOTO, TAA BERRY, FoM IVO KT1
P: Gain time for 1711 attack; retain critical infrastructure

9622ABN CDET Composition:
- 90-120 fighters
- MMG, AT-13, RPG, SA-18

SPF Composition:
- 40-60 fighters: organized in 4-6PAX AT/ADA Teams; Anti-landing force; PLT-sized element IVO MPS
- Equipment may include captured Atropian weapons: T-80, BMP-2, BRDM-2, Scout Cars, D-30, ZSU 23-4

Disposition:
- Defensive positions in KT/AoA with good LOS
- Use of C3D and urban areas to prevent targeting
- Work ICW SAPA/SALASYL for intelligence, DA, and to incite civil discord



Concept of Operations

PHI - Seize Initial Objectives: 19-24 JUN, 9622ABN and SPF infiltrates AO BEAR (air/ground) to seize KT and establish Disruption Zone.
PHII - Disruption Operations: 24-27JUN, 9622ABN and SPF defend KT4 and KT2 (OBJ CHRYSLER) and disrupt 2/10 entry into AO BEAR.
PHIII - 1711 Entry AO BEAR: 27JUN, B-1711 seizes SANGAN; 9622ABN controls KT4 and SPF controls/fixes coalition forces at OBJ CHRYSLER.
PHIV - 1711 Attack: 29JUN-TBD, 9622ABN enables FoM of 1711 into E. AO BEAR; 1711 attacks to seize MPS and defeat 2/10BCT.

Figure 5. Enemy COA 1 - Dispersed Defense

Mission: 3451BDET CATKS to Seize OBJs TIGER and LION IOT enable the seizure of the TOLEDO BEND DAM.

3451 (S05)
T: Seize OBJs LION and TIGER
P: Enable the seizure of TOLEDO DAM by 345BTG

(SE1) A 3451
T: Fix OBJ LION from Axis 1
P: Enable FoM of the Assault Force

(SE2) B 3451
T: Fix OBJ TIGER from Axis 2
P: Enable FoM of the Assault Force

(ME) (+) ASLT 3451
T: Seize OBJs TIGER and LION along the Assault Axis
P: Enable FoM of the Assault Force

Concept of Operations

PHI - 3451 Committed: Upon the collapse of the 9622ABN/SPF DZ, 3451 initiates movement from MANY.
PHII - Entry in AO CAT: 3451 enters AO CAT, secures ASR JETTA (east to west GLOC) and key intersections (KT4,5). 3451 determines axis of fixing and assault forces.
PHIII - 3451 Fixing: 3451 attacks along Axis 1 and 2, fixes enemy at OBJs TIGER and LION. Assault Force attacks along Axis 3, and moves into attack positions IVO KT3 (ECOA 1) or along Axis 4 (ASR GOLD) ECOA 2.
PHIV - Seizure of OBJs: Assault force attacks to seize OBJs TIGER and LION.

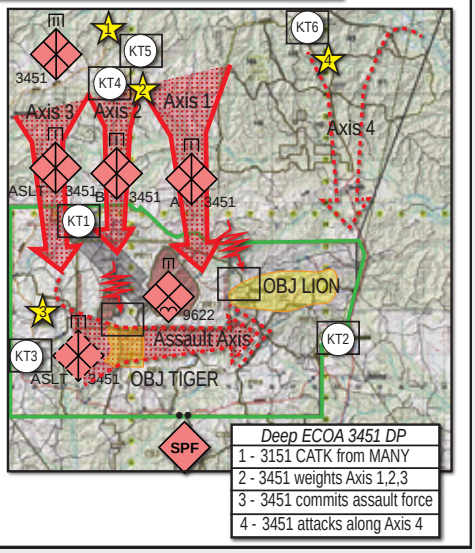


Figure 6. Enemy COA 2 - Situational Offense

Mission: 3451BDET CATKS to Seize OBJs TIGER and LION IOT enable the seizure of the TOLEDO BEND DAM.

3451 (S05)
T: Seize OBJs LION and TIGER
P: Enable the seizure of TOLEDO DAM by 345BTG

(SE1) A 3451
T: Fix OBJ LION from Axis 1
P: Enable FoM of the Assault Force

(SE2) B 3451
T: Fix OBJ TIGER from Axis 2
P: Enable FoM of the Assault Force

(ME) (+) ASLT 3451
T: Seize OBJs TIGER and LION along the Assault Axis
P: Enable FoM of the Assault Force

Concept of Operations

PHI - 3451 Committed: H+2hrs, Upon the collapse of the 9622ABN/SPF DZ, 3451 initiates movement from MANY.
PHII - Entry in AO CAT: H+2.5hrs, 3451 enters AO CAT, secures ASR JETTA (east to west GLOC) and key intersections (KT4,5). 3451 determines axis of fixing and assault forces.
PHIII - 3451 Fixing: H+5.25hrs, 3451 attacks along Axis 1 and 2, fixes enemy at OBJs TIGER and LION. Assault Force attacks along Axis 3, and moves into attack positions IVO KT3 (ECOA 1) or along Axis 4 (ASR GOLD) ECOA 2.
PHIV - Seizure of OBJs: Assault force attacks to seize OBJs TIGER and LION.

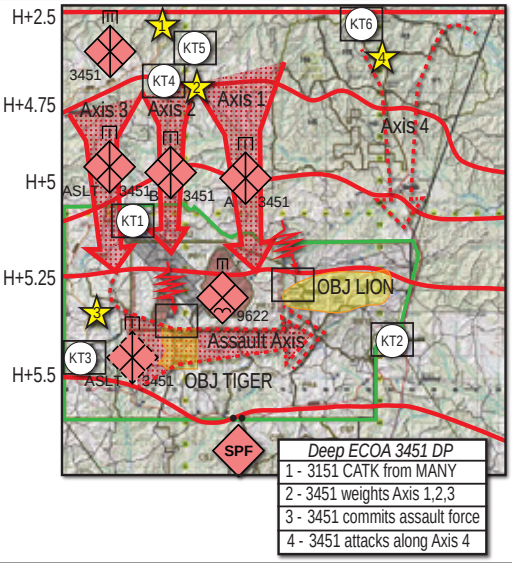


Figure 7. Enemy COA with Integrated Timed Phase-Lines

- Key terrain relevant to the current phase and axis of attack drawn in accordance with assessed avenues of approach.
- Designation of the main effort.
- Task and purposes of subordinate units, organized and designated according to their function in the planned offensive or defensive action. For instance, disruption, fixing, assault, or exploitation.
- Desired end state (outlined in the threat mission statement).
- Decision points. If possible, provide the amount of time necessary to complete each broad action or to arrive at each decision point.
- A memorable enemy COA title that captures the key elements of the enemy narrative.[5]

We developed at least two feasible and distinguishable enemy COAs from the generated options using these guidelines (see Figures 5 and 6 on the previous page). Each enemy COA had an accompanying event template or timed phase-lines integrated directly into the sketch (see Figure 7 on the previous page). The phase-lines determined the time or place in which the enemy commander had to make a decision and served as the basis for the initial collection plan.

Step 5: Refine Enemy COAs

Remember, all the work described above occurs before the receipt of mission. As an example, during RSOI we produced full sets of offensive and defensive enemy COAs to minimize the potential of being caught with insufficient time. Upon receipt of the mission, we learned that the enemy would initially be defending. This meant half of our enemy COAs were eliminated from the start. However, this also meant we were able to spend our first 12 hours refining our defensive enemy COAs.

As a result of our preplanning, we immediately began to operationalize our two defensive enemy COAs during mission analysis. After refining our enemy COAs, our brigade analysts and the battalion S-2s used the bulk of the brigade mission analysis time to create more detailed IPB products, both digitally and on acetate. Armed with a nearly complete enemy COA, our collection manager was in a better position to request echelon's above brigade information collection assets 72 hours out. Our plans team also had better inputs into the targeting working group.

Conclusion

During the conduct of operations, every minute of planning time counts. Developing operational, failure, and multiple battle period enemy COAs before receipt of the mission maximizes available time. Use mission analysis to refine your enemy COAs, conduct detailed planning, and facilitate collaborative efforts. Anticipate how your operation will unfold, and your S-2 section will keep pace in demanding time-constrained environments.

Endnotes

1. Department of the Army, Army Techniques Publication 2-01.3, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. Government Publishing Office [GPO], 1 March 2019), 2-2.

2. Ibid., 1-4–1-5.

3. Ibid., 1-4.

4. Department of the Army, Field Manual 6-0, *Commander and Staff Organization and Operations* (Washington, DC: U.S. GPO, 5 May 2014), 10-7. Change 1 was issued on 11 May 2015. Change 2 was issued on 22 April 2016.

5. Ibid.

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INTELLIGENCE PREPARATION OF THE BATTLEFIELD

by Major George A. Gaun

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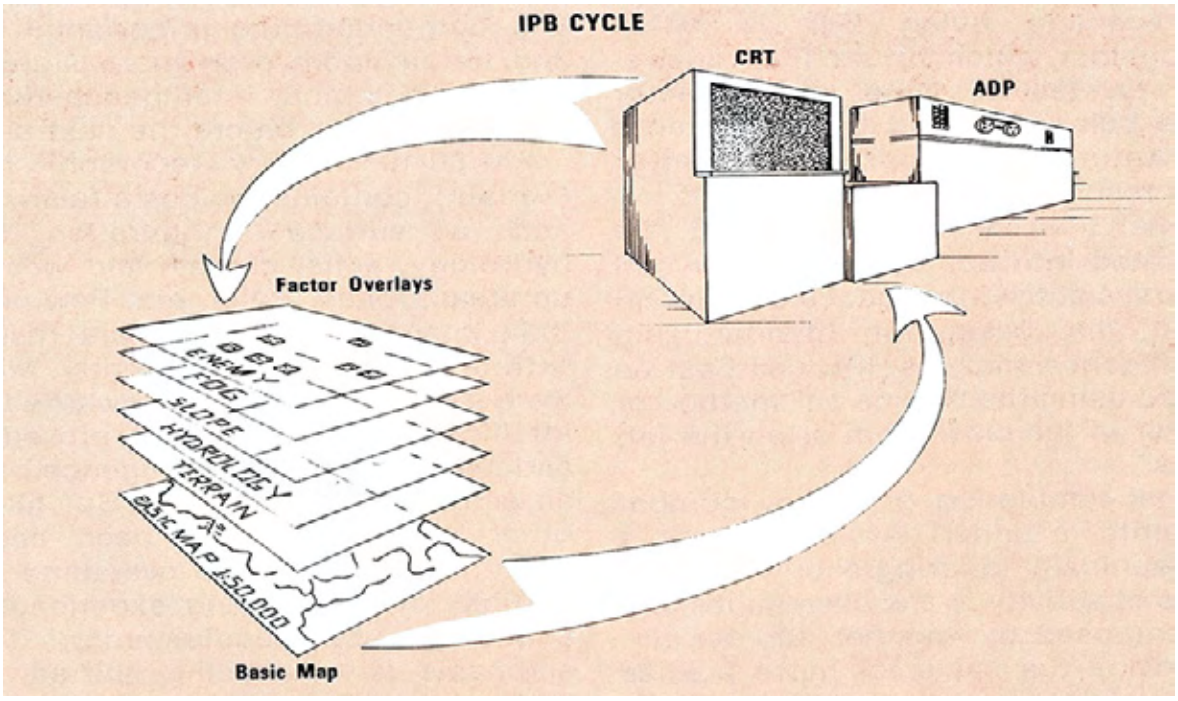
Editor's Note: ***The* Military Intelligence Professional Bulletin *(MIPB) began publishing in the spring of 1974 under the name MI Magazine. The following feature article from the Summer 1976 issue provides unique historical insights into the new intelligence preparation of the battlefield concept. Interestingly, many of the ideas MAJ Gaun discusses are still relevant today.***

In this MIPB issue, we have also included an article by Ms. Katherine Coviello, titled "The History of Intelligence Preparation of the Battlefield as We Consider Multi-Domain Operations and Cyberspace." In her article, Ms. Coviello describes how instrumental MAJ Gaun was in developing the IPB process and spreading the word throughout the military intelligence community.

As readers of the **MI Magazine** you may be aware of significant changes that have occurred within military intelligence for improving support to the tactical commander. Tactical intelligence doctrine and training are currently undergoing intensive review and revision at the Intelligence Center in order to insure that MI personnel are "fully equipped" to meet the challenges of the future. One of the projects concerned with this effort is called "Intelligence Preparation of the Battlefield" or short title: IPB.

At the outset, rest assured that this is not another attempt at "redesigning the wheel." That's why BG Eugene Kelley, Jr., Commander, United States Army Intelligence Center and School (USAICS) when he approved the concept on 13 November 1975, said, "IPB is not new; we've been doing much of it all along." What is new is the "standardization of techniques of tactical intelligence analysis." Therein lies the essence of IPB. But it goes beyond that because it is a practical approach to helping G2/S2 personnel provide better support to the commander.

IPB has its doctrinal base in draft FM 100-5, OPERATIONS, Chapter VII, Intelligence. Chapter VII, succinctly stated, is the "mission statement" of tactical intelligence support to the commander. The commanders will expect the type of support expressed in Chapter VII and we can do no less than meet the challenge. Implied within the mission statement are two major requirements; one—the training of high quality human resources and two,—the full integration of Automatic Data Processing (ADP) support systems to assist the G2/S2 in the accomplishment of their mission.



It's time for a definition so that we are all oriented from the same start point: *"IPB is a procedure that provides for the maximum integration and analysis of the factors of combat intelligence, weather, enemy, and terrain to enable the commander to exploit his knowledge of the enemy relative to the advantages and limitations of weather and terrain, to tilt combat power in his favor."* IPB standardizes tactical intelligence analysis through the use of graphics such as annotated maps and photographs, overlays and templates as aids to analysis and a means of disseminating intelligence. It emphasizes the use of graphics, discrete symbology and colors to communicate intelligence information to the generals, colonels, and captains. IPB will rely heavily on ADP graphical display systems and a supporting digitized data base to provide the commander with the best information available. Lastly, IPB includes the development of tactical intelligence analytical techniques, ADP-CRT display and digitized intelligence data base system requirements necessary to meet the decision-making needs of the commander in the next decade.

Here are some of the things the IPB project is doing at the present time:

a. Information requirements concerning terrain and weather factors are being developed in accordance with the intelligence needs of the generals, colonels, and captains.

b. A model of a sector of the SCORES, Europe I scenario using IPB is being developed against which future IPB requirements will be tested. Nine terrain factor overlays are being prepared by the Defense Mapping Agency, Topographic Center (DMATC) in response to this requirement.

c. The analytical techniques of IPB are being integrated into appropriate officer and enlisted courses at the Intelligence Center and will provide the basis for standardizing tactical intelligence analysis. IPB can best be accomplished using the "hands on" method of training either in the classroom or on the job in field units.

d. Doctrinal templating of enemy combat power elements is under development as a means of graphically tailoring enemy predictable pattern of activity to the advantages and limitations imposed by weather and terrain. This will provide the basis for more precise predictions about enemy capabilities and intentions in an actual combat situation.

e. ADP compatible combat power symbology is under development to relate type, number, range and mobility of enemy weapons systems at various scales such as 1:250,000, 1:50,000 (and possibly greater scales) for use by the commander as he focuses from the macro to the micro perspective of the battlefield.

f. A training circular on IPB is being developed which will include tactical intelligence analysis techniques (weather, enemy and terrain), combat power symbology and doctrinal templating.

Military history is full of examples about how military engagements were won or lost due to the commander's use of terrain and his recognition of the effects of weather. In order to exploit, however, the advantages and limitations of terrain and weather, the commander must have a G2/G3 team with the imagination and innovative expertise to achieve the proper degree of military advantage at the right time and place. Despite what the lessons of history may tell us, one thing is imminently clear about the battlefield scenario of the next decade—nothing can be left to chance or luck because of a training deficiency. Opposing force commanders have one basic thing in common; they will both be engaged on the same piece of terrain. If relative combat power factors are near equal then the use of terrain and weather holds the key to victory or defeat. But when you already acknowledge that you will be outnumbered and outgunned, the importance of weather and terrain loom even more significantly as factors of combat intelligence that must be fully considered before the next battle.

FM 30-10, Military Geographic Intelligence (Terrain), contains the basic factors of terrain such as surface configuration, vegetation, hydrology, soils, climate and weather, built-up areas, roads, trails, etc. Few people other than imagery interpreters are really familiar with this manual. Until recently, MI personnel were not wholly oriented towards the tactical intelligence field. Vietnam proved the value and need for trained intelligence personnel at all echelons of command. But like so many other things, once the need becomes apparent, it takes time to overcome the lack of sufficiently trained and experienced MI personnel to fill requirements. The career emphasis is now being shifted to tactical intelligence support, and our once parochial attitudes changed away from the more exotic specialties to those that give the commander the best support.

The use of annotated maps, overlays, and photography are techniques we have all used at one time or another in conducting an analysis of the area of operations. Those of

you who have served in a tactical unit have probably made use of many products available through your local Engineer Topographic support element. Perhaps DMATC and/or Engineer Topographic Laboratories, Fort Belvoir, VA, have prepared special products such as cross-country movement, fields of fire, orthopicto maps, etc., of certain areas of operation based on specific requirements. On the other hand, maybe in all reality you fall within the multitudes that agonized through the DIVEX or terrain analysis course and felt that tactical terrain analysis is a nice to know thing (to pass the exam) but you'll never have to use it. These are some of the reasons why the IPB effort is so important in terms of the role MI personnel will be expected to play during the next decade.

IPB is not the total solution. It is a "blueprint" to success in that it applies fixes to many of the major training shortfalls of the past. What was done in the past was not wrong; however, the requirements of the future demand sharpening the focus of tactical intelligence analysis to critical essentials. Chapter VII talks about the Tactical Intelligence Zones of interest to the generals, colonels, and the captains. The Corps commander is interested in the air and ground area from the rear of friendly boundaries out to at least 150 kilometers forward of the line of contact. The Corps commander is concerned with determining at the earliest possible time the magnitude of the threat in terms of combat power, the direction of movement, rate of movement, and the breakthrough area. He wants to know where the main attack is. The 8-10 day battlefield scenario does not give the commander time to initiate elaborate plans and requests for information. Under the traditional approach the battle would be over before the commander is ready to fight. That's why IPB must be accomplished now, prior to the first battle.

An IPB analysis of weather, enemy, and terrain essentially converts to graphics information in the intelligence estimate, the intelligence annex to the OPORD and the analysis of the area of operations. Basically we are concerned with two things: what the analysts do and the product which the G2/S2 gives to the commander, i.e., the estimate of enemy capabilities and intentions displayed graphically. There is no doubt that this method of analysis is being used in the field today at the tactical level. But here is the hangup—is it being done only if the commander wants it? IPB is the "homework" that must be accomplished before the "final examination" of the next war. IPB is concerned with what the commander needs—not with what he wants—for today or next week.

Take terrain information needs for example. These vary depending on the area of the perceived conflict—whether it is Europe, the middle East, Africa or Korea. The standard 1:50,000 scale map does not contain sufficient information to determine forest density, tree spacing and diameter to impede the movement of armor. It does not contain the type of information necessary to determine the percent of canopy closure to obscure observation or the density of vegetation that will conceal a tank from ground observation or the limitations of vegetation on fields of fire and line-of-sight. Perhaps the standard 1:50,000 scale map will not meet the needs of the commander in the future. IPB is attempting to identify the terrain intelligence information needs of the commander (as initiated by the G2/S2), relate these needs to current capabilities and from there deduce requirements for the future. There is no standard cross-country movement map product available to the commander today. He can request the development of a special product for his area of concern but this takes months to prepare. If the unit moves to a new area, a new product will probably have to be requested.

What is the current capability of tactical imagery interpretation support systems to provide periodical terrain information updates to insure that ground truth and map truth are similar? The answer—limited. A system is under development which will greatly enhance this capability, not only within MI, but within the Engineer realm. The Combined Arms Combat Developments Activity (CACDA), Fort Leavenworth, has established the CACDA Topographic Coordinating Committee. This committee consists of representatives of all TRADOC schools, DMA, and associated agencies that have an interest in topographic products. The driving requirement is to identify and validate user terrain information requirements so a digitized data base can be established. All special map products prepared by DMATC are done by the manual method. Some terrain evaluation

data for certain areas of the world has been digitized. The ADP state-of-the-art is here but until now development has been frustrated through the lack of an Army-wide validated terrain information requirement.

Chapter VII says that the role of the CI staff officer is to advise the commander on how the "enemy sees us." The role of the CI staff officer is being greatly expanded into the area of tactical support to the commander, particularly with concern for operational security matters and tactical deception. This is an effort unilateral of IPB but it is quite evident that the analytical techniques of IPB can certainly help the CI staff officer in doing his job. He needs to be able to analyze terrain to determine the advantages and limitations it poses to enemy collection capabilities. An electronic line-of-sight overlay will help him evaluate enemy radar, radio intercept and jammer threat to any given sector. With an overlay of friendly electronic systems locations he can determine where the enemy might best locate his equipment to be most effective. Terrain masking can be used to the benefit of the friendly commander if the planning is done in advance. Electronic signatures often are a dead giveaway as to unit boundaries and dispositions. If we know it, we can assume the enemy does too. An imaginative and innovative CI staff officer can use seasonal vegetation overlays prepared based on current photography and reconnaissance to determine the validity of friendly camouflage techniques and practices. Before we can counter the enemy threat, we must know his capabilities and then devise countermeasures which are incorporated into training and field use.

The biggest obstacle to the accomplishment of IPB is the inertia of the static or peacetime environment. Every military operation is in some way affected by terrain and weather. If the G2/S2s of today do not have the capability of advising the commander on the advantages and limitations of weather and terrain within his tactical intelligence zone of interest, as one knows his own backyard, then there is much work to be accomplished.

Enemy doctrinal templating enables the analysis to relate enemy composition and disposition during the attack to terrain and anticipated avenues of approach. We know that by doctrine the enemy is committed to predictable patterns of activity. The massing of divisions for a breakthrough dictates various sized sectors for each maneuver element. A breakthrough can be templated according to events that must occur if that maneuver is to be executed at a certain place within a certain time. IPB is developing this technique of analysis beyond the simplistic approach familiar to all in FM 30-102, Handbook on Aggressor. Templating varies according to the level of the commander and his tactical intelligence zones of interest.

The Corps commander for instance is interested in avenues of approach that will accommodate division-sized elements and regimental-sized maneuver units while the division commander is interested in regimental-sized avenues of approach and battalion-sized maneuver units. The Intelligence Center is teaching Soviet tactical doctrine and will use templating as a means of synthesizing the salient points of doctrine into graphical formats that can be applied to perceived battlefield situations. Unit templates, showing frontages, depths, echelon spacing of forces in the attack against deliberate defensive positions, can be moved about over 1:250,000 and 1:50,000 maps to enable the analyst and commander to visualize the massing for a hasty river crossing or any other perceived situation. For the battalion and company commanders, locally produced map segments and annotated photographs at greater scales may be better suited to their needs.

Templating enables the analysts to make inductive judgments about where certain types of enemy units, weapons, systems, CPs, and assembly areas might be located on the transitional battlefield. Threat in terms of time, distance, and range of weapons systems can be evaluated. The Tactical Surveillance Officer can use this as a basis for determining the effectiveness of area collection coverage and thereby maximize the use of his resources by directing them against priority targets and areas.

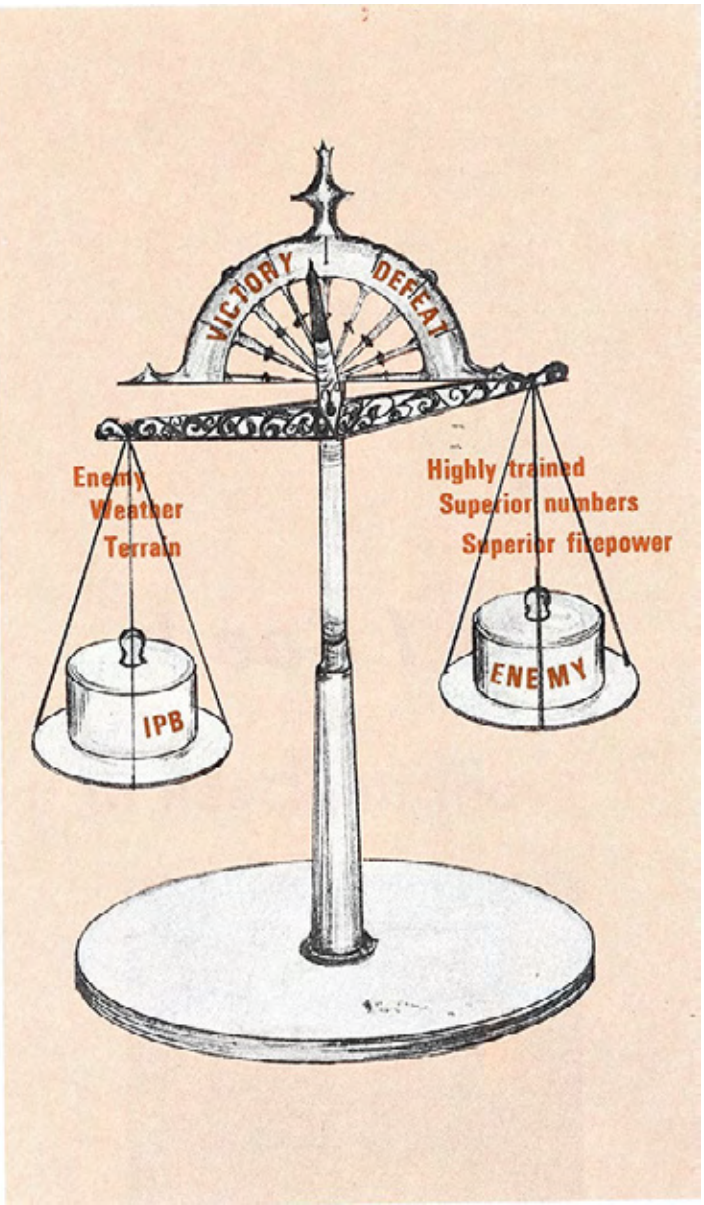
An IPB model based on a sector of the SCORES Europe I scenario is being developed at the Intelligence Center to test the practical applications of IPB and serve as a guide for improving the training of MI personnel in the techniques of tactical intelligence analysis. The goal is to close the "reality gap" between the academic world and the real world. This will require an intensive and frank dialog between MI personnel in tactical units and those at the Intelligence Center. To date, discussions with MI personnel who have returned from overseas units and those engaged in CONUS G2/S2 training exercises indicate that IPB is on the mark.

The discussion of combat power symbology and ADP display systems have been kept for last on purpose. The manual applications of the techniques of IPB will provide the basis for development of software programs required for

much of the intelligence interface in the Army Tactical Data System (ARTADS) under development for support of the tactical commander. The interactive information requirements for weather, enemy and terrain must be identified before the software programs can be written. Weather and terrain factor overlays and doctrinal templates developed will be converted into digital data and retained in the data base. The data base will be continually updated with information derived from tactical and strategic collection and information resources. Synthesized intelligence information (IPB derived) will ultimately be displayed to the commander (the generals) on a CRT scope or other ancillary graphics media.

An ADP compatible symbology to communicate combat power threat is currently under development. The generals for the most part are interested in gross threat indicators, i.e., large densities of tanks, massing of artillery, etc. The purpose is to communicate threat potentialities using discrete symbols and colors that show number, type, range and mobility of weapons systems. The commander will have the capability of viewing the battlefield in the macro sense (1:250,000) or in the micro—1:50,000 or greater.

The integration of IPB into Intelligence Center training is already a reality. Many student classes have received an IPB orientation and the techniques are being used by the Advance Course in divisional exercise and in the terrain analysis course. Much effort has already been devoted towards establishing a soviet tactical doctrine data base to insure uniformity of contacts within the various Center training departments. An IPB Planning and Coordinating Committee has been established with representatives from Center directorates to insure that doctrinal and training changes are fully coordinated on a timely basis. In December 1975, a concept letter on IPB was sent to the Integration of Intelligence From All Sources (IIFAS) representatives of TRADOC schools and from their response it is apparent that the techniques of IPB have direct application to their needs.

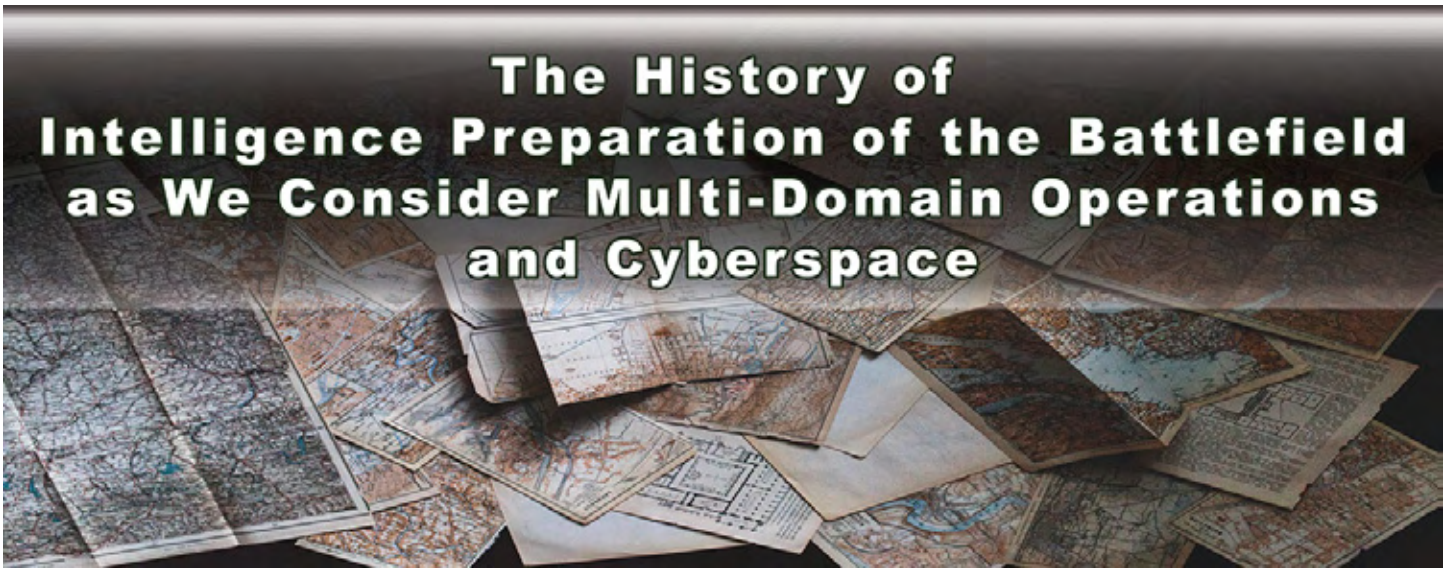


Readers are encouraged to direct their comments and suggestions to the Commander, USAICS, ATTN: ATSI-CD-CS.

MAJ George Gaun, Concepts and Doctrine Division, Directorate for Combat Developments, was the U.S. Army Intelligence Center and School project officer for intelligence preparation of the battlefield from 1975 through 1978.

DID YOU KNOW?

U.S. Army Security Agency personnel (the U.S. Army's signals intelligence branch from 1945 to 1976) of the 3rd Radio Research Unit were covertly designated as "radio research" and were among the earliest U.S. military personnel in Vietnam.



The History of Intelligence Preparation of the Battlefield as We Consider Multi-Domain Operations and Cyberspace

by Ms. Katherine R. Coviello

Author's Note: I originally wrote this piece in the early 2000s, so some of the doctrine references cited have since been updated. However, I chose to leave those references in their original form, as the article is a study in the history and origins of this piece of intelligence tradecraft.

Introduction

The U.S. Army initially invented, and then implemented, the intelligence preparation of the battlefield (IPB) process in the 1970s. As detailed in an interview with MAJ George Gaun, U.S. Army retired, the initiative for the process emerged in the fall of 1975, during MAJ Gaun's tour of duty at the U.S. Army Intelligence Center (USAIC), Fort Huachuca, Arizona, from 1975 to 1978. In September 1975, BG Eugene Kelly, Commanding General of USAIC, sent a "snowflake," that is a white piece of paper, to request that the Director of Concept Development prepare the IPB concept and then brief it in November 1975. At that point, IPB became an acknowledged U.S. Army term and acronym, although the basic process and concept in and of itself was "not wholly new" according to MAJ Gaun. The IPB process as developed at that time was a basis by which the Army military intelligence (MI) force organized and systemized the process into a graphic description of the enemy, weather, and terrain.

Initial Steps to Create the Process

The IPB process as developed at USAIC also involved depicting a Soviet division via a template where it deployed doctrinally. Through this process, IPB assisted MI personnel to develop and conduct an analysis of how the enemy could be expected to deploy. From this analysis, the IPB allowed the MI officer to verify this anticipated force disposition by tasking collection that would show whether the enemy actually deployed in this manner. MI personnel had to prove to the operations personnel in the G-3 or S-3 elements of their command that this process worked. In order to ensure successful intelligence support to operations, the MI officer had to collaborate with the S-3 to develop, and then implement and exercise, his collection plan frequently in order to keep his threat intelligence databases current.

When asked about employing IPB in the cyberspace domain of warfare during his interview for this research, MAJ Gaun noted that this would be a significant challenge for IPB, as the terrain of the network could potentially be much more volatile. In the traditional battlefield, terrain changes very little and not very quickly. But in the cyberspace domain of warfare, networks either can be relatively stable in their configuration or can change quite rapidly.

The Development of Effective Templates

While the IPB process was undergoing its initial concept development, MAJ Gaun worked on developing the templating part of the process with the U.S. Army Forces Command opposition force at Fort Hood, Texas. Templating involves developing layouts of force structures as they would doctrinally employ themselves for various maneuvers and activities on the battlefield. For example, a Soviet motorized rifle regiment would assemble and move in a very doctrinal fashion as it was conducting a movement, such as a tactical march from a rear assembly area to join an element engaged in combat. USAIC developed templates that provided analysts with a representative picture of these forces for a variety of situations, which the analysts had to adjust for the battlefield terrain and other factors, such as force disposition. The templates were eventually mass-produced and distributed on onionskin paper, which analysts would use

U.S. Army photo by CPT Russell Gordon

Soldiers with the Ukrainian Land Forces brief U.S. Army Soldiers with 3rd Battalion, 15th Infantry Regiment, 2nd Infantry Brigade Combat Team, 3rd Infantry Division on their company mission course of action March 18, 2016, as part of a military decision-making process practical exercise at the International Peacekeeping and Security Center near Yavoriv, Ukraine.

when working the IPB process on acetate overlays within tactical operations centers and other intelligence cells. Templating works very well when an opposing force practices its activities in a doctrinally, repetitive fashion.

MAJ Gaun's team completed a study that involved development of the templating process, eventually ending up with various templates, including unit, event, and decision templates. The template process resulted in a proven method whereby a junior person in an intelligence section could put the information together and identify the probable enemy force and course of action. Subsequent analytical efforts against Soviet forces conducting maneuver exercises in Europe proved time and time again that templating was a reliable tool that could be employed to predict the force disposition and anticipate their future activities, all of which the combatant commander desired.

Spreading the Word about IPB

The IPB process continued its development at USAIC under the guidance of MAJ Gaun as other MI professionals joined his effort to develop IPB for the conventional battlefield, including LTC Samuel V. Wilson, Jr., at the time a captain. MAJ Gaun and LTC Wilson often exchanged ideas with regard to the IPB process. MAJ Gaun articulated the information and LTC Wilson documented it. LTC Wilson was charged with spreading the word about IPB through efforts such as videos and published articles. An example of this is in an article that LTC (then CPT) Wilson wrote in 1977 for the *Military Intelligence* journal (which later became the *Military Intelligence Professional Bulletin*). In the article, titled "What Can Be Done Now?" he discusses IPB at length."[1]

LTC Wilson was assigned to the Intelligence Concepts Branch, Directorate of Combat Developments, USAIC. He initially worked on the IPB process in the spring and summer of 1977, when BG Kelly tasked him to develop two instructional videos. His assignment as an action officer to this particular project came as a result of his strong communications skills. One video covered the overall IPB concept, while the other discussed how to conduct related analysis and use the IPB process with enemy doctrine, specifically Soviet doctrine. The intended purpose was to provide a video for classroom use to teach the IPB method. The videotapes were disseminated to various Army MI units worldwide.

The IPB process also was used to emphasize the defense of the Fulda Gap, which was a key avenue of approach for the Soviet forces were they to invade West Germany. Due to the target-rich environment in such a defense, there was a distinct need to know what critical nodes and high-value targets on the battlefield, when destroyed or disabled, could impede the Soviet advancement. The U.S. Army needed a smart way to identify these high-payoff targets, to allow U.S. forces the maximum payoff when selecting targets to disrupt the Soviet plan of advance. The Army needed to know how it could employ its intelligence collection systems to identify which of the multitude of targets were the high-payoff targets, thus enabling surgical offensive strikes on select targets. The IPB process helped the Army meet these intelligence needs.

Employing IPB in Korea

Following his work on IPB development at USAIC, LTC Wilson went on to employ the IPB process during his follow-on tours of duty. He used the process and then taught it while assigned to the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas, from 1980 to 1981. Then, while assigned to Korea from 1983 to 1984, he experienced his first chance to employ IPB in an operational environment, while at the division level with the Team Spirit exercises. The division G-3 operations officer embraced the

IPB process, as did the chief of staff, the division commander, and the assistant division commander for maneuver. The IPB products that LTC Wilson developed while with the 2nd Infantry Division went into the war plans. LTC Wilson frequently tasked the terrain detachment for these efforts, which resulted in the element being kept well manned and staffed, to include staffing with 96B Intelligence Analysts. According to LTC Wilson, the IPB process worked "brilliantly" in Korea because of the dogmatic warfighting system of the North Koreans. In Korea, LTC Wilson developed 15 different IPB overlays that included the likes of weather and decision support templates. The South Koreans working with United States MI personnel also embraced the process; in fact, LTC Wilson recalled attending a briefing of the IPB process that was delivered in Korean.

LTC Wilson's experience with IPB led to his assignment to "Tactical Battlefield Counterintelligence," where he was designated a counterintelligence staff officer. There he worked with GEN LePue to essentially "red team" the U.S. forces during exercises. By employing the IPB process against the limited blue force data he had, LTC Wilson was able to successfully determine the U.S. forces' course of action. This helped the IPB process gain credence with U.S. operations personnel, and LTC Wilson summed its successful implementation when he said, "It was an amazing intelligence time."

U.S. Air Force photo by SrA Christina D. Ponte

A U.S. Air Force intelligence analyst uses a combat mission plotter to diagram exercise enemy threats on a map.

The use of the traditional IPB process was not limited just to exercises and preparations against Soviet and North Korean forces. It was also used during exercises against Iraq. When commanding the 106th MI Battalion in Alaska, LTC Wilson and his unit used IPB during Exercise Brim Frost, where he remarked that it was interesting to see it deployed in an arctic environment.

The Four-Step IPB Process

The process was identified in FM 34-130, *Intelligence Preparation of the Battlefield,* published in 1994. As described in the 1994 manual, the four-step process is a continuous cycle that recurs during preparations leading up to conflict and continues throughout the engagement until the threat is terminated or neutralized:

- Step 1: Define the battlefield environment.
- Step 2: Describe the battlefield's effects.
- Step 3: Evaluate the threat.
- Step 4: Determine threat courses of action.[2]

IPB for the Cyberspace Domain of Warfare

As the U.S. Army intelligence force progressed into the information age, the use of IPB for the cyberspace domain of warfare logically followed. This process was emblazoned in the minds of countless Army MI officers and enlisted analysts during their training at USAIC and Fort Huachuca; it was further inculcated by repeated applications during countless staff exercises, field problems, and rotations through the national and joint training centers. It became a habitual method by which intelligence personnel attacked any problem. The Army initially developed IPB to counter the threat represented by the Soviet forces, as well as the North Koreans in the Pacific theater of operations; however, intelligence analysts learned to adapt and employ the IPB process in a variety of less traditional engagements, spanning from Operation Just Cause in Panama through the coalition and joint-level Balkans peacekeeping efforts of Operation Joint Endeavor. While the tactics of threat elements spanning from gangs of thugs to paramilitary forces to the nontraditional ethnic forces such as encountered in the Balkans did not easily lend themselves to doctrinal templating, much of the other facets of IPB did.

Emerging from a history of IPB in the tactical and strategic traditional warfare venues, IPB for the cyberspace domain of warfare developed with these strong traditions and proven methodologies. Over time, it was modified and updated, and its development continues still today throughout the Department of Defense and beyond.

Endnotes

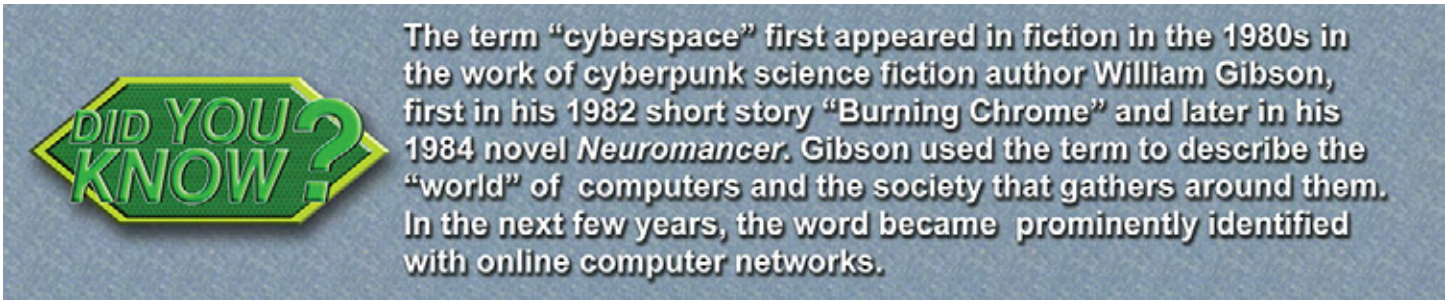
1. Samuel V. Wilson, Jr., "What Can Be Done Now?" *Military Intelligence* (April–June 1977): 2-7.

2. Department of the Army, Field Manual 34-130, *Intelligence Preparation of the Battlefield* (Washington, DC: U.S. Government Publishing Office, 8 July 1994 [obsolete]).

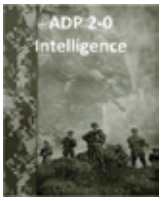
Ms. Katherine Coviello serves as Special Advisor for Materiel Enterprise Intelligence and Security to the U.S. Army Materiel Command (AMC). There she provides senior intelligence and security expertise, judgment, and advice on national, joint, coalition, and Army intelligence matters in accordance with the AMC Commanding General's priority intelligence requirements and operational requirements. She has served in this position since May 2015, following her assignment as the senior signals intelligence staff officer with the Office of the Under Secretary of Defense for Intelligence at the Pentagon. Ms. Coviello holds a bachelor of arts in history from Bridgewater State College and a master of science in strategic intelligence from the National Defense Intelligence College.

U.S. Army photo by SPC John Cress Jr.

A U.S. Soldier, left, of 2nd Battalion, 12th Cavalry Regiment, 1st Brigade Combat Team, 1st Cavalry Division, an Armenian soldier, center, and a Danish soldier update map information during exercise Combined Resolve III at the Joint Multinational Readiness Center in Hohenfels, Germany, November 7, 2014.



Are You Doctrinally Proficient?



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ATP 2-01 CM	ATP 2-01.3 IPB	S/NF ATP 2-19.1 EAC Intel	FOUO ATP 2-19.3 Div & Corps	FOUO ATP 2-19.4 BCT	FOUO ATP 2-22.2 CI Vol 1
AUG 14*	MAR 19	DEC 15*	MAR 15	FEB 15	DEC 15
S/NF ATP 2-22.2 CI Vol 2	S/NF ATP 2-22.31 MSO	S/NF ATP 2-22.33 Source Val & 2X	FOUO ATP 2-22.34 JDIC	FOUO ATP 2-22.4 TECHINT	TS ATP 2-22.6 SIGINT
DEC 16	APR 15	SEP16	Initial draft*	NOV 13*	DEC 15
ATP 2-22.6 SIGINT Vol 2	FOUO ATP 2-22.7 GEOINT	S/NF ATP 2-22.8 MASINT	FOUO ATP 2-22.82 BEI	FOUO ATP 2-22.9 OSINT Vol 1	S/NF ATP 2-22.9 OSINT Vol 2
JUN 17	MAR 15	MAY 14	NOV 15	AUG 19	AUG 19
FOUO ATP 2-33.4 Intel Analysis	FOUO ATP 2-91.7 DSCA	FOUO ATP 2-91.8 DOMEX	TS ATP 2-91.9 Intel Spt to Cyber		
AUG 14*	JUN 15	MAY 15	AUG 17		
FOUO MI Pub 2-01.2 Intel Arch	FOUO MI Pub 2-0.3 PED	MI Pub 2-0.4 Weather	FOUO MI Pub 2-19.5 MFP		
FEB 14	JUN 18	OCT 16	MAY 18		

* Key revision projects
Authenticated
Draft

Authenticated MI Doctrine can be found at:

- https://armypubs.army.mil, then – Publications – Doctrine and Training. Select the type of publication ADP, ATP, or FM.
- https://ikn.army.smil.mil, then – Resources – MI Active Doctrine. Window opens in the IKN-S Doctrine Website. Select MI Active Doctrine from the left menu.
- https://www.ikn.army.mil, then select the MI Doctrine icon.

For questions concerning Army intelligence doctrine, please contact the USAICoE Doctrine Division via email at: usarmy.huachuca.icoe.mbx.doctrine@mail.mil

As of 10 September 2019

Picture of Our Valorous Military Repulsing the Russian Cossack Cavalry on the Bank of the Yalu River by Watanabe Nobukazu (1874–1944), March 1904, copy located in Sharf Collection, Museum of Fine Arts, Boston.

How Intelligence Preparation of the Battlefield Led to One of the Greatest Military Upsets in History

by Captain Jordan M. Peters

Introduction

For decades, intelligence preparation of the battlefield (IPB) has featured in western military doctrine as an analytical process. A systematic process, IPB facilitates the analysis of variables, including weather, terrain, and enemy forces, on missions within a specific operational environment.[1] While IPB may seem a relatively modern analytical methodology, its roots can be traced back to the dawn of the 20th century in a conflict that has, at least in the West, faded into relative obscurity. To many contemporary military historians, the Russo-Japanese War was a sharp, short conflict in which superior Japanese tactics (especially at sea) shocked the hapless, tottering Russian Empire into submission. This simplification of the conflict ignores what may be one of the most successful applications of IPB in modern military history. Through extensive preparation, the Japanese Empire defined in detail the operational environment and its effects on operations, identified the threat, and analyzed how their foe would fight. This article will show just how an early form of IPB served as a sling that the Japanese David used against the Russian Goliath, shaping the course of both nations and the entire region during the 20th century.

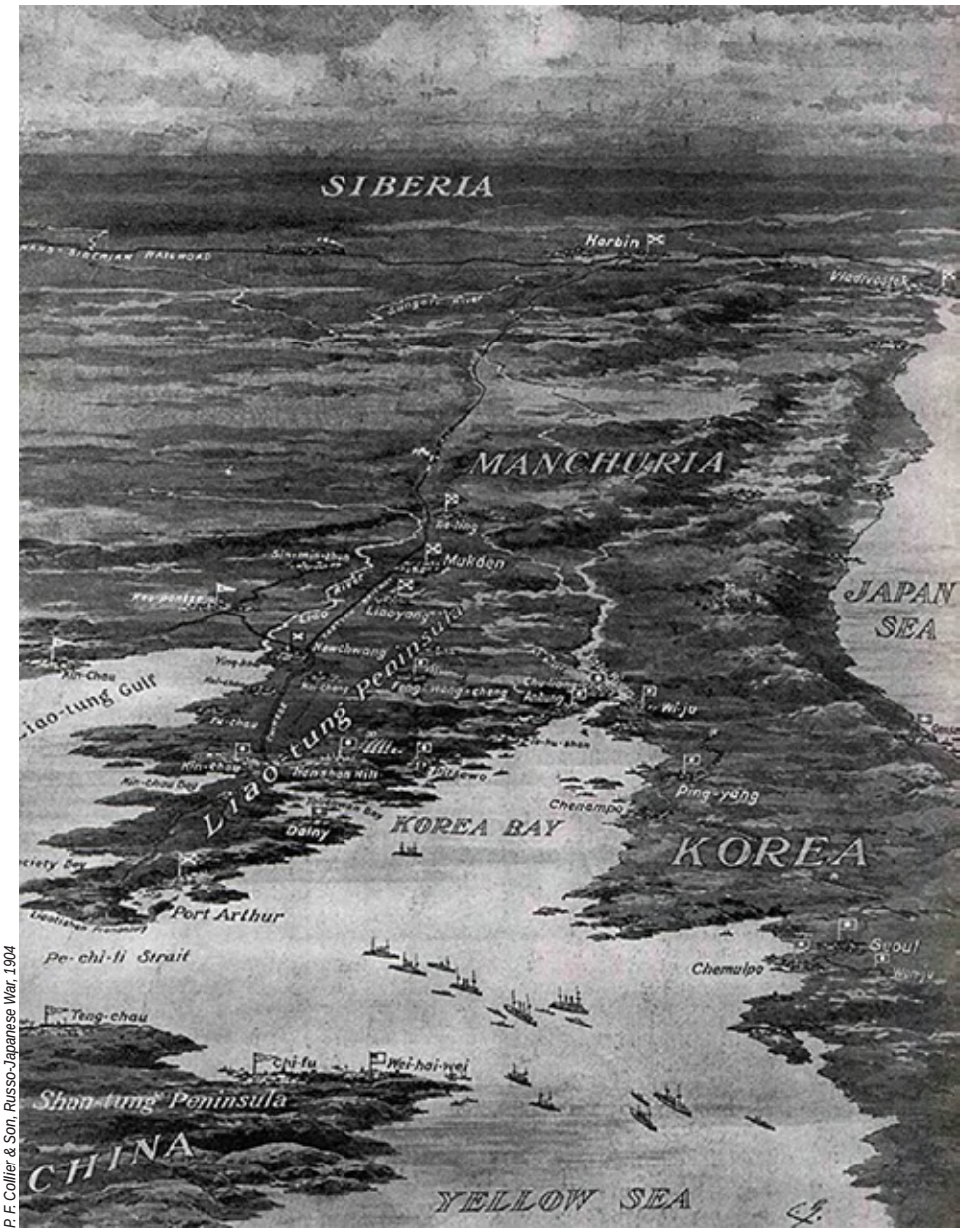
The Russo-Japanese War (aka World War Zero)

"The Russo-Japanese War was a military conflict fought between the Russian Empire and the Empire of Japan from [February] 1904 to [September] 1905. Much of the fighting took place in what is now northeastern China. The Russo-Japanese War was also a naval conflict, with ships exchanging fire in the waters surrounding the Korean peninsula. The brutal conflict in the western Pacific changed the balance of power in Asia and set the stage for World War I...In fact, scholars have suggested that the Russo-Japanese War set the stage for World War I and, ultimately, World War II, as some of the central issues in the first conflict were at the core of the fighting during the latter two. Some have even referred to it as "World War Zero," given that it took place less than a decade before the start of World War I."[2]

Step 1—Define the Operational Environment

The first step of IPB, define the operational environment,[3] involves identifying operational environment characteristics with significant effect on friend and foe. It is perhaps the clearest example of Japan's application of the modern IPB process. Unlike the Russians, the Japanese Empire spent the years preceding the war with Russia developing an accurate understanding of their opponent on multiple levels. The growth of nationalism in Japan, fueled by its successful modernization and victory against the Chinese in 1895, sparked the founding of several organizations dedicated to advocating aggressive foreign policies. One such group, the Kokuryukai, operated under the conviction that Russian expansionism in Asia had a direct and negative impact on Japanese security. In addition to spreading anti-Russian propaganda, the organization's intelligence collection efforts proved beneficial to the state upon the outbreak of the war.[4]

The Kokuryukai was essential to Japan's preparation for war with Russia, serving as an important source of intelligence collection. Less than a month after its founding by Ryohei Uchida, the Kokuryukai established a Tokyo publishing house, which immediately began distributing geographical information that Uchida gathered in Russia during his travels. Subsequent publications proved so inflammatory that the Japanese government censored their publication. From this point until the outbreak of war, the group funded and promoted nongovernment organizations focused on Russia while learning and teaching Russian. Simultaneously, members took turns traveling to Korea and Manchuria, mapping out ports, railways, and other key terrain while gathering intelligence on the strength and organization of the Russian military. This, contrasted with the fact that despite occupying Manchuria since 1899 the Russians had failed to create accurate maps at any point before the war, makes Japan's efforts all the more impressive. Clearly, the group was attempting to evaluate the threat well before the shooting started.[5]



P. F. Collier & Son, Russo-Japanese War, 1904

Battlefields in the Russo-Japanese War.

Step 2—Describe the Environmental Effects on Operations

The second step of the IPB process, describe the environmental effects on operations,[6] builds upon the first. After identifying significant environmental characteristics, analysts determine how these characteristics affect future operations. Long before the shooting began, the fight for control of key terrain in the form of telephone lines and telegraph stations pitted the Russian and Japanese Empires against one another. Both sides recognized that control of the communication systems on the Korean peninsula would provide a distinct advantage in a future war by enabling rapid communications between capitals, generals, and their armies. At the same time, the other nation's communications would be degraded and possibly even

P.F. Collier, The Russo-Japanese War, 1905, pg 59.

Japanese Pontoon train moving to Yalu River from Ping-Yang. Pontoons were built in Hiroshima before the outbreak of the Russo-Japanese War in 1904 in preparation for crossing the Yalu River. The sections were later transported via horse teams.

disrupted or intercepted. Japan made the first move, capitalizing on its victory against China to assume control of a nascent Chinese communications infrastructure on the peninsula. Correctly assessing Japan's motives, Russia quickly reached an agreement with the Korean government that would allow the construction of telephone lines from Russia to Korea. During the invasion of the peninsula at the outbreak of war, Japan moved rapidly to seize Russia's communication infrastructure throughout the peninsula.[7]

Recognizing the severely degrading effects Manchurian winters would have upon operations, both sides equipped their forces with adequate winter clothing. The war would begin late in winter and range throughout the frozen Korean peninsula and Manchuria. Russian failures at the strategic and tactical level to counter Japanese landings on the Korean peninsula combined with the failure to attack the Japanese army as they crossed the Yalu River within sight of Russian lines demonstrates an abject failure to use natural obstacles in blocking or even delaying the Japanese.[8] At the same time, Japanese agents monitoring the development of the Trans-Siberian Railroad correctly determined that until the line reached Vladivostok, Russia would be unable to move large quantities of men and equipment quickly enough over vast spaces and restrictive terrain to have any effect on the coming battles.

Step 3—Evaluate the Threat

In the third step of IPB, evaluate the threat,[9] intelligence on enemy doctrine and capabilities is carefully analyzed. Japanese efforts to determine the composition, disposition, quality, and capabilities of Russian forces adopted unconventional methods. Despite government-sanctioned persecution in the mid-to-late 19th century, sympathetic Japanese leaders portrayed Buddhism as a useful tool, one that could easily serve an important role in covert human-intelligence collection. In 1897, the Japanese government began actively deploying Buddhist missionaries deep into Manchuria and Siberia. One Buddhist sect, increasingly militarized and radicalized, went so far as to declare in 1904 that "putting Russians to death…is not only our duty as citizens, but as fellow Buddhists."[10] The establishment of Buddhist branches in Vladivostok less than 10 years before the outbreak of war saw a massive increase in Japanese collection on Russia's Pacific Fleet, an intelligence coup for the Japanese that would go a long way in determining the course of the war.[11]

One particularly enthralling example of the Japanese government's covert efforts to evaluate the Russian threat is found in the story of Shimizu Shogetsu, a Buddhist missionary with a secret. Between 1897 and 1899, Shimizu traveled the breadth of Siberia from Irkutsk in the west to Vladivostok in the east, even taking time to crisscross Manchuria. Unbeknownst to all he encountered, Shimizu was really Captain Hanada Nakanosuke, an officer in the Japanese Army. Focused on identifying Russian forces in Korea and Manchuria, Captain Nakanosuke's greatest success came in 1898 when he identified an illegal "maintenance yard" garrisoned by Russian soldiers just one kilometer from the major Manchurian city of Changchun.[12] In 1904 and still in disguise, Captain Nakanosuke resigned his commission to remain in Vladivostok and established the "Army of Justice," a guerilla group tasked with collecting and passing intelligence on Russian forces to the Japanese from behind Russian lines.[13]

In the months before the outbreak of war in February 1904, ethnic Japanese civilians living in and around Port Arthur provided the Japanese military with quality information on the Russian order of battle. This, combined

with information detailing the rising internal divisions within the Russian Empire, provided Japan with the opportunity to stoke dissent and foment rebellion. This strategy would prove remarkably effective in fixing the Russian intelligence services' focus toward combatting civil unrest rather than conducting collection or counterintelligence operations against Japan.[14]

Like Japan, Russia benefited from the service of uniquely capable individuals in the period surrounding the war. One such individual, Russian General Staff officer Vladimir Konstantinovich Samoyloff, had the benefit of interacting with the Japanese for over a decade before the outbreak of war. In 1903, Samoyloff was posted to Japan and quickly realized that the entire Russian collection effort and subsequent evaluation of the threat up to that point had been entirely inadequate. Attempts to convince the Russian government otherwise proved a laborious and ultimately fruitless task. Colonel Gleb Vannovskii, Samoyloff's predecessor, had failed to recognize the superior organization, strength, and capability of the Japanese military, particularly by neglecting to report the size of Japanese reserves to be mobilized in the event of war.[15] In fact, Japan maintained a trained reserve of 400,000 and increased defense spending by 56 percent in the 9 years from 1895 to 1904.[16] Colonel Vannovskii's blindness was well known among foreign attachés, so much so that an agent of the French government, closely allied with the Russians, offered another Russian agent information on or about the Japanese Army under the strict condition that he not share it with Vannovskii but report it directly to Saint Petersburg [capital of the Russian Empire].[17]

Photo courtesy of the Library of Congress

Expecting an attack from Russian cavalry—alert Japanese near Tehling, Manchuria.

Initially, Samoyloff found the task of collecting intelligence and evaluating the Japanese military extremely difficult. In reports to his superiors, Samoyloff claims the numerical strength of the Japanese military to be a closely guarded secret and asserts that everything he had collected up to that point had been through sheer luck.[18] As events unfolded in the countdown to war, Samoyloff found himself to be virtually the only Russian official declaring the unpopular assessment that "Russia needed peace more than Japan." Events would prove Samoyloff correct in his assessment, though it doubtless brought him little satisfaction.[19]

Attachés such as Samoyloff and Vannovskii enjoyed full diplomatic immunity and worked in conjunction with officers of the Main Staff, or Glavnyi shtab, who were often undercover as minor officials at embassies or consulates. Further groups of junior officers were dispatched under false pretexts on missions to nations neighboring Russia, pretexts that included everything from hunting trips to studying languages, when in fact these officers were collecting intelligence on border fortifications and locating military facilities. The Main Staff would be tasked with collection, analysis, and dissemination of military-statistical data concerning foreign powers as well as the handling of foreign agents.[20]

Russian forces in Manchuria initially relied in part upon human intelligence collected from three agents stationed

in Japan, Korea, and China. The armies in Manchuria were expected to build their own intelligence networks by recruiting agents from among the local populace. This was not altogether difficult, as many Chinese remembered bitterly their defeat at the hands of the Japanese just a decade before. For the Russians, however, rampant racial prejudice meant that many assumed the Chinese were spies for the Japanese simply because both nations were members of the Asian race. Thus racism, combined with the inadequate allocation of funds to recruit agents, meant that the First Manchurian Army's organic military intelligence organization, Section Seven, had to rely entirely on information collected from interrogating Japanese prisoners or captured documents. Considering only two documents of any value whatsoever were captured and that none of the 366 Japanese taken prisoner during the entirety of the conflict knew anything of real importance, even these sources of intelligence were wholly inadequate. Yet another factor limiting Russia's attempts to evaluate the Japanese threat was the astonishing fact that of the entire First Manchurian Army, only one soldier spoke even basic Japanese.[21]

Photo courtesy of the Library of Congress

Russian soldiers preparing fortifications in Port Arthur.

Section Seven's wartime failures would be examined in detail following Russia's defeat. The stationary nature of the war (the Russians used trenches extensively), difficult terrain (which the Russians had failed to survey or chart), and extremely effective Japanese counterintelligence efforts would be listed as the primary causes of Russian military intelligence failures. Japanese counter-reconnaissance efforts undermined Russian attempts to detail Japanese positions to collect intelligence. These reconnaissance patrols were often detected shortly after their departure and, if not immediately engaged, were ambushed and captured by forward Japanese units. In those rare instances when the Russians did manage to infiltrate enemy lines, they found themselves unable to determine the unit or size of the force facing them. For many, responsibility for the failure of these patrols rested with the Russian commanders, who insisted upon employing their best officers and men in the doomed patrols while only providing them poor quality maps and inadequate instructions. As a result, both Cossacks and infantry failed to collect anything of intelligence value for the duration of the war.[22]

Despite these severe intelligence limitations, portions of the Russian army managed to form a basic tactical understanding of the enemy units within their immediate vicinity through battle. Unfortunately for them, this could not make up for the fact that Russia never managed to evaluate the Japanese on a strategic level. Russia's failure to realize that Japanese forces freed from the Liaodong Peninsula following the fall of Port Arthur were moving north to support Japanese armies around Mukden. This failure would see the Japanese, albeit narrowly, victorious in the final major battle on land. Beyond collection, dissemination proved similarly difficult for the Russians. For the first 6 months of the war, no process existed whatsoever for the communication of intelligence to Russian commanders. It was only with the formation of the First Manchurian Army's Section Seven that daily intelligence summaries became available at Army Headquarters, although in another example of Russian ineptitude, these reports were very rarely disseminated to regimental, division, or even corps commanders, with predictably disastrous results.[23]

Ultimately, the only form of Russian intelligence that proved somewhat accurate during the war would be naval intelligence collected primarily by Admiral Alexieff in the years immediately preceding the outbreak of war. As Viceroy of the Russian Far East and commander-in-chief of Russia's military forces in Port Arthur and Manchuria, Admiral Alexieff methodically collected specifications of Japanese vessels under construction (the vast majority in British shipyards), reporting to Saint Petersburg that the Japanese appeared to be preparing for war by repurposing commercial vessels as troop transports. Months later, these same vessels would ferry Japanese armies to the Asian mainland.[24]

Step 4—Determine Threat Courses of Action

The final step in the IPB process, determine threat courses of action,[25] sees the combination of the previous steps leading to the development and analysis of possible enemy courses of action, or methods for completing their overall mission.

While the Japanese employed hundreds of overt and covert agents meticulously engaged in collecting intelligence on Russian land and naval forces, the Russian government at the time chose to employ a single officer against the Japanese.[26] In addition to its obvious diplomatic functions, the Japanese Foreign Ministry performed an important role as a hub for intelligence collection networks. In European capitals, Japanese diplomats would daily gather several of their host-nation's leading newspapers and, with the help of translators, scan for any news concerning Japan or any other topics of interest to the government. At the same time, Japanese diplomats made it a point to attend parties and various social gatherings as frequently as possible to establish relationships that could be matured into sources of information and intelligence. Following the declaration of war in February 1904, many of these contacts in Western Europe and the United States would prove vital not only as sources of information but also as sources of funding for the war effort.[27]

If IPB is supposed to take place not just during a conflict but well before, no one bothered to tell the Russians. The failure of Russian intelligence to detect the Japanese attack on Russian ships at the Battle of Port Arthur (and later at the Battle of Tsushima) enabled the Japanese to achieve complete surprise.[28] January 26, 1904, saw the Japanese ambassador informing his government of reports shared with him by Admiral Alexieff stating that the Japanese had dispatched large numbers of troops, munitions, and supplies to the Korean peninsula. Admiral Alexieff demanded an explanation, stating that such an action would endanger any future diplomatic discussions between the two empires. Ambassador Komura denied the accusations, stating that no troops had been dispatched and that while supplies had been sent, they were simply to provision the troops already stationed on the peninsula. Ambassador Komura then pivots, requesting explanations for newspaper reports detailing a Russian troop buildup along the north of the Yalu River.[29] Admiral Alexieff denied these reports, despite continued reports of a Russian buildup and the Russian purchase of large tracts of land on the Korean side of the Yalu—reports provided by a Japanese colonel disguised as a Buddhist monk.[30]

If a single event could have allowed the Russians to determine Japan's likely course of action, the breaking-off of diplomatic relations between Tokyo and Saint Petersburg would be that moment. In a final note to Russia, Japan reiterates the importance of Korea to her own national security, highlights the threat posed by Russia's continued (illegal) occupation of Manchuria, and laments Russian recalcitrance in refusing to make any concessions or enter negotiations. The note ends chillingly: "The Imperial Government reserve to themselves the right to take such independent action as they may deem best to consolidate and defend their menaced position."[31] Believing now that they could achieve their political goals not through negotiation but armed conflict, this note captures Japan's shift to a preventative-war strategy, a fact that was entirely lost on the Russian government. Three days later, the Japanese navy opened fire on the Russian fleet at Port Arthur.[32] The war had begun.

Conclusion

Japan's adherence to the analytical framework of IPB enabled a newcomer to the world stage to convincingly defeat a nation commonly accepted as a major world power. The methodical mapping of the operational environment, accurate analysis of the effects of the twin tyrannies of time and space on Russian operations, extensive evaluation of Russian capabilities, and persistent efforts to predict Russian courses of action all combined to forge a formidable sling in the hands of the Japanese David. It would prove to be just enough to humble the Russian Goliath.

Russian military historian Zvonarev writing on the Russo-Japanese War in the 1920s stated, "The Russian Army knew neither Japan nor its army. Even worse, it had an entirely false and distorted impression. Largely based on the lies and bravura of attachés and secret agents' reports, [the army] was entirely convinced that victory over the Japanese would be a simple matter."[33] Immediately following the war, General Kuropatkin claimed his armies lacked tactical intelligence support almost entirely. To put it bluntly, Russian intelligence failed at every level. At the strategic level, the Russians failed to define the operational environment, failed to describe its effects on operations, failed completely to evaluate their adversary, and neglected even to attempt to determine or predict enemy courses of action. From inadequate funding to incompetent personnel, racial bias to apathy, Russian intelligence efforts failed at every level. Even determining the size of the Japanese army proved beyond Russian capabilities, as their estimate of 200,000 was merely one-third of the forces the Japanese deployed to Manchuria. In the decades since the war, scholars liken the Russians to a blindfolded boxer stumbling into the ring, an apt description for any military absent intelligence support.[34]

While Russia's economy conducted its own "pivot to the Pacific," its intelligence structures failed to shift focus and neglected intelligence preparation of the (new) battlefield. Those few collection assets available to them remained focused on China and Europe so much so that combined books of Russian intelligence reports from 1904 and 1905 contain hundreds of pages detailing German mobilization plans and maps of East Prussia. Dozens more pages cover Turkey, China, Persia, and Afghanistan, while in the section on East Asia under Japan remains recorded a cryptic phrase, *nichego ne predstavleno*, no submission.[35]

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Tying It Together: The Battle Damage Assessment Challenge

by First Lieutenant Ashton Wolf

Photo by U.S. Air Force 2nd Lt. Samuel Eckholm

A U.S. Air Force F-22 Raptor flies over a wall of fire during the Mission Over Malmstrom open house event in Great Falls, MT, July 14, 2019.

Introduction

There are no secrets to success. It is the result of preparation, hard work, and learning from failure.

—GEN Colin Powell

A lack of resources and time are a U.S. Army division's two worst enemies during a warfighter exercise. A shortage of resources necessitates prioritization, while the absence of time increases risk. It is the responsibility of the division staff to develop strategies and methods to mitigate this risk and to provide the division commander the most precise and predictive intelligence possible to drive a timely and effective decision-making process. The battle damage assessment (BDA) challenge during Warfighter Exercise 19-1 (WFX 19-1) provided another opportunity for a division staff to work through the challenges of limited time and resources. 25th Infantry Division (25th ID) appropriated most of its full motion video assets to target development and acquisition missions, but the division commander and staff still required fast and accurate BDA for planning purposes. Despite resource and time constraints, 25th ID successfully delivered BDA within 10 percent of the ground truth throughout WFX 19-1 by adopting a multi-intelligence approach.

Multi-Intelligence Approach

Never tell people how to do things. Tell them what to do and they will surprise you with their ingenuity.

—GEN George S. Patton

FM 2-0, Intelligence, states, "Commanders and staffs need timely, accurate, relevant, and predictive intelligence to understand threat characteristics, goals and objectives, and courses of action to successfully execute offensive and defensive tasks in large-scale combat operations."[1] Along this vein, ATP 3-60, *Targeting*, asserts, "The degree of reliability and credibility of the assessment relies largely upon collection resources. The quantity and quality of collection assets influence whether the assessment is highly reliable (concrete, quantifiable, and precise) or has low reliability (best guess)."[2] Initially, the 25th ID G-2 targeting team planned to rely heavily on full motion video, imagery, and subordinate unit operational reporting because of their high-confidence intelligence output. These collection platforms would provide the most accurate and relevant intelligence for the division planners, division fires, and division current operations. As a combat division in a resource-constrained environment, focused on closing with and killing the enemy and

maintaining speed and tempo, BDA fell lower on the list of intelligence priorities during WFX 19-1. This reality required analysts to combine assets with varying degrees of fidelity to achieve greater BDA accuracy.

The 25th ID G-2 targeting BDA analysts developed assessments leveraging communications intelligence; human intelligence; electronic intelligence; and ground moving target indicator (GMTI), target acquisition radar, and post-fire mission data. Separate, these assets are low-confidence information collection resources, but when effectively layered, these information collection assets created a solid multi-intelligence foundation for a division-level common intelligence picture. For example, one battle drill implemented in the analysis and control element involved terrain, GMTI, communications intelligence, and electronic intelligence analysts sharing indications of BDA after the joint air-ground integration center reported a fire mission through chat. Augmented with subordinate input and I Corps shaping efforts, targeting analysts made precise assessments for planning and reattack purposes. Implementing this method, the targeting team contributed to multiple important division commander decisions, ensuring mission success.

Improving the Baseline

We don't rise to the level of our expectations, we fall to the level of our training.

—Archilochus (Ancient Greek lyric poet)

There is an inherent responsibility of staffs to identify the gaps and shortcomings in their practices. Staffs ought to strive to improve practices before, during, and after training exercises and military operations. Even though it achieved a high degree of success during WFX 19-1, 25th ID's BDA process lacked the application of munitions effectiveness and relied heavily on the subject matter experts, and the team faced challenges in receiving timely BDA reports from subordinate units and joint partners. Providing analysts with more training, integrating all elements of combat assessment, and developing and enforcing a combat assessment standard operating procedure for future operations will ensure a more lethal and effective targeting system.

Current Training Limitations. In 1992, a Congressional report on the Persian Gulf War claimed, "BDA in the Gulf War, as a whole, has been criticized as too slow and inadequate…There still is no [Department of Defense] DOD-wide, formalized BDA training or needed organizational structure, doctrine, methodology, or procedures."[3] In 2005, COL James G. Diehl, then joint test director at the Joint Battle Damage Assessment Joint Test and Evaluation Center, and Mr. Charles E. Sloan, senior military analyst, wrote an article titled "Battle Damage Assessment: The Ground Truth." In their article, they echoed this concern by pointing to a "documented…chronic problem with untrained or unqualified augmentees arriving…[to perform] BDA cell functions during…exercises."[4] Most intelligence analysts are not equipped to conduct effective BDA analysis with the training they currently receive as 35Fs (Intelligence Analyst). The 25th ID's intelligence analysts received training to identify enemy capabilities based on terrain, equipment, and order of battle. They could ascertain the "so what" behind the results of BDA fed to them but received little training to properly assess the results of an indirect fire engagement. This placed even more pressure on the already tight time constraints. Analysts had to either reach out to division staff elements and subject matter experts, who did not always have time to support the BDA effort, or rely on their own limited knowledge and training to develop assessments.

Battle Damage Assessment: Only One-Third of the Picture. "Combat assessment is composed of three related elements: battle damage assessment, munitions effectiveness assessment, and reattack recommendations or future targeting. Assessment of tactical results helps commanders determine progress at the operational and strategic levels and can affect operational and strategic targeting and engagement decisions."[5] Although 25th ID used all three components of combat assessment during WFX 19-1, they

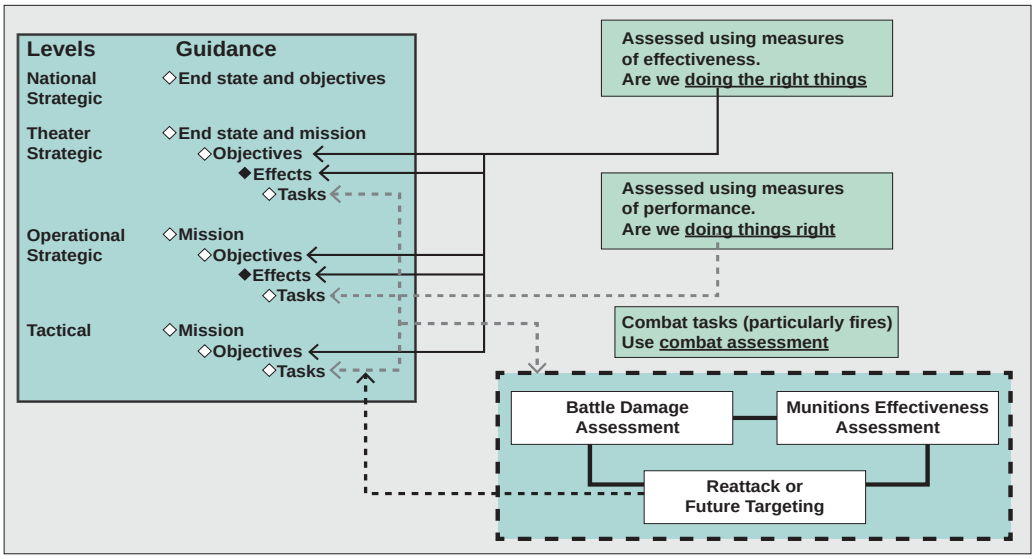

Figure 1. Assessment Levels and Measures[6]

did not always use them together to enhance the common intelligence picture. Viewing BDA, munitions effectiveness, and reattack guidance as a unified effort provides a baseline for measures of effectiveness and measures of performance, while also eliminating the diffusion of responsibility currently plaguing BDA analysis and tracking.

ATP 3-60, *Targeting*, states, "Producing BDA is primarily an intelligence responsibility, but requires coordination with operational elements to be effective."[7] The intelligence warfighting function collects BDA-specific data; however, without combined staff input, the division cannot competently detect adversary assets or assess friendly effects on the enemy. Two graphics in chapter 2 of ATP 3-60 depict the importance of staff collaboration for the targeting process. The first graphic (Figure 1 on the previous page) portrays the role combat assessment plays in measures of effectiveness and measures of performance assessments and how if implemented correctly it "properly focuses assessment and collection at each level, reduces redundancy, and enhances the efficiency of the overall assessment process."[8] The second graphic (Figure 2) emphasizes the many assets from different staff sections involved in the decide, detect, deliver, assess targeting methodology. When combined, the images tell a simple truth—without bringing the entire staff together to implement combat assessment, an accurate picture of the enemy cannot exist.

The coordination between the entire staff is invaluable. Intelligence analysts cannot replicate the knowledge, experience, education, and training of other staff members. An intelligence analyst does not receive training on the type, quantity, capability, and effects of friendly joint fires platforms. The division intelligence section also does not receive real-time information on each fire and counter-fire mission. In their 2005 article, COL Diehl and Mr. Sloan wrote, "BDA is not just an 'intel thing.' The BDA mission, if it is going to integrate into an effects-based operations culture, must become an integrated operations/intelligence function that begins with and continuously feeds back to support the commanders' strategy."[9] Multiple sections are involved with the combat assessment and targeting processes. If the staff acknowledges their defined roles and responsibilities in an approved standard operating procedure, they can provide the most accurate analysis available to help inform decision makers.

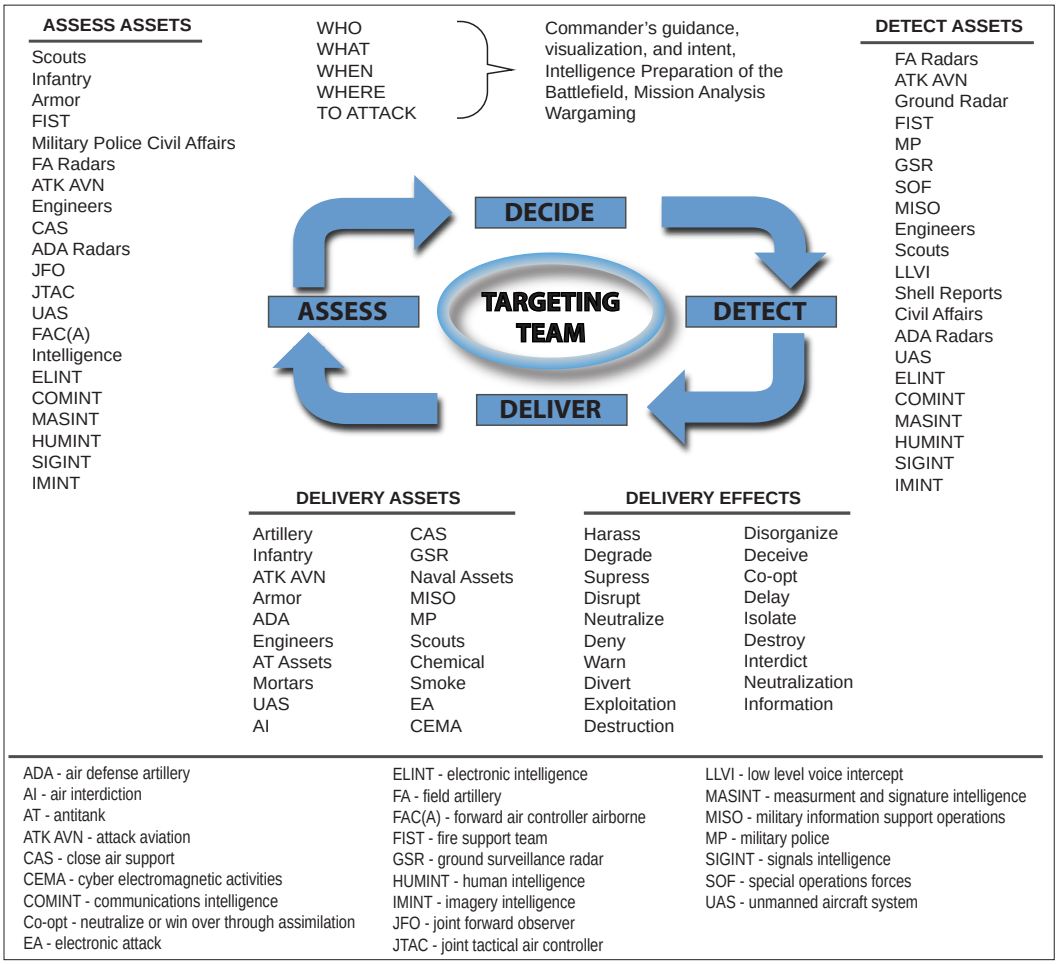

Figure 2. Decide, Detect, Deliver, Assess Methodology and Assets[10]

The Tower of Babel Paradigm: Getting Everyone on the Same Page. Combat assessment and BDA require good communication, commander emphasis, and universal ownership. Different assets within the division collect information to create a concise and accurate assessment. These assets currently fail to share this information holistically. To create BDA assessments, the division G-2 receives reports from numerous sources:

- Division artillery.
- Combat aviation brigade.
- Joint air-ground integration center.
- Joint information collection.
- Corps.
- Adjacent units.
- Subordinate brigade combat teams.

These units often prioritize and share the intelligence that assists in the completion of their own mission, unintentionally withholding information of value to others. This created the Tower of Babel Paradigm—every unit responsible for developing and contributing to the common intelligence picture spoke a slightly different dialect. This problem was only propagated with the limited time and competing priorities of WFX 19-1. 25th ID also had many connectivity and communication issues during WFX 19-1. 25th ID G-2 targeting received BDA via chat, email, radio, runner, Share drive, and the portal. Reporting methods that worked for one unit did not work for another unit. As a result, G-2 BDA analysts devoted countless hours to pulling BDA reports from myriad units, reducing the amount of time available to develop tailored targeting analysis products.

Fighting Products

Critical to making and executing decisions rapidly and effectively are complete, common, and timely *fighting products*. These can consist of the intelligence collection matrix, decision-support matrix, synchronization matrix, fire-support execution matrix, maneuver graphics, and target-list worksheet.[11]

Time Constraints. Throughout a collection cycle, G-2 targeting analysts process BDA reporting, verify intelligence sources (to prevent duplicate reporting), input data into "fighting products," and examine the enemy order of battle to adjust task organization. Added to these tasks are the sporadic battle drills, special products, and battle rhythm briefing requirements. When streamlined, it is possible to accomplish all these tasks. However, during WFX 19-1, unit reporting created a significant chokepoint. The fast pace of operations and the large influx of intelligence reports received at all echelons regularly caused units to miss reporting timelines. This required G-2 targeting analysts to assume risk by stopping targeting-specific production to search for reporting. They effectively refined the gaps in the BDA picture by searching for BDA reporting in unit chat rooms, hunting down fire mission trackers, making numerous phone calls, and rechecking GMTI and signals intelligence reporting. Although effective for BDA development, the additional tasking constrained analysts' time to prepare for important briefings, leaving gaps in parts of the common intelligence picture. Ultimately, an incomplete common intelligence picture limits the division commander and staff's battlefield visualization and understanding of the fight.

Recommendations: Adopting the Combat Assessment Model

If you find yourself in a fair fight, you didn't plan your mission properly.
—David Hackworth (military journalist and retired Army colonel)

Implement a Combat Assessment Working Group. In *The Art and Science of Battle Damage Assessment in Large-Scale Combat Operations*, CW3 Michael Franklin and CW3 Stephen Barber remarked, "With a lack of a defined standard, training audience units use different tools for tracking the status of destroyed enemy equipment." They also stated, "The synchronization of intelligence and fires professionals is paramount to effective targeting against peer and near-peer adversaries in small windows of opportunity."[12] 25th ID's WFX 19-1 final after action review comments mirror CW3 Franklin and CW3 Barber's remarks. During the exercise, creating a common intelligence picture for the combat assessment and BDA fight was a common challenge. Joint fires, division artillery, combat aviation brigade, joint air-ground integration center, G-9, and subordinate brigades reported BDA differently, not always sharing information with division. This created confusion and misunderstanding when commanders briefed BDA or reattack guidance. As a result, 25th ID G-2 targeting analysts spent more time tracking down BDA reporting than conducting analysis and developing detailed targeting products. Implementing a combat assessment working group would mitigate this issue by establishing a regular touchpoint that brings together all pertinent resources and information, saving time and creating efficiencies in the targeting process.

The success of the combat assessment working group depends on the participation of more than just the G-2 targeting analysts. All warfighting functions and subordinate brigades need to provide a liaison. To be effective, the combat assessment working group needs to occur multiple times a day but does not need to last longer than 15 to 20 minutes. Adding another event to the 25th ID's already packed battle rhythm might not be an easy feat, but it has value. With those 15 minutes before a targeting working group or a commander's update brief, subordinate units and division staff can discuss fire missions, out-of-contact attacks (i.e., deep or interdiction attacks),[13] current intelligence, and operational reporting to confirm or deny combat assessment staff estimates. Successfully integrating the combat assessment working group into the battle rhythm will lead to a more complete common intelligence picture, reduce duplicate BDA reporting, and ensure that decision makers receive comprehensive feedback on their measures of performance and effectiveness.

Reserve Combat Assessment Training Slots for Intelligence Analysts. In their article, COL Diehl and Mr. Sloan observed, "Although there have been several technical and process improvements, assessment still receives failing grades

regardless of whether people even understand the mission. In defense of BDA, however, there is also little historical evidence of any formal attempt to fix it or to simply agree what it is."[14] The best way to improve BDA is to create subject matter experts in the intelligence warfighting function with formalized training to help them understand how to conduct a combat assessment. As such, divisions need to reserve slots for their intelligence analysts to attend targeting, munitions, and weaponeering training. By leveraging these training opportunities, intelligence analysts gain a better understanding of friendly operations and can better integrate with the field artillery intelligence officer and joint air-ground integration center to turn raw data into actionable intelligence. More combat assessment training for military intelligence professionals will develop a cadre of combat assessment subject matter experts in the intelligence warfighting function, greatly increasing the intelligence warfighting function's skill and sense of ownership with regard to the BDA problem set.

Develop and Codify a Combat Assessment Standard Operating Procedure. Developing a combat assessment standard operating procedure creates a common understanding of expectations and requirements for all involved staff sections. During WFX 19-1, 25th ID did not tie BDA, munitions assessment, and reattack guidance under combat assessment effectively. Creating a combat assessment standard operating procedure that ties intelligence and operations requirements together solidifies a key relationship, which will increase performance of the division targeting effort and enhance support to movement and maneuver.

Conclusion

25th ID effectively implemented a multi-intelligence approach to BDA that successfully mitigated the increased risks caused by time constraints and a lack of resources. The next step is to turn the multi-intelligence approach into a multi-discipline, cross-functional one by integrating all aspects of combat assessment and the entire division staff into the analysis process. The multi-discipline, cross-functional approach, combined with formal combat assessment training and dedicated staff touchpoints through a combat assessment working group, will make 25th ID's targeting process more lethal on the battlefield.

Endnotes

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Role of the Military Intelligence Company Commander

U.S. Army photo by CPT Jonathon Lewis

The intelligence officer for 1st Brigade Combat Team, 82nd Airborne Division, briefs the command the evening's intelligence update during Swift Response 15 at Joint Multinational Readiness Center, Hohenfels, Germany, August 27, 2015.

by Captain Ryan M. Hardin

Introduction

The military intelligence (MI) company commander is one of the most demanding company grade leadership positions within the brigade combat team (BCT). Units are not all created equal, and the ways with which the MI company is employed varies widely; however, according to doctrine, the MI company commander has two essential roles:

- to direct the employment of the company[1] and
- to maximize support to the BCT S-2 intelligence cell.[2]

To accomplish these roles, the MI company commander must focus efforts to effectively integrate collection enablers assigned to the company. Doctrine provides general guidance but offers diminutive practical advice to assist commanders in this role.

All MI company enablers operate under various support relationships within maneuver units and require careful planning, specific tasking, and leader-driven coordination to collect accurate, timely, and targetable intelligence. This task challenges all units in a decisive action training environment. Not only do they fight a highly proficient peer enemy on his home turf, but they must also contend with rugged terrain, system vulnerabilities, and fragile communications plans. Despite the difficult training environment, MI companies have demonstrated some successful techniques for finding and targeting opposing forces.

Observations and after action reviews of the strengths, challenges, and characteristics of MI company commanders over the course of four rotations at the Joint Multinational Readiness Center (JMRC) have revealed four fundamental

principles that, if followed, will lead to effective enabler integration and MI company mission success:

- Preparation.
- Planning.
- Location.
- Delegation and battlefield circulation.

What follows is an examination of those principles, citing Army doctrine and rotational vignettes from JMRC during 2018. In the interest of anonymity, each MI company has been assigned a letter (A, B, C, D), and the corresponding rotational names have been omitted. This article seeks to emphasize the four "keys to success" for MI company commanders and to inform brigade engineer battalion and BCT staffs how to employ them.

Military Intelligence Company Organization

The MI company, organized as shown in Figure 1, "provides the majority of intelligence personnel to the BCT to collect, analyze, and disseminate intelligence. The MI company must task-organize with the BCT intelligence cell to form the [brigade intelligence support element] BISE…The MI company commander directs the employment of the company in accordance with missions and guidance from the BCT headquarters."[3]

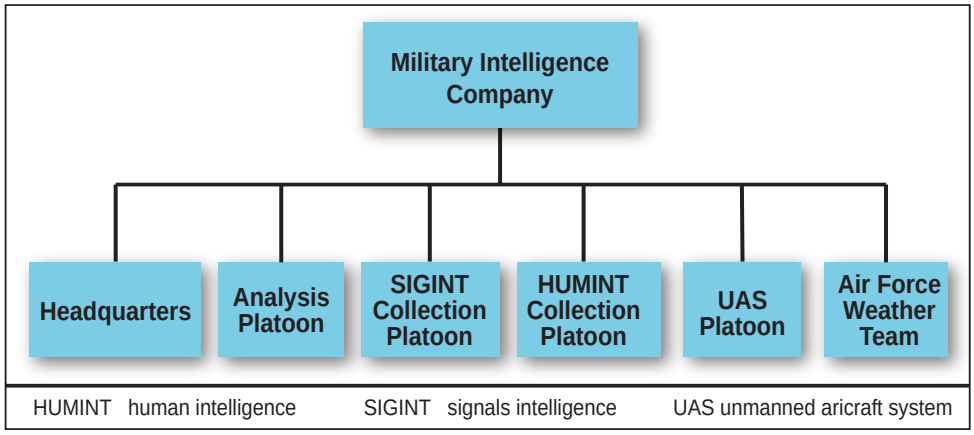

Figure 1. Military Intelligence Company Organization[4]

Military Intelligence Company Fundamental Keys to Success

Successful MI company commanders focus on four key areas—preparation, planning, location, and delegation and battlefield circulation. Specifically, these commanders—

- Train their formation and execute disciplined maintenance programs. *(Preparation)*
- Are involved with brigade staff planning early in the military decision-making process and remain tied in throughout execution. *(Planning)*
- Position their command post in close proximity to the brigade headquarters. *(Location)*
- Maintain the autonomy to reallocate personnel and resources to mitigate friction and delegate accordingly. *(Delegation and battlefield circulation)*

Preparation

Preparation

"MI company commander duties and responsibilities include—Ensuring MI company Soldiers are trained in individual and collective tasks…Participating in any brigade engineer battalion and BCT staff planning exercise as required...Ensuring readiness through command supply discipline and maintenance."[5]

Much of what happens in execution is a direct result of preparation. Successful units demonstrate tactical and collective task proficiency during an exercise because they followed a thorough training plan leading up to the event. With the Army-wide implementation of the MI Training Strategy, MI company commanders now have a guidebook and organizational framework to effectively train their formations. Of course, implementation at the unit level requires brigade engineer battalion/brigade support, external resourcing, coordination, and deliberate planning.

Each intelligence discipline can also benefit from tactics, techniques, and procedures for better integration with maneuver elements. During a rotation with exceptionally mild weather, the tactical unmanned aircraft system (UAS) platoon from MI company A achieved success with an astounding number of flight hours—a compliment to the fully manned, trained, equipped, and proficient platoon. Tactical UAS platoons will also benefit from training with other MI companies or aviation units that typically fly the Shadow in support of manned/unmanned teaming. Instead of only conducting training flights for operator progression, Shadow platoons should also fly in support of maneuver training (situational training exercise, live-fire exercise, etc.) throughout the year to practice intelligence, surveillance, and reconnaissance techniques. Not only will the brigade engineer battalion staff assist with this, but the MI company commander should also coordinate with fellow commanders across the brigade for these training opportunities.

A focus on equipment proficiency, maintenance, and readiness is paramount to effective collection. The MI company fields systems with incredible capabilities to detect,

U.S. Army photo by SPC Yon Trimble

Soldiers assigned to Delta Company, 1st Engineers Battalion,1st Armored Brigade Combat Team, 1st Infantry Division, push an unmanned aerial vehicle (UAV) onto a launching ramp during UAV training at Trzebien, Poland, May 7, 2019.

analyze, and transmit, but they must also be functional to provide value to the intelligence enterprise. The Soldiers who operate them must understand their capabilities and train to proficiency. MI company C exemplified this when the signals intelligence (SIGINT) and electronic warfare teams collectively received, processed, and disseminated more than 100 reports in just 5 days. Not only did the teams collect numerically more than any other unit at JMRC over the past 2 years, but the reports also fed into the collection and targeting cycles with great results. This was a direct reflection of the high levels of equipment readiness (the systems performed as they were supposed to) and of training (operators went to advantageous collection positions).

Systems training, maintenance, and upkeep are often neglected, resulting in system failure before and during training rotations. This includes collection equipment and communications systems, both of which are crucial for intelligence enablers. After all, what good is it to detect enemy positions if you cannot tell anyone about it? Likewise, if you place a multimillion dollar sensor in a vulnerable position near the forward line of own troops but the sensor fails, how do you remain relevant? While every MI company struggles with this, MI companies A and D had particular challenges stemming from a lack of systems training, mismanagement of maintenance priorities, and inadequate planning. For instance, during their rotations, Soldiers lacked basic radio skills and troubleshooting techniques for their assigned communications equipment. In one exercise, human intelligence (HUMINT) collection teams were without their primary method of reporting via the Global Rapid Response Information Package because nobody had requested satellite time.

In both exercises, steps were taken to correct malfunctioning equipment, but some systems simply never became fully operational. The Prophet (SIGINT) system is especially complicated. It requires constant equipment and software updates to remain functional, and because it operates at the Top Secret level, proper security measures must be maintained in order to connect to requisite networks. Due to real-world missions throughout Europe that did not require their organic systems, the SIGINT platoon from MI company C had not maintained their equipment for several months before the exercise. As a result, most of their equipment failed, and when their trucks broke down, enemy forces captured the systems and their crews. Successful MI company commanders prepare their company through the execution of robust training and the enforcement of rigorous maintenance schedules to preserve functionality of critical intelligence assets. They should leverage all available resources, including the local Foundry program, division G-2 leadership, and field service representatives.

Planning

Planning

The MI company commander develops "relationships with the BCT and battalion intelligence cells to provide guidance on capabilities and employment considerations of the MI company… Recommends task organization and command and support relationships to the BCT staff for optimum use of MI collection assets."[6]

Successful MI company commanders ensure their teams can perform their intelligence collection functions in a tactical environment whether they are attached to a maneuver unit or are deployed from the brigade rear or forward command post. Since the majority of an MI company comprises brigade enabler teams, it is crucial to integrate them seamlessly into the collection plan and the maneuver unit that supports and is supported by them. Although easier said than done, it starts with command-support relationships.

They must be identified in planning, defined in operationorders (OPORDs), understood by gaining unit and enabler teams, rehearsed during the preparation phase, and overseen by the MI company commander. Collaboration among the brigade collection manager, brigade assistant S-2 or intelligence planner(s), and the MI company commander is tremendously beneficial. The brigade collection process will be most effective if these three maintain a positive working relationship, understand their roles, and synchronize their efforts.

Teams are also integrated early in the planning process with their parent units and the brigade. There are three key events during which enabler teams should be tasked (in warning order 1) not only to attend but also to expect to brief their mission:

- brigade combined arms rehearsal,
- information collection/fires rehearsal, and
- the MI company OPORD briefing.

They should also attend the OPORD briefings of their supported units when applicable. For example, a low-level voice intercept team attached to a troop within the cavalry squadron offers an incredible capability to the squadron and brigade commanders. If that team is absent from the unit briefings or internal combined arms rehearsals, they are more likely to be forgotten or neglected during execution. On the other hand, MI companies during rotations B and C were successful because their teams were engaged in those significant events.

After the information collection/fires rehearsal, MI company commander B held a separate company back brief to ensure all enablers understood the plan. Although not a traditional OPORD briefing, the back brief achieved the same effect: **shared understanding.** MI company commander C facilitated the information collection rehearsal (fires had a separate event) for the brigade. With all brigade intelligence leaders present, each enabler briefed his portion of the mission as directed by the MI company commander. He and the BCT S-2 were able to resolve questions and issues on the spot, which paved the way for effective asset integration and information collection. This is a "best practice" for MI company commanders to consider as they prepare their company for deployment or a combat training center rotation.

Positive working relationships among the brigade engineer battalion staff, battalion S-2s, *and* **maneuver company commanders** across the brigade cannot be overstated. While the MI company commander has the resident subject matter expertise of warrant officers, he or she must advocate for SIGINT and HUMINT collection teams, often acting as the "salesman" to maneuver leaders. When they are assigned operational control to support a maneuver element or provide general support while a maneuver unit secures them, the MI company commander should ensure they are fully integrated. The coordinating instructions of the base OPORD must articulate the tasks, purposes, and command support relationships. Although published guidance helps make intelligence collection flow smoothly, units should rarely review reporting criteria, methods, and chains for all teams and rehearse at home station. Enabler checklists are useful tools for supported units and collection teams to better integrate with each other.

U.S. Army photo by SPC Josselyn Fuentes

Sky Soldiers with Combat Electronic Warfare Intelligence Platoon, Delta Company, 54th Brigade Engineer Battalion, provide actionable signals intelligence to help the 173rd **Airborne Brigade win the fight during Saber Junction 18 in** Grafenwoehr, Germany, September 15, 2018.

Despite many units not formalizing a process for integrating enablers, commanders took a few discernable steps that delivered positive results. For instance, MI company commander C went face-to-face with each of the maneuver company commanders to whom the SIGINT and HUMINT teams were attached. Not only did the teams themselves

conduct capabilities briefings with new parent units, but the MI company commander also reinforced their role within the brigade information collection plan. He underscored their need for support in the field and the level of autonomy they require for maximum collection opportunity. This was particularly relevant for the SIGINT teams partnered with the electronic warfare teams—also brigade enablers assigned to a supported unit—which must push close to the forward line of own troops and position on high ground to effectively conduct their mission.

U.S. Army Photo by SSG Billy Brothers-Rodrigues

U.S. Soldiers from Delta Company, 55th Brigade Engineer Battalion, 173rd Airborne Brigade, talk with a simulated local national while conducting a human intelligence gathering scenario during exercise Saber Junction 16 at the U.S. Army's Joint Multinational Readiness Center in Hohenfels, Germany, April 19, 2016.

While the brigade S-2 creates the collection plan, ultimately, the brigade commander tasks the assets, and company commanders must understand their role within the plan. MI company enablers are successful when collection tasks receive the same level of attention and respect as maneuver tasks. During rotation C, those teams collected and disseminated more reports than **all** collection teams during the other three rotations combined.

Compare this to the use and misuse of HUMINT collection teams during rotation A when HUMINT collection teams conducted key leader engagements in only one town, which yielded paltry intelligence at best. Although some interrogations did occur, the HUMINT collection team at the detainee collection point was held in reserve to conduct convoy security, rather than deploy forward for better collection opportunities. This led to Soldier fatigue, low morale, and intelligence gaps at the brigade. HUMINT collection teams remained in the brigade rear area instead of properly integrating into the maneuver unit and pushing forward to engage with populations in other towns. They would have gleaned valuable information leading to enemy composition, disposition, and battle plans, further bolstering brigade targeting.

Upon learning of their misuse, the MI company commander could have made recommendations to the operational management team, the BCT S-2, the brigade collection manager, and the maneuver company commander to better use the HUMINT collection teams. However, he was limited in his ability to stay tied in to the intelligence fight and influence the reallocation of this collection asset.

Successful intelligence collection often links directly to commander engagement in staff planning at all phases. MI company commander D played an active role in coordinating with the BCT S-2 and the BISE staff—which led to better collection as the exercise progressed. During rotation B, the brigade commander assigned MI company commander B as "chief of recon." The unit achieved above average success with integrating collection assets because, in this role, the MI company commander not only assisted the brigade intelligence staff but also wrote Annex L (Information Collection) to the brigade OPORD. Having her embedded with the BCT staff proved beneficial because she understood the plan, personally knew the collectors she tasked, and remained linked to the feedback chain when reports came in from the field.

Location

Location

"The MI company commander directs the employment of the company in accordance with missions and guidance from the BCT headquarters. The commander locates where to best exercise mission command of company assets…The MI company command post is usually co-located with the BCT main command post to facilitate control of company assets and maximize support to the BCT intelligence cell."[7]

Mission variables often dictate where the MI company commander establishes the command post; however, typically MI company commanders have the greatest opportunity for success the closer they are to the brigade headquarters. For example, MI company commander D collocated the command post near the brigade headquarters. The commander was able to command the company, realign assets when possible, and remain tied in to the brigade intelligence fight. Presence within the BISE and proximity to the BCT S-2 led to better integration of the enabler teams attached to maneuver units. While not able to mitigate all friction, once aware of problems, the commander was able to leverage resources to fix them.

MI company commander A set up the command post within the brigade engineer battalion tactical assembly area, which enhanced the ability to maintain situational awareness because of its proximity to the battalion headquarters, which came with robust communication packages. Not only did the command post include a small company headquarters but also a "rear BISE" comprised of all-source and geospatial analysts with their requisite equipment, with the mission to provide deep fight threat analysis. However, it was unable to stay nested within and connected to the overall brigade intelligence plan, thereby becoming irrelevant. After discovering these shortfalls, the MI company commander unofficially assumed the role of rear BISE chief—normally a position reserved for an experienced all-source intelligence warrant officer. This ultimately distracted the commander, which exacerbated other issues percolating among intelligence enabler teams spread out across the battlefield.

As the chief of reconnaissance, MI company commander B personally remained in the brigade tactical operations center and plans cell for the duration of the exercise, while the first sergeant and executive officer set up a command post in the vicinity of the tactical UAS platoon. Instead of fulfilling the traditional/doctrinal role, the commander planned and executed the brigade's information collection plan and provided targeting recommendations to the fires and operations cells. Although this maximized support to the BCT intelligence cell, it prevented the MI company commander from the direct management of collection teams during operations. To mitigate this, during the information collection/fires rehearsal, the MI company commander and brigade collection manager briefed the intelligence portions while all collection teams moved in sequence across the terrain model.

MI company commander C set up a command post approximately 300 meters north of his tactical UAS platoon. This was close enough to have "hands-on" influence of the brigade's organic intelligence, surveillance, and reconnaissance platform (the Shadow RQ-7b) while also maintaining situational awareness of other collectors across the battlespace. On one occasion, the commander was able to visit the brigade headquarters but discovered it was better to support the brigade intelligence cell by controlling the company from the command post. In this case, the MI company was more effective with the commander separated from the brigade headquarters, as long as communications with collection teams were maintained.

None of the aforementioned MI company employment techniques should be considered "wrong," but some units were more successful than others. Doctrine suggests locating within the brigade command post; however, it does not always yield more effective information collection, as evidenced during rotation D. In 2018, the most effective employment of an MI company during a rotation at the JMRC was during rotation C, when teams collected more information of intelligence value and generated more reports than all teams during the other three rotations combined.

The most unique, but also effective, technique was the command post without an MI company commander during rotation B, which relied heavily on the executive officer and first sergeant to run the company. Regardless, the commander's geographic proximity to the brigade was ultimately an effective part of the company's technique. This connection to the brigade can occur through physical placement of the MI company command post within the brigade tactical assembly area or close to the tactical UAS platoon because of its importance as the primary sensor in most collection plans. With the numerous processing, exploitation, and dissemination requirements for collection assets, MI company commanders should help mitigate communication challenges from sensors to the BISE, which often means physically placing themselves or a subordinate leader in the vicinity.

Delegation and Battlefield Circulation

Delegation and Battlefield Circulation

"As part of exercising mission command, the MI company commander visits company elements deployed with forward units, maintains situational awareness of all team positions, and performs required administrative functions."[8]

MI company commanders have the ability to "multiply" themselves by planning, administering direct guidance, and empowering junior leaders. They must find ways to get "ground truth" from enabler teams spread out across the

battlespace. This may come in the form of placing leaders within maneuver units and/or conducting battlefield circulation as feasible. MI company commander A was the only commander in four rotations who conducted battlefield circulation. Through deliberate planning, the commander was able to resource enough crew-serve weapons-equipped vehicles to safely move around the rear area to meet with the Shadow UAS platoon, forward BISE, and brigade tactical operations center.

These visits were particularly important because the UAS platoon was attempting to conduct split operations by placing a ground control station near the brigade tactical assembly area. The commander helped mitigate some of the friction involved with getting the "right" people and the "right" equipment to the "right" place at the "right" time. This reallocation of assets proved useful to the brigade commander and staff because, with the UAS platoon leader now collocated, he could attend intelligence planning and fires sync meetings, while the BCT S-2 gave face-to-face guidance and adjusted collection plans and priorities as needed.

Successful MI company commanders cultivate a culture of empowered leadership within their organization and have the autonomy to visit troops, increase morale, and increase awareness of collection teams. Battlefield circulation plans require time, energy, and resources such as security vehicles, which MI companies do not always have, to safely transport command teams. In lieu of this, successful commanders place junior leaders where they can maximize their effectiveness at mitigating the inevitable friction.

For instance, during planning, MI company commander D recognized the inability to conduct battlefield circulation. Instead, the commander leveraged the SIGINT platoon leader and platoon sergeant by placing them with the cavalry squadron command post. This gave platoon leadership closer access to their teams with whom the squadron provided direct support. This initiative and ability to anticipate future issues proved helpful, despite the unit working through strained primary, alternate, contingency, and emergency plans and fragile communications systems. While serving as chief of reconnaissance, MI company commander B directed the SIGINT platoon leader to the cavalry squadron command post, which put the platoon leader in a position to mitigate some of the friction between collection teams and the maneuver unit. Recognizing that the commander would be incapable of fulfilling the normal role, the executive officer and first sergeant received explicit written guidance of the duties and responsibilities they would need to assume. All these delegation techniques reflect decisions based on the "art of leadership" and should be considered during the predeployment process.

Conclusion

This review highlights many of the challenges MI company commanders face when employing their company. MI company commanders must prepare the company by implementing thorough training plans and maintenance schedules to keep equipment operational. They should be involved early and often in the brigade planning process. They should locate the command post close to the brigade headquarters to stay tied in with operations and intelligence collection planning during all phases of the exercise. They must find ways to gain perspective from Soldiers at the team level through delegation and battlefield circulation.

While there are too many points of friction for one person to anticipate and personally fix before and during a JMRC rotation, MI company commanders who focus on these four fundamental keys to success, which lead to *effective asset integration,* are more likely to succeed in directing employment of their company and maximizing support to the brigade intelligence cell.

Endnotes

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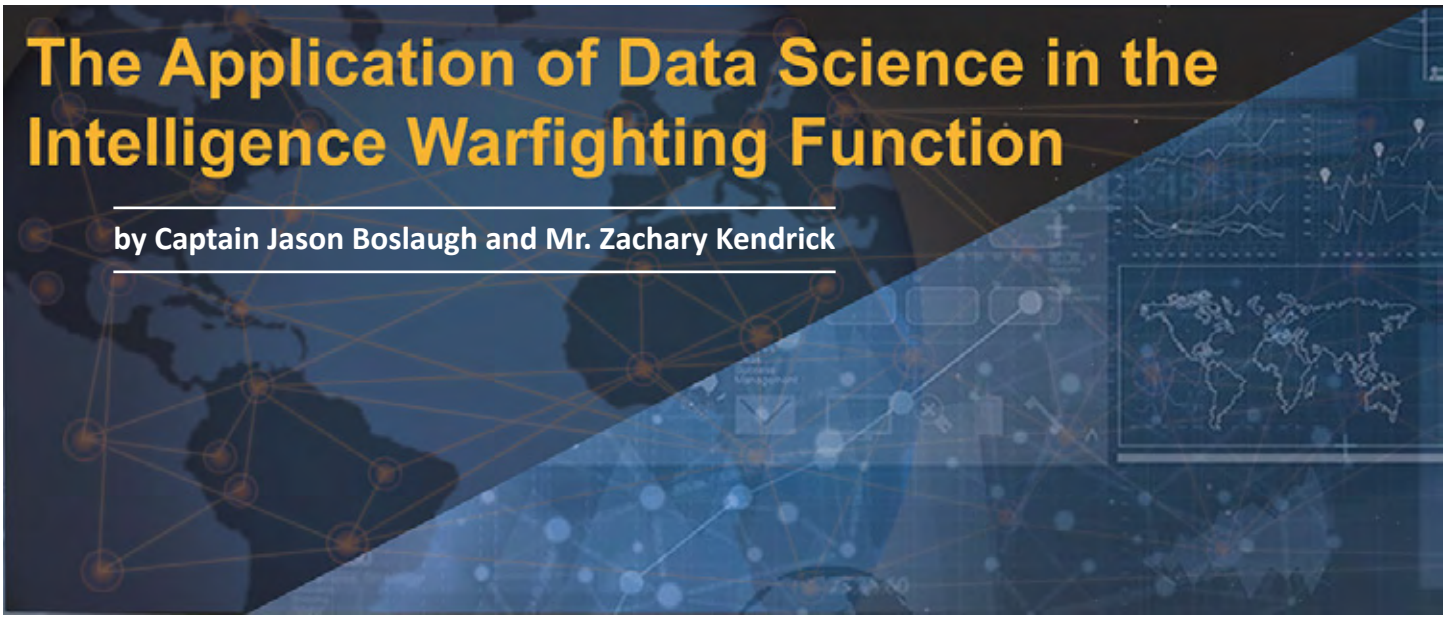


The Application of Data Science in the Intelligence Warfighting Function

by Captain Jason Boslaugh and Mr. Zachary Kendrick

Editor's Note: This article is the second in a two-part series on data science. The first part, by CPT Iain Cruickshank, titled "On Data Science and Intelligence Analysis," was in the July–September 2019 issue of* Military Intelligence Professional Bulletin*. CPT Cruickshank's article provided a basic foundational understanding of data science and its application in the intelligence community. Part two of the series, presented here, discusses how the U.S. Army can apply data science lessons learned from academia and industry to modernize the intelligence warfighting function.

Introduction

Data science—or the continual extraction of knowledge from data using advanced mathematics and coding—seeks to provide meaningful and actionable insights into a problem set based on the analysis of large volumes of complex data. Industry has used data science for years to provide relevant and useful business insights to increase profit margins, to attract and personalize offerings to customers, and to identify and reduce internal and external inefficiencies in organizational processes. In 2013, McKinsey & Company, an American worldwide management consulting firm, estimated that big data[1] initiatives could account for "$300 billion to $450 billion in reduced health-care spending, or 12 to 17 percent of the $2.6 trillion baseline in U.S. healthcare costs."[2] Cost savings occur as data scientists deliver insights that were previously indecipherable based on the large volumes of data available to organizations. Insights come in the form of risk mitigation, relevant products to support decision making, and streamlined organizational processes. When corporations use data science, it can result in increased profitability and efficiency, whereas for U.S. Army intelligence, it can provide the commander with an information advantage to enhance the lethality and survivability of U.S. forces in multi-domain operations.

This article describes the benefits that data science provides to the intelligence warfighting function and commanders, and it recommends near-term actions that must occur to successfully integrate data science practices into Army intelligence.

Data Science and the World's Largest Employer—Walmart

The U.S. Army is a massive organization, inundated with data, but the issue with implementing data science into the Army is not one of scale. Walmart Inc., the largest employer in the world by employee count and revenue,[3] has integrated data science principles into the majority of its processes. With technology-driven competitors like Amazon rapidly increasing their market share and the sheer scale of Walmart's operations, Walmart required integration of big data and data science practices to develop the solutions necessary to remain profitable.

An early example of Walmart's use of data science occurred in 2012, when Hurricane Sandy struck the most densely populated area of the United States. Everyone knew that people in the hurricane's path would need flashlights, emergency equipment, and other extra supplies, but Walmart's chief information officer successfully used statistical models to show what specific staple food items would be required, as well as quantities, to meet customers' immediate needs during an emergency. Because of these models, Walmart was able to divert logistical chains containing these types of items to the hurricane's impact zone.

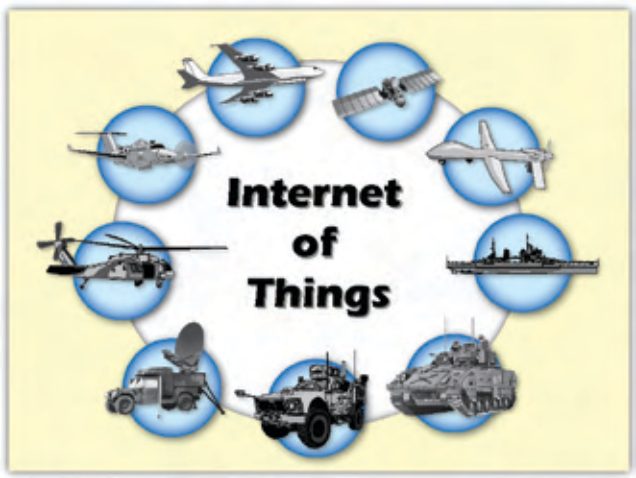
A more recent application of Walmart's use of data science is its Data Café, a state-of-the-art analytics hub that automatically detects sales anomalies in its inventory. When

items are not selling, analysts can contact responsible store merchandising teams that can provide immediate feedback leading to rapid data-driven solutions. This could result in re-positioning a product to high-traffic areas, reducing the price of the product, or discontinuing sales of the product. Walmart's Data Café system has led to a reduction in the time it takes from spotting a problem to proposing a solution—from an average of 2 to 3 weeks to approximately 20 minutes.[4]

Walmart is also currently using machine learning[5] and artificial intelligence[6] to determine customer satisfaction for in-store self-service kiosks (facial recognition) and online sales. Walmart was an early adopter of radio-frequency identification (smart labels) and wireless networking technologies to monitor logistics. Current and future capabilities include "integrating [Internet of things] IoT tags to products in order to monitor product usage, auto-replace products as necessary, and monitor expiration dates or product recalls."[7] Expedient analysis of real-time data is key to driving business performance in an industry context. This application in industry parallels a military application—meeting the commander's immediate information requirements to support mission command.

So What is the Internet of Things?

"This is the concept of basically connecting any device with an on and off switch to the Internet (and/or to each other). This includes everything from cellphones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of. This also applies to components of machines, for example a jet engine of an airplane or the drill of an oil rig…If it has an on and off switch then chances are it can be a part of the IoT. The analyst firm Gartner says that by 2020 there will be over 26 billion connected devices…That's a lot of connections (some even estimate this number to be much higher, over 100 billion). The IoT is a giant network of connected "things" (which also includes people). The relationship will be between people-people, people-things, and things-things."[8]



Collaborating with Government, Industry, and Academia

Based on use cases and lessons learned from academic and industry partners, Army leaders have recognized a direct applicability of data science to processes within the Army warfighting functions. In 2018, senior Army intelligence leaders engaged in an effort to modernize the military intelligence (MI) workforce and optimize Army intelligence for future conflicts, particularly large-scale ground combat operations. To start the Army intelligence modernization process, the Deputy Chief of Staff G-2, the U.S. Army Intelligence and Security Command (INSCOM) Commanding General, and the U.S. Army Intelligence Center of Excellence (USAICoE) Commanding General directed the development and integration of data science capabilities into the intelligence warfighting function. Over the past 18 months, the Army Futures Command's Capability Development Integration Directorate - Intelligence at USAICoE has deliberately captured best practices, tactics, techniques, and procedures from government, industry, and academia to describe the ways, means, and ends to integrate data science into Army intelligence.

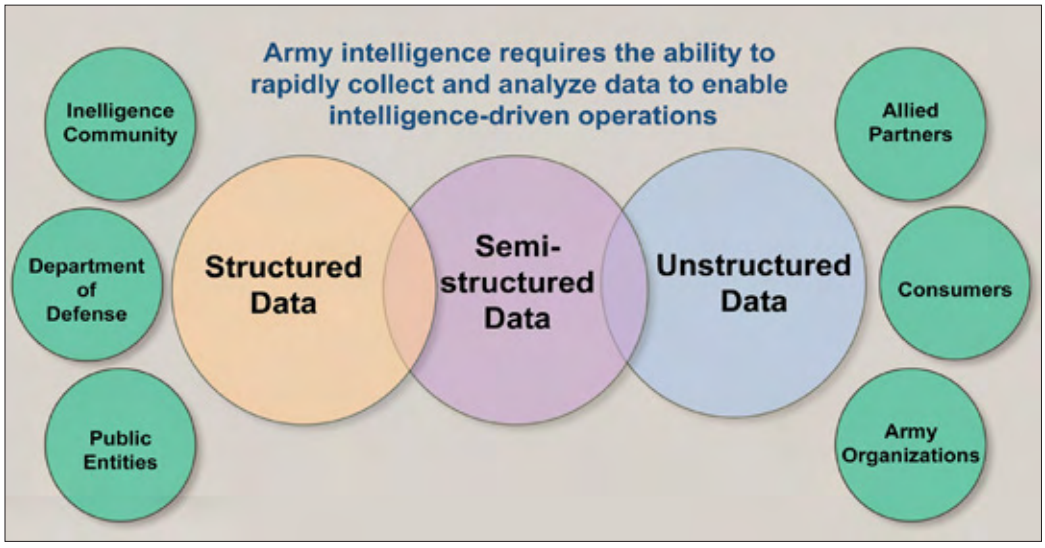
The assessment has been shaped by and nested with USAICoE's involvement in various Army analytic modernization efforts. This has included the USAICoE-sponsored data science study with the U.S. Army Research Laboratory and industry partner CUBRC, Inc., "to determine how to employ future data science and data scientists to maximize data exploitation and reduce the burden on Army Intelligence Analysts."[9] The study included a 2-day workshop at George Mason University. "The focus of the workshop was to gather experts from government, industry, and academia to discuss best practices and perspectives on utilizing data science within the [intelligence warfighting function] IWfF. In addition to government representatives from U.S. Army Intelligence and Security Command, U.S. Army Training and Doctrine Command, U.S. Army Forces Command, and U.S. Army Special Operations Command, the workshop captured the experience of scientists from Microsoft, BAE Systems, RAND, and Lockheed Martin."[10]

How Data Science Can Help

Army intelligence is at a tipping point for the next evolution in data-driven intelligence analysis. The information deluge is outpacing the analyst's ability to derive comprehensive insights from all the available sources. To put the vast amount of data into perspective, from 1992 to 2018 the Army's use of Multimedia Message Manager, a secure messaging capability, has increased an average of 1000 percent, from approximately 30,000 messages per year to the current flow of 35,000,000 per year.[11]

Within the Army MI context, data science applies to all intelligence disciplines, and a broad data solution must be resourced with the appropriate technology that is capable of scaling to meet continued exponential growth of data in a multilevel security domain environment. Data science capabilities have the potential to rapidly analyze high-volume data sets and automatically correlate entities to create comprehensive threat analytics products. This will enable the analyst to spend more time on quality control and critical analysis and less time on data search and discovery. The addition of these capabilities to an intelligence analyst's kit bag can sharply enhance the ability of intelligence sections to manage information and support the commander at the pace of war.

In military operations, the sheer amount of data feeds available are exponentially greater and potentially more complex in multi-domain operations than in previous eras.[12] Army intelligence requires the ability to rapidly collect and analyze structured, semi-structured, and unstructured data. This data is created by the intelligence community, Department of Defense (DoD), public entities, allied partners, consumers, and the Army's own organizations to enable intelligence-driven operations, to "enable commander's situational understanding in the future complex environment using adaptive and innovative means."[13]



Simultaneously, Army intelligence must process and exploit the data collected by an increasingly large and varied array of sensors. Each sensor captures orders of magnitude more data at multiple levels of analysis and classification than earlier generation sensors. All of this data is collected to support a diverse range of commanders, operational missions, and automated mission command systems. Data science has the potential to be a force multiplier for the intelligence warfighting function; however, to integrate data science effectively into Army intelligence operations, the Army must address multiple priority findings from the application of data science within the intelligence warfighting function.

Invest in, Develop, and Retain Human Capital

As of 2018, more than 10,000 data science positions have been vacant throughout the industry sector. With the demand for data scientists, cloud engineers, and developers reaching an acute level, IBM and Google have separately launched new certification programs to fill their human capital gap by training from within their organizations. IBM has developed a data scientist certification to assess and validate data science skills that professional job candidates obtain through practical experience. Google's efforts are focused on four areas: cloud developer, cloud engineer, cloud security engineer, and a G(oogle) suite certification. Google also offers on-demand courses and short hands-on labs to develop its workforce. These are just two of many industry examples upon which Army MI can model its approach. These examples also indicate that industry is committed to developing the necessary workforce to meet long-term increasing data demands, showing the importance of this capability for organizations with large volumes of data.[14]

In order to build an effective data science capability in Army intelligence, the foremost priority is to develop and retain data scientists who can execute the mission. "Improving the resilience of leaders and Soldiers—the Army's most valuable capability—requires training, educating, equipping, and supporting them to execute [multi-domain operations] MDO in all of its intensity, rigor, and complexity."[15] Army MI must invest in and align its workforce to incorporate data science in the intelligence warfighting function to integrate enhanced tradecraft and intelligence analysis capabilities. A successful data science capability for Army MI requires human capital with the necessary training and education to conduct this mission.

As a starting point to scale this capability within Army intelligence, an identification mechanism and/or competency assessment can identify existing highly talented Soldiers with data science-related competencies in the current MI workforce. This assessment would include a scrub of Soldiers' records and the identification of skillsets with

relevance to data science, such as a civilian education in statistics or other data science-related fields. The Army's Human Resources Command or the Headquarters, Department of the Army's G-1 can conduct the assessment, and the Army can use it to assign, train, and leverage top talent to data science missions. The intent is to develop an intelligence data science capability and a more responsive MI workforce to meet commanders' needs. The Army must solve this problem set by leveraging data science to provide the "heavy lift" to intelligence analyst capability, enhancing predictive analysis, and providing a more complete intelligence picture that creates actionable intelligence to drive the commander's decision-making process. Today's operational environment presents a much more dangerous threat to the Army than that faced in Iraq and Afghanistan, and it requires rapid decision making to counter our adversaries in large-scale ground combat operations.

A data science capability will not replace human analysts. Single source and all-source intelligence analysts are essential to information discovery, processing, exploitation, and dissemination for all MI operations with direct access to combat information in near real time. This analytical workforce, trained on data science principles and capabilities, will remain the first to start the process of managing collected data and ensuring it is distributed appropriately across the intelligence community and DoD enterprise. The resident expertise in these occupational specialties will be instrumental in providing initial opportunities, identification of shortfalls, and feedback for data science teams. Army intelligence analysts must adapt to the challenge of identifying opportunities by managing and analyzing large data sets supporting mission command to increase lethality and survivability through rapid identification of critical and relevant combat information.

Trained Army MI data scientists and supporting intelligence elements can enable MI operations to better support Army, joint, and multinational operations by leveraging data science principles and tradecraft to information collection operations and the overall intelligence process. Supporting elements must have opportunities to obtain additional data science training to enable cross-functional team collaboration. Training additional supporting personnel in the MI workforce will enable quality results down to the lowest level and will provide the flexibility to meet mission command requirements at multiple echelons and supported organizations. The ability to acquire, educate, and train Army personnel will drive the timeline to achieve the desired capability end state. In order to identify candidates to become Army intelligence data scientists, the Army can conduct a service-wide assessment to identify Soldiers who already possess formal education and training required of a data scientist. These skillsets include but are not limited to computer software programming, computational social sciences, and statistics.

Last, the Army must also be prepared to identify retention and incentive mechanisms for Soldiers who become data scientists, such as additional duty service obligations or incentive programs. Many industry and government organizations are experiencing problems with hiring talented data scientists for a variety of reasons. The biggest hurdles to overcome are lack of qualified and skilled personnel, security clearance eligibility, and competitive salary constraints. While professional development incentives exist, monetary incentives will likely require policy changes. The Army Medical Department's Selected Reserve Incentive Program (SRIP) shows the potential for a data science recruitment/retention model because medical and data science skillsets are parallel, requiring formal education and competitive compensation. It is important to identify and adopt best practices from SRIP to minimize the compensation and benefit gaps between government and industry.

Modify Existing Policy for Data Governance and Management

Army MI must also establish policies and procedures for data governance and monitoring, to include functions involving acquisition, transfer, storage, and access to enable data science operations. Assigning an office of primacy for Army data science will be necessary to ensure data science professionals have access to the tools to operate seamlessly across multiple networks and classification levels. Army MI must also be involved in developing and managing policies that determine who should have access to data and specify/interpret the functions and operations of data science personnel. The specific policies to address in the near term are—

- Rapid accreditation of data science tools.
- Adjustment of information assurance policies to promote the rapid fielding of data science tools on government networks.
- Development of policy to enable an instantaneous or near-instantaneous multilevel security domain data transfer mechanism.
- Rapid, streamlined onboarding of Army personnel to data that is non-DoD owned and managed.

We must address these policy issues; otherwise a comprehensive data science capability is not feasible and maintaining relevance of the capability will become a

struggle because data science will not be able to keep pace with the commander's decision-making process in large-scale ground combat operations.

Adopt a Data-Centric Culture at all Army Echelons

At the Army leadership level, an overarching need exists for a top-down culture change in order to adopt data science processes to support military operations. Identifying, consolidating, and structuring data alone is just a small part of addressing MI data problems and shortfalls. Data science teams must provide immediate value through relevant, easily digestible, algorithmically generated intelligence products that a commander trusts and is comfortable integrating into his or her decision-making process. These products, derived from a multitude of intelligence community-approved sources, can increase the effectiveness of and value provided by intelligence sections with relative inexperience, particularly at echelons corps and below. Once intelligence personnel have corroborated the available data and analyzed it, the data can then provide the mission command intelligence that assists commanders in making operational decisions to mitigate risk and enable an advantage over an adversary.

Data science techniques applied to previously collected data can provide quantitatively grounded insights into the most likely threat courses of action based on previous activity. This serves as a starting point for determining future threat courses of action, improving on analyst-driven, qualitatively derived insights that lack the full complement of data sources available. To provide value, these data science-driven products and tools must be injected into the commander and staff's decision-making processes to inform decisions based on both the operational instinct and the plethora of data sources available. In the interim, Army leaders must be educated on the benefits that an intelligence data science team can bring to intelligence analysis. Improvements to the vision and strategy for the data science mission would result from providing Army leaders with a better understanding of this powerful capability, including its limitations.

Tailor and Scale the Capability to the Warfighter's Needs

An enterprise approach to integrate data science effectively into Army intelligence at each Army echelon requires a unique data science capability based on the envisioned threat to that echelon, decision-making timelines, and the data science expertise of the Soldiers organic to that echelon. Challenges will exist as the echelon approaches the tactical edge, for example, challenges resulting from intermittent network connectivity, truncated decision-making timelines, and limited familiarity with the capabilities of data science. Soldiers at the tactical echelon will likely function as customers of products or applications created at higher echelons, such as INSCOM's organizations or corps-level intelligence elements. The data science tools provided to the tactical organizations will automate the standardized and tedious steps of the intelligence process. Automation tools can support enemy course of action development as part of intelligence preparation of the battlefield, assist with terrain/mobility analysis, and provide situation development, which allows insight into enemy decision making. These tools will reduce the "heavy lift" of the analysts who are providing direct support to tactical commanders and maneuver elements, whereas higher echelons will have the time and space to develop unique problem set-specific tool instances to monitor complex problems.

Integrating data science within the intelligence warfighting function has the potential to produce capabilities that support information dominance by modernizing the training, organizations, analytical toolsets, and architecture related to the most critical and underlying element of intelligence analysis—"data." By using industry-proven processes, teams of highly skilled data experts will work with the current intelligence workforce to build enhanced tradecraft, big data analytics, and data science capabilities into Army formations. Incorporating data science into the intelligence warfighting function's core missions will have a considerable return on investment when used to successfully address intelligence requirements and inform decisions

across all time horizons and echelons. Data science teams will not replace the need for intelligence analysts and their specialized critical-thinking skills; instead, these teams will provide new analytic capabilities to support intelligence missions across the force.

Army MI capabilities can be improved through an iterative lessons learned process that documents potential analytic opportunities. This will allow the intelligence staff to have the resources to assess where current analytic capabilities exist and where legacy intelligence workflows can be improved. Army units can identify optimal organizations that can integrate and support data science capabilities with the appropriate resources, tools, architecture, and leadership understanding of the intelligence problem to ensure success of the MI data science program. Organizations will mentor highly skilled Soldiers and leaders to provide commanders with accurate intelligence and assessments of the information environment, enhancing situational understanding and relevant, timely decision making.

To provide the success needed for integrating data science into intelligence units or sections, the Army must address changes across all echelons through recommended intelligence data science doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF–P) solutions. It is necessary to develop a concept of employment guided by FM 3-0, *Operations*; FM 2-0, *Intelligence*; the Army Operating Concept; approved Army strategies; lessons learned; and the intelligence data science DOTMLPF–P. The concept of employment will describe the functions and roles that data science will play for the intelligence warfighting function across the range of military operations, with a focus on large-scale ground combat operations.

Organizations that are part of the data science community of interest, and responsible for leading the integration of data science into Army intelligence, will identify senior leader decision points, establish timelines, and, if required, initiate requisite Joint Capabilities Integration and Development System documentation to implement changes (e.g., initiation of a DOTMLPF–P integration change recommendation or execute order). The Army data science community must identify the breadth of resources necessary to execute the tasks, missions, and functions of an integrated data science capability to support large-scale ground combat operations in environments that are complex, uncertain, and rapidly changing.

Conclusion

By institutionalizing data science within the Army's workforce, culture, and policy to address the warfighter's requirements, the Army can incorporate robust new information capabilities across the DOTMLPF–P. The result will enable the Army to dominate the information environment and effectively enhance the lethality and survivability of U.S. and coalition forces in multi-domain operations.

Endnotes

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Paratroopers from the 4th Infantry Brigade Combat Team (Airborne), 25th Infantry Division, jump into Donnelly Training Area, AK, October 9, 2019, to kick off exercise Arctic Anvil 19-01. (U.S. Army photo by John Pennell)

Intelligence Architecture for Airborne Joint Forcible Entry Operations

by Captain Matthew Yannitello

Introduction

As the Army reinvests in large-scale ground combat operations, the airborne assault, as a component of a joint forcible entry operation, remains a viable option for the joint force. The airborne joint forcible entry operation seeks to deliver and mass combat power by parachute assault and airlands to seize key terrain. Often, the airhead becomes a perimeter defense because major challenges to building combat power fast enough include the constraints and limitations associated with methods of delivery for available airlift.[1]

An airborne brigade combat team's (BCT) intelligence warfighting function grapples with the same challenges. The intelligence warfighting function cannot bring all elements on the airborne assault and must sequence the building of intelligence combat power differently compared to a ground assault. An airborne assault disperses key intelligence personnel across a drop zone and renders the intelligence architecture dysfunctional. Meanwhile the majority of the intelligence warfighting function remains at an intermediate staging base. This dispersion and separation frustrates the intelligence architecture and disrupts intelligence synchronization. BCT S-2s know these dilemmas yet struggle to find consistent solutions. Intelligence support to the airborne joint forcible entry operation needs quality intelligence preparation of the battlefield, information collection planning, and targeting support, but the mission variables demand specific attention to a unique problem set. To have a chance at success, the BCT intelligence warfighting function must create a viable intelligence architecture plan specific to airborne operations.

Intelligence Architecture Products

The BCT intelligence warfighting function must have an intelligence architecture plan suitable for an airborne operation that resides in a standard operating procedure (SOP). The SOP's intelligence architecture plan is not exclusive to the brigade intelligence support element (BISE), the battalion S-2 sections, or the military intelligence company.

The SOP encompasses all elements ensuring the intelligence warfighting function's ability to communicate throughout the entire formation in addition to being interoperable with other mission command systems. Products that support an intelligence architecture plan include—

- a mapping of the architecture,
- a continuity of operations plan,
- a physical layout by command post, and
- deployment, load plan, and establishment standards.

Map the Architecture

Mapping the architecture helps with visualizing the sensors, information systems, networks, servers, data and information flow, sustainment requirements, relationships, and organization of the plan.[2] The map is the conceptual blueprint for human, hardware, and software interactions absent of terrain and weather considerations, in much the same manner as a threat template during intelligence preparation of the battlefield. Many times, BCT S-2s map a limited version of the architecture for a specific mission in a green book or on a whiteboard and share it with their staff without having a baseline mapping first. Worse, some BCT S-2s only provide general guidance and defer architecture planning entirely to the military intelligence systems maintainer/integrator technician or a Digital Intelligence Systems Master Gunner graduate. Of the last 25 brigades to train at the Joint Readiness Training Center, only two brigades mapped the intelligence architecture in their SOP, and neither of these were airborne BCTs. The intelligence architecture map must be a priority, understood by all elements, and validated with signal staff. Once this occurs, planning on how to communicate inside the architecture becomes easier during airborne operations.

When mapping the intelligence architecture for airborne operations, the intelligence warfighting function considers how best to fight light and take only the necessary equipment to access data feeds and fused intelligence.[3] The intelligence warfighting function considers what systems will enable information flow in the airhead, reporting to the division tactical command post, and intelligence reachback to other enablers. Intelligence personnel in the assault echelon cross-load upper- and lower-tactical internet systems that mapping identified as going to the assault command posts. Specifically, the map assists with assigning who jumps with systems and who jumps with additional batteries, antennas, and single key loaders. Meanwhile, the remaining personnel and equipment know they will arrive on bravo echelon airlands.

Continuity of Operations Plan

Within the context of the architecture map, the intelligence warfighting function must describe how it plans to operate. The continuity of operations plan acknowledges that unanticipated events occur and postures the intelligence warfighting function to continue to operate despite challenges. The continuity of operations plan includes four components:

U.S. Army photo by CPT Richard Packer, U.S. Army Alaska Public Affairs

Paratroopers with U.S. Army Alaska's 4th Brigade Combat Team (Airborne), 25th Infantry Division, and the 4-25th Airborne Task Force, wait at England Air Force Base, LA, to perform a night jump and forced entry operation into the Joint Readiness Training Center's exercise area of Fort Polk, LA, February 16, 2016.

- It establishes the intelligence communication plan, identifying primary, alternate, contingency, and emergency (PACE) methods of communication and build redundancy.[4]
- The plan's operating instructions prescribe procedures, roles, and responsibilities for transmitting and receiving digital and analog reporting. Operating instructions for all reports, products, and requirements by system within the PACE plan ensure the right information gets to the right person in a usable format. These operating instructions address information management responsibilities for the intelligence warfighting function, request for

information procedures, and knowledge management expectations. Of 25 BCTs, fewer than half of BCT intelligence warfighting functions have any mention of knowledge management within their SOPs, with only two airborne BCT intelligence warfighting functions planning for knowledge management in any capacity.

- The continuity of operations plan describes how the intelligence warfighting function fights on the move and conducts battle handover between command posts.
- A compromise and destruction plan describes how the intelligence warfighting function reacts to threats to cyber and local security.[5]

During initial entry, the continuity of operations plan helps describe how intelligence processing, exploitation, and dissemination (PED) occurs between collectors, control elements, and higher echelon support despite constraints and limitations. Adjusting for multi-echelon collection and intelligence PED during an airborne joint forcible entry operation is a primary challenge of the BCT intelligence warfighting function because no PED capability will exist initially in the airhead. To synchronize PED support to the assault echelon, the BCT S-2 liaises with multiple entities throughout planning. During an airborne joint forcible entry operation, the preponderance of PED activities must shift to a higher echelon, or the BCT must leave organic PED capabilities established long after the BCT initiates the breakdown of the main command post. Without either option, the BCT risks PED not occurring and creating a gap in information collection despite having planned.

Physical Layout at Command Posts

Once an architecture map and a continuity of operations plan exist, paratroopers must know where to establish within a command post. Layout diagrams show where to establish personnel and equipment at the assault command posts, the tactical command post, and the main command post. Typically, an airborne BCT has two assault command posts that establish within the first 30 minutes of paratroopers exiting aircraft in order to gain situational awareness of the operation and to communicate decisions. Only a few intelligence personnel go to each assault command post. Those paratroopers must bring with them the systems needed to communicate across the drop zone, back to the BISE if established, to the division tactical command post, and to any airborne full motion video assets. Such systems might include frequency modulation and tactical satellite radios, One System Remote Video Terminals, a Global Rapid Response Information Package, and a Deployable Network Kit. Having these systems at assault command posts ensures an increased information flow from other intelligence personnel in the airhead, as well as from classified data networks that use chat and voice functions. Again, it is imperative that the intelligence warfighting function estimate power requirements and assign personnel to carry extra batteries, which ensures sustained command post operations. The tactical command post and main command post require layouts of personnel and systems, which includes a current operations and BISE layout at the main command post. It is now a matter of getting to the right spot and setting up in the correct sequence.

Deployment, Load Plan, and Establishment Standards

An airborne assault is just another way to get to work, but it requires configuring personnel and equipment in a unique manner. Whether personnel and equipment are on the assault echelon or the bravo echelon, arriving mission capable in the airhead is the driving force for deployment standards. For personnel, it is the proper dawning of the T-11 parachute, a good static line control, a vigorous exit from the aircraft, and addressing malfunctions as required. For equipment, it means packing in rucksacks, weapons cases, door bundles, and container delivery systems. The intelligence warfighting function SOP specifies how intelligence systems prepare for a jump in the same manner as other equipment in airborne SOPs. Diagrams in the SOP provide simple visual instructions on how to prepare equipment. These diagrams also cover equipment that arrives in airlands, such as the Tactical Ground Station, the Shadow unmanned aircraft system, and the TROJAN SPIRIT LITE, in addition to the rolling stock that supports troop and supply movement. Those pieces of rolling stock require load plans for secondary loads in order to optimize establishing once they arrive in the area of operations.

Once personnel and equipment deploy, SOPs set priorities of work and specify procedures for the roles and responsibilities of all personnel to efficiently build intelligence warfighting function capabilities and capacities. A simple checklist associated with the layout diagram will make this process go faster, resulting in the intelligence warfighting function contributing to the fight sooner. Once established, not much difference exists between airborne and non-airborne infantry BCT intelligence.

Implications for Intelligence Synchronization

There are two types of plans: plans that will not work and plans that might work. Too often, BCT intelligence architecture plans do not work. Solving intelligence architecture challenges can lead to improved synchronization, targeting, and collaboration. The deployment and establishment of the intelligence architecture throughout the joint

U.S. Army photo by John Pennell

Paratroopers from the 4th Infantry Brigade Combat Team (Airborne), 25th Infantry Division, jump into Donnelly Training Area, AK, October 9, 2019, to kick off exercise Arctic Anvil 19-01.

forcible entry operation, combined with the speed and tempo of operations, make intelligence synchronization a challenge. There is too much information for seven to nine subordinate units to process and share in a single meeting for the meeting to be timely and of value. Supported by a functioning intelligence architecture, actual intelligence synchronization is continuous through current operations. When good leaders demonstrate the discipline to fight for information in a contested or degraded information environment, and move that information through the appropriate channels to the right person at the right time in a usable format, synchronization occurs.

Within the airhead, the BCT S-2 receives situational updates from battalion S-2s while shaping their understanding of the overall operational environment. Reporting must be constant; otherwise, a distorted understanding of the operational environment may emerge. Synchronizing with a higher headquarters at discrete points in time improves the BCT's understanding of the enemy's reaction to the airborne assault and updates the assessed immediate and most dangerous threats to the airhead. In an airborne joint forcible entry operation, it is the difference between achieving a relative position of advantage or not.

Conclusion

Solving the intelligence architecture plan is essential as the Army moves toward large-scale ground combat operations. Airborne- specific intelligence architecture plans ensure the intelligence war-fighting function operates effectively despite fighting initially with fewer people and systems. A functional intelligence architecture on a drop zone makes it so that intelligence can reach the airhead from echelons above brigade, and elements of the BCT S-2, battalion S-2s, and military intelligence company can synchronize. Even with the chaos of the airborne assault, a flexible and redundant intelligence architecture will support the commander's intent and help agile formations close with and destroy the enemy.

Endnotes

1. Department of the Army, Field Manual 3-99, *Airborne and Air Assault Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 6 March 2015), 3-9.

2. Department of the Army, Military Intelligence Publication (MI Pub) 2-01.2, *Establishing the Intelligence Architecture* (Fort Huachuca, AZ: U.S. Army Intelligence Center of Excellence, 4 February 2014), 1-1.

3. Office of the Chairman of the Joint Chiefs of Staff, Joint Publication 3-35, *Deployment and Redeployment Operations* (Washington, DC: U.S. GPO, 10 January 2018) III-3.

4. Department of the Army, MI Pub 2-01.2, 1-4.

5. Department of the Army, *Digital Intelligence Systems Master Gunner (DISMG) Handbook Version 2.0* (Fort Bragg, NC: FASTIC Team, DISMG Course Office, 2018), 62.

CPT Matthew Yannitello is a Military Intelligence Basic Officer Leader Course instructor at the U.S. Army Intelligence Center of Excellence. Previous assignments include battalion and brigade combat team S-2 observer-coach-trainer at the Joint Readiness Training Center as well as command and staff assignments in the 82nd Airborne and 10th Mountain Divisions.

From Military Intelligence to the Caisson: Always Serving Others

by First Sergeant David Scott

SSG Iron C. Thomley joined the U.S. Army on 11 January 2010 as a 35M (Human Intelligence Collector), a job he chose because of his lifelong goal to become a detective. Following Advanced Individual Training, SSG Thomley arrived at Fort Hood, Texas, where he was assigned to the 303rd Military Intelligence Battalion, 504th Expeditionary Military Intelligence Brigade, from 2010 until 2016. SSG Thomley honed his skills as a human intelligence collector during three deployments to Regional Command-East, Afghanistan.

SSG Thomley followed his operational time with 3 years of service as an instructor at the 35M 10-Level course at Fort Huachuca, Arizona. There he developed a passion for teaching and positively impacting young Soldiers and the future of the Military Intelligence Corps. This is also where SSG Thomley was introduced to B Troop, 4th U.S. Cavalry Regiment (Memorial), one of the most famous and most decorated regiments in the U.S. Army. SSG Thomley's roots, having been born on a peanut farm in Ozark, Alabama, and growing up around horses, along with his dedication to honoring the history and traditions of the military, led to his applying for the all-volunteer unit, ultimately changing the trajectory of his career. He was selected as a trooper within the regiment and sacrificed countless hours of his personal time assisting around the stables and performing in ceremonies.

As a result of his contributions to B Troop, SSG Thomley was given the opportunity to reenlist and transfer to the Fort Sam Houston Caisson Section in November 2018. This is one of only two active duty, full-time caisson units in the Army. It performs several ceremonies per week honoring fallen heroes at the Fort Sam Houston National Cemetery. Since his arrival, SSG Thomley has completed his horsemanship training and is assisting in standing up a second team within the section.

While SSG Thomley loves the work he is doing with the section and what he calls the "equine therapy" of working around horses, he is very clear about his true motivation and mission. "The caisson is the last interaction with the military for Families of the fallen…that is what is important. It's all about the Families and honoring their loved ones."

SSG Thomley plans to continue his Army career until retirement and will complete his bachelor's degree in intelligence studies with an emphasis in human intelligence later this year. He also hopes to continue serving in ways that allow him to employ his passions for teaching and working with horses.

Photo by Lara Poirrier

CPT Ariel Alcaide, SGT Iron Thomley, SSG Phillip Lovato, COL Keith McVeigh, SGT **Kascia Vigil, and CPT Omar PadroCortes, the five graduates of B Troop, 4th** U.S. Cavalry Regiment (Memorial) Cavalry Riding School, are presented with their spurs May 5, 2017, at Brown Parade Field.

1SG David Scott is the First Sergeant for Headquarters and Headquarters Company, 470th Military Intelligence (MI) Brigade (Theater). His previous assignment was MI company observer-coach-trainer at the National Training Center. 1SG Scott holds an associates of applied science degree in intelligence operations and is a digital intelligence systems master gunner. His operational experience includes three deployments to Iraq and Afghanistan.

DID YOU KNOW?

A caisson is a two-wheeled cart designed to carry artillery ammunition. Caissons are also used to bear the casket of the deceased in some state and military funerals, for example, for burials at Arlington National Cemetery and for state funerals for U.S. government dignitaries, including the President of the United States.

by Mr. Chet Brown, Chief, Lessons Learned Branch

Introduction

What do rock and roll lyrics, a Buddhist koan, and intelligence preparation of the battlefield (IPB) lessons learned have in common? You'll find out if you keep reading.

Earlier this year, the Center for Army Lessons Learned produced a Combat Training Center (CTC) bulletin presenting lessons learned trends observed throughout fiscal year 2018. While the 119-page bulletin contains a host of intelligence lessons learned, best practices, and recommendations to reverse negative trends, it mentions IPB only once. This indicates that the improvements made to training and professional military education over the past several years are having a positive effect. This positive news, combined with the updated ATP 2-01.3, *Intelligence Preparation of the Battlefield*, comes at the perfect time as I draft this lessons learned column.

A Key Factor: Time

The most critical element of the mission[1] or operational variables[2] affecting IPB performance is time. The Rolling Stones tell us that "time waits for no one"[3] while contradicting themselves by claiming that "time is on my side."[4] Sorry, Mr. Jagger, but time is definitely not on our side. Current operations doctrine describes the scarcity of time by explaining that "commanders realize that uncertainty and [the lack of] time preclude achieving complete understanding before deciding and acting."[5] IPB seeks to eliminate or reduce uncertainty as much as possible to support the commander's decision making. Unfortunately, it takes time to provide high-quality products and conclusions—time we don't have, as it keeps on "slippin', slippin', slippin' into the future."[6]

Other references to time are present throughout FM 3-0, *Operations*, and many other Army doctrinal publications. Frequent mention is made of tasks to gain time, the shortest time, tempo, speed of decision making and action, depriving the enemy of time, etc. Depriving the enemy of the time to react effectively to our action is a major benefit of implementing the techniques that John Boyd, U.S. Air Force fighter pilot and military strategist, provides in discussing the observe, orient, decide, act loop.[7] But, how are we supposed to gain time as FM 3-0 calls upon us to do? We cannot acquire or store time as we are able to with other resources. I wish we could save "time in a bottle,"[8] but it's impossible. Perhaps gaining time is a way of describing the reduction of time required to perform tasks through increased efficiency. I hope that is what FM 3-0 compels us to do, as the rest of this column offers techniques others have used to perform IPB more efficiently. The S-2 section and military intelligence (MI) company personnel shared the following best practices to help us perform IPB tasks more quickly, more accurately, and with improved fidelity to better support planning and operations. Some of these examples are truly doing more with less.

Familiarity breeds contempt. This may be true for superior-subordinate relationships, but it's completely the opposite when describing IPB tasks. Familiarity improves performance. Some folks call it muscle memory, others invoke author Malcolm Gladwell's frequently quoted yet disputed 10,000-Hour Rule[9] to achieve mastery of a skill. That's a lot of time: 3½ years' worth of doing IPB every day for 8 hours. I don't know of any S-2 who has that much time to devote entirely to IPB. Nevertheless, it's clear that the more familiar we become with doing the task, the better we become at performing the task.

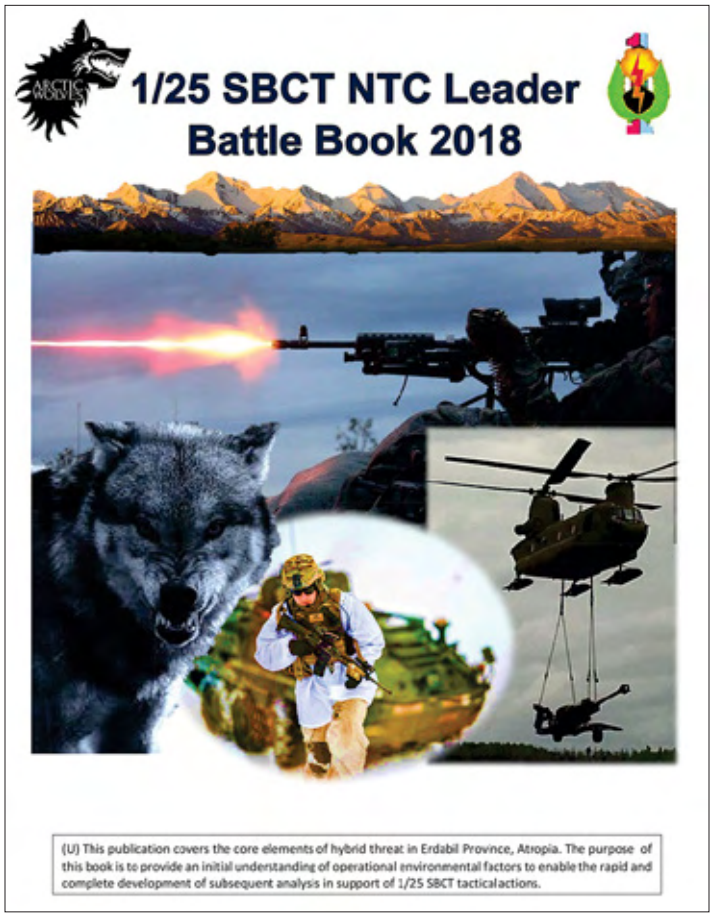
Do you remember the first time you disassembled, cleaned, reassembled, and performed a function check with your assigned weapon? I do—including the useful suggestions offered in a confidence-inspiring, mint-fresh whisper from my pleasant and friendly combat-veteran drill sergeant. Compare your initial experience to your most recent instance. You're more likely able to accomplish the task faster now in the rain, at night, and in extreme

temperatures than your first time. MI leaders identify and exploit opportunities to practice IPB tasks as often as possible to instill in their Soldiers the confidence, speed, and quality of IPB tasks through familiarity. In the time it takes to brew a pot of coffee or drop a K-Cup[10] in the machine, you can ask a Soldier to identify the avenues of approach on a printed map. Throughout the day or over several days, ask another Soldier to identify the mobility corridors. Ask another to identify the obstacles. You get the idea. These quick yet simple engagements breed familiarity.

Another effective technique is to introduce these quick tasks using analog methods and then to evolve using automation. Any discrete IPB performance measure can be practiced periodically or episodically throughout the duty day. Ask a Soldier to identify the signature pieces of equipment that identify one element from another in an actual or notional order of battle. Ask another Soldier which asset in the unit's task organization is most capable of detecting or identifying the item. To help intelligence analysts become familiar with solving unanticipated IPB problems and to further develop analytical skills, some MI leaders have used brainteasers and Mind Benders[11] delivered as pop quizzes. While all the aforementioned 5-minute exercises consume time in garrison, the familiarity and benefit of practice results in more efficient performance in the field. One of the enduring aspects of CTC rotations is that most intelligence personnel—particularly S-2s—experience a CTC as a one-and-done event. Rarely does an S-2 get a second opportunity to experience a National Training Center rotation as an S-2 with the same commander, primary staff personnel, and subordinates. Discounting serving as a guest observer-coach-trainer or participating in a ride-along, rare are the opportunities to become familiar with the CTC's operating environment and conditions firsthand time and time again. How do we acquire the familiarity of performing the steps in IPB if we're unable to conduct the repetitions and sets (reps and sets) at a CTC?

Don't Reinvent the Wheel—Refine It

The CTC cadre and fellow MI leaders enthusiastically provide examples, tips, and IPB products to help you be successful during a CTC rotation. The resources available on the CTC websites, in materials provided, or identified during the Leader Training Program, help you avoid having to start from scratch. The same is true for the products, lessons learned, and best practices routinely offered by brigade combat team (BCT) S-2s and MI company commanders. Over the past several years, the MI professionals of the Arctic Wolves of 1st Stryker BCT, 25th Infantry Division, have produced and updated a National Training Center *Leader Battle Book*.



The book has proven to be an item that both helps build task familiarity and provides a foundation for IPB steps 1 and 2 on which you can build or refine. The reference is available on the common access card-enabled side of the Intelligence Knowledge Network main page https://www.ikn.army.mil/ MI Lessons Learned link.[12] The content of the book exceeds most email size limits, so you'll have to download it from our website. This limitation alone should give you an indication of the detail and quality the Arctic Wolves provide.

Seek, ask, and use what others have done in similar missions or areas to save time and effort. Few places or missions are the first of their kind or location. There's a good chance that if you're being asked to perform IPB for a particular area or training mission, another Soldier, Marine, or military professional has an IPB product that could help save you time. If in doubt, give us a shout. The lessons learned enterprise extends throughout the operational environment, which includes all the warfighting functions and joint services.

Speak Your Commander's Language

Communicate the results of IPB using the means and modes that best support your commander's rapid comprehension and integration into his or her staff's processes. While the majority of IPB steps result in graphic products,

opportunities exist to augment graphics with text and text with graphics, and to discuss the results during briefings to support visual, textual, and aural receipt. Regardless of the presentation method chosen, MI personnel who build or contribute to building IPB products must be fluent in the language of our profession—ADP 1-02, *Terms and Military Symbols*.[13] Using terms and military symbols supports rapid situational understanding, comprehension, and use by every warfighting function. Being conversant in terms and symbols is the minimal level of performance. You achieve fluency when you are able to understand and communicate using the principles and fundamentals of your supported unit's doctrine. Being fluent eliminates the time needed to decipher unique terms or graphic symbols. A useful tool to enhance communication, which can be built in advance of any warning order, is a terms of reference (ToR) guide.

In 2016, the U.S. Army Intelligence Center of Excellence Lessons Learned Team observed another 25th Infantry Division BCT during a Lightning Forge home station training exercise during which they used a brigade intelligence support element (BISE) ToR guide. The division G-2 applied lessons learned from previous exercises to build and implement the ToR throughout the division. The ToR clarified roles and responsibilities for BISE leaders. The unit used the ToR to—

- Establish task-direction channels and authority among BISE members and sections.
- Assign scopes of responsibility or authority in providing intelligence support.
- Identify which positions were responsible for supporting specific events/products.
- Establish expectations of performance as the BCT and MI company transition into the BISE.

The division G-2 mentored subordinate BCT S-2s by directing them to tailor the ToR to their respective unit's knowledge, skills, abilities, task organization, standard operating procedures, and doctrine.

Using Doctrine Appropriately Saves Time for Everyone

Understand your unit's doctrine. This recommendation is linked with being able to speak your commander's language. As intelligence professionals, we all must read, understand, and apply operations and intelligence doctrine regardless of the echelon, unit type, or location of our respective assignments. Successful MI personnel become proficient in their supported unit's doctrine through self-development. If assigned to a maneuver enhancement brigade, an MI Soldier should read FM 3-34, *Engineer Operations*.[14] If assigned to a field artillery brigade, one should know FM 3-09, *Field Artillery Operations and Fire Support*.[15] If assigned to an Army Aviation unit, one should know FM 3-04, *Army Aviation*, and so on.[16] The aforementioned references are starting points. The various field manuals, Army doctrine publications, Army techniques publications, training circulars, and their inevitable successive updates (change 1, change 2, etc.) provide continuous learning material.

Those who understand the origins of doctrinal principles, techniques, and specifications are better able to revise operations or develop best practices that improve unit performance. Those who attempt doctrinal shortcuts without understanding the underlying doctrinal foundations often impede operations or fail to achieve the intended results of improved performance (speed, quality, and accuracy) or resource conservation (time, personnel, and equipment). Imagine the impact of planning a route through mountainous terrain without understanding the meaning of contour lines and intervals. A direct route across several steep ridges may seem to be a shortcut to someone who doesn't know what closely spaced contour lines indicate. A Soldier who knows the meaning of contour lines and their placement will identify a route requiring less time and effort to travel. Using doctrine appropriately enables a rapid initial common understanding, which saves time for both the speaker and the listener. Using doctrinal terms accurately, clearly, and concisely to convey the results of IPB saves time for everyone.

Who Leads the IPB Band?

Everyone has a part to play in IPB. As mentioned earlier, it is a staff function. Every staff section can (and should) contribute to the unit's IPB effort. This is especially true when we're all pressed for time in the expected high tempo of large-scale ground combat operations and personnel in the command post will be doing "a half a million things all at a quarter to three."[17] We can accomplish more together than we can individually.

The first sentence in the introduction to ATP 2-01.3 identifies IPB as a collaborative staff function and specifies the intelligence officer is responsible for leading the IPB process. S-2's don't usually have tasking authority over fellow staff members. If IPB is a staff function, who leads the IPB Band? Is the officer (deputy commanding officer/executive officer) who leads the staff the leader of the band or only the lead singer? Does the S-3's vested authority represent the role of the rhythm or the lead guitarist? I liken the S-2's role to that of the bass guitarist in a rock band. Successful bands are similar to a well-functioning staff in that both are

collaborative partnerships that depend upon everyone knowing and performing their individual parts well to support the overall effort. In this analogy, the bass player has the most crucial role in the band. Everyone in the group depends on the bassist's performance. The bass provides the rhythm, the structure, and the harmonic foundation on which all the other band members depend.[18] If the guitarist or keyboardist makes a slight mistake, hardly anyone will notice. If the bassist makes a mistake, everyone in the band will know and ultimately the audience will hear that something is wrong.[19] If a unit's IPB is found to be substandard, everyone in the staff will look to the S-2.

U.S. Army photo by SGT Christopher Hernandez, 345th Public Affairs Detachment

SSG Keenan McCarter, a baritone vocalist with the Soldiers' Chorus, performs a musical number with the Six String Soldiers during the 2018 U.S. Army All-American Bowl Awards Show January 5, 2018, at the Lila Cockrell Theatre in San Antonio, TX.

Sometimes the S-2 is not the single point of failure for the unit's IPB missteps. The S-2, the BISE, and the contributing warfighting function staff members may have completed a thorough and accurate IPB process resulting in excellent products. Sometimes units do not integrate IPB products into the orders writing or military decision-making process. We have seen this happen several times when observing home station training or a unit at a CTC. "If a unit's staff fails to integrate any of the unit's IPB products during the military decision-making process, is the operational result still attributed to an intelligence failure?" The answer is as readily available as the response to the koan, "If a tree falls in the forest and no one is around to hear it, does it make a sound?" Unfortunately, "time after time"[20] MI personnel hear of either operational successes or intelligence failures. Rarely do we hear of operational failures or intelligence successes—albeit often with good reason.

The "intelligence failure" quip emphasizes that while IPB is a staff function, the intelligence officer must drive the process and integrate IPB products into the unit's planning, decision making, and information collection efforts to achieve operational success. Now and then, the S-2 must step onto center stage and play the bass as the lead instrument, like Geddy Lee.[21] Disciplined initiative is sometimes required to ensure a unit's success.

You're Not in This Alone

Invite—and welcome—your unit's warfighting function professionals to the IPB party. Like a great rock band, it takes time and practice for a staff to come together and operate as a cohesive team. It will take time and multiple repetitions before our fellow staff members become comfortable with contributing to IPB. You can read all about music theory, understand musical notation, or strum a few guitar chords, but that doesn't make you ready to play in a band on stage. There is the potential for some friction in being only "book smart" in doctrine rather than having the "street smarts" that our warfighting function colleagues attained through years of practice in their respective fields.

Conclusion

When performing IPB in the high tempo of large-scale ground combat operations, it's unlikely you'll ever say, "I have 'too much time on my hands.' "[22] So, leverage the knowledge and experience possessed throughout the staff to support IPB product development. Enlisting staff sections to assist in determining how the enemy will array or employ artillery assets, fire direction systems, air defense systems, aviation, communications, reconnaissance, and other capabilities often provides an expert-level practitioner's assessment more rapidly, more accurately, and with more fidelity than MI personnel are able to produce on their own. These experts and their respective leaders are more likely to consider the IPB results they were involved in producing. The key is not to wait until a collective training event to solicit your staff colleagues' IPB input. Involve them in your familiarity efforts early and often. Ask a field artillery officer or a noncommissioned officer to comment on your MI Soldiers' selection of high-value targets or the estimated placement of enemy artillery in an enemy course

of action. Have the warfighting experts discuss employment considerations of their assets—comparing and contrasting with how an enemy or threat will employ their forces. This also builds upon IPB being a staff effort and not only an intelligence task.

Musicians of Mars

There is still a tendency in each separate unit…to be a one-handed puncher. By that I mean that the rifleman wants to shoot, the tanker to charge, the artilleryman to fire…that is not the way to win battles. If the band played a piece first with the piccolo, then with the brass horn, then with the clarinet, and then with the trumpet there would be a hell of a lot of noise but no music. To get harmony in music, each instrument must support the others. To get harmony in battle, each weapon must support the other. Team play wins. You musicians of Mars…must come into the concert at the proper place at the proper time.

— MG George S. Patton Jr.
Address to the 2nd Armored Division, 8 July 1941[23]

Musicians listen to, and sometimes incorporate into their own compositions, the riffs, melodies, or lyrics of other artists. Hopefully, MI personnel can incorporate the techniques others have shared with us to save time in performing IPB. I continue to be amazed at the level of sharing and commitment to fostering success throughout the MI Corps at the tactical level. You've definitely proven that we care about, and are committed to, the success of those at the pointy end of the spear. You've also provided an answer to Chicago's lyric, "Does anybody really care (care about time)?"[24] Yes, MI professionals definitely do care about time.

Endnotes

1. "The mission variables are mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC)." Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: U.S. Government Publishing Office [GPO], 17 May 2012), 5.

2. "Eight interrelated operational variables: political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT)." Ibid.

3. The Rolling Stones, "Time Waits for No One," *It's Only Rock 'n Roll*, Rolling Stones Records, originally released in 1974.

4. The Rolling Stones, "Time Is on My Side," *12 x 5*, London Records, originally released in 1964.

5. Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. GPO, 6 October 2017), 1-5. Change 1 was issued on 6 December 2017.

6. Steve Miller Band, "Fly Like an Eagle," *Fly Like an Eagle,* Capitol Records, originally released in 1976.

7. Robert Coram, *Boyd: The Fighter Pilot Who Changed the Art of War* (New York: Back Bay Books/Little, Brown and Company, 2002).

8. Jim Croce, "Time in a Bottle," *You Don't Mess Around with Jim,* ABC Records, originally release in 1972.

9. Malcolm Gladwell, *Outliers, The Story of Success* (New York: Little, Brown and Company, 2008).

10. This is a reference to the Keurig® My K-Cup®, Keurig Dr Pepper Inc.

11. This is a reference to Mind Benders®, created by The Critical Thinking Co™, which are deductive thinking puzzles that help to develop logic, reading comprehension, and mental organization skills.

12. The Intelligence Knowledge Network (IKN) is a knowledge management tool that hosts discussion forums. IKN serves as a single point of entry to the U.S. Army Intelligence Center of Excellence and other intelligence community websites, and hosts a variety of public and private web applications that support the intelligence community.

13. Department of the Army, ADP 1-02, *Terms and Military Symbols* (Washington, DC: U.S. GPO, 14 August 2018).

14. Department of the Army, FM 3-34, *Engineer Operations* (Washington, DC: U.S. GPO, 2 April 2014).

15. Department of the Army, FM 3-09, *Field Artillery Operations and Fire Support* (Washington, DC: U.S. GPO, 4 April 2014).

16. Department of the Army, FM 3-04, *Army Aviation* (Washington, DC: U.S. GPO, 29 July 2015).

17. Huey Lewis and the News, "The Heart of Rock & Roll," *Sports*, Chrysalis Records, originally recorded in 1983.

18. "Understanding the Bass Player's Function in a Band," Dummies website, accessed 23 July 2019, https://www.dummies.com/art-center/music/bass-guitar/understanding-the-bass-players-function-in-a-band/.

19. Andrew Pouska, "The Role of the Bass in Music," Leading Tone Media, LLC, accessed 23 July 2019, https://www.studybass.com/lessons/basics/the-role-of-the-bass/.

20. Cyndi Lauper, "Time After Time," *She's So Unusual,* Portrait Records, originally released in 1983.

21. Geddy Lee is a singer, songwriter, bassist, and keyboardist for the recently disbanded rock band Rush. Wikipedia, s.v. "Rush (band)," last modified 20 July 2019, 13:03, https://en.wikipedia.org/wiki/Rush_(band).

22. Styx, "Too Much Time on My Hands," *Paradise Theatre,* A&M Records, originally released in 1981.

23. Center for Army Lessons Learned, *Handbook No. 19-08, Musicians of Mars, Volume III: The Cobra Strikes, Tactical Vignettes for Professional Discussion* (February 2019): iii, https://usacac.army.mil/sites/default/files/publications/19-08.pdf.

24. Chicago, "Does Anybody Really Know What Time It Is?" *Chicago Transit Authority*, Columbia Records, originally recorded in 1969.

Reference

Department of the Army. Army Techniques Publication 2-01.3, *Intelligence Preparation of the Battlefield*. Washington, DC: U.S. GPO, 1 March 2019.

by Lori S. Stewart, USAICoE Command Historian

At 0100 on 20 December 1989, approximately 13,000 American troops under the operational command of the XVIII Airborne Corps airlifted into Panama to join the 13,000 Soldiers and Marines already stationed there. Their mission was to bring down dictator General Manuel Noriega. The United States had backed Noriega over the years as a means of preventing the spread of communism. By the late 1980s, however, U.S. relations with Noriega had deteriorated after an American grand jury indicted the general for narcotics trafficking and other criminal activities. Growing tensions presented an unacceptable threat to American citizens living in Panama. When Noriega's Panama Defense Forces (PDF) murdered an American Marine, it was the catalyst to United States military intervention.

On December 17, President George H. W. Bush ordered the execution of Operation Just Cause. The objectives were several: to protect American citizens, to ensure the safe operations of the Panama Canal, to support the establishment of democratic institutions, and to apprehend Noriega. Just Cause, a short-lived but complex operation, would be the first test of joint operational planning and execution called for by the Goldwater-Nichols Act of 1986.

Goldwater-Nichols Act of 1986

"The Goldwater-Nichols Department of Defense (DoD) Reorganization Act of 1986, sponsored by Senator Barry Goldwater and Representative Bill Nichols, was enacted primarily to improve the ability of U.S. armed forces to conduct joint (interservice) and combined (interallied) operations in the field, and secondarily to improve the DoD budget process. The act contained three major changes: it greatly strengthened the influence and staff of the Joint Chiefs of Staff (JCS) chairman, compared to those of the service chiefs and military departments; it increased the authority and influence of the unified combatant commands that control U.S. forces in the United States and around the world; and it created a "joint officer specialization" within each service to improve the quality of officers assigned to the Joint Staff."[1]

Using the element of surprise and the cover of darkness, an overwhelming U.S. military force neutralized the PDF within 8 hours. One decisive advantage was that the Americans were familiar with Panama and had been training and rehearsing similar tactical exercises for several months. The United States also had superior technology, such as night-vision devices, air supremacy, and sufficient airlift to attack multiple targets simultaneously.

Operations in Panama shifted from combat to peacekeeping only 2 days after the invasion, although American forces continued to face random violence and hostage situations in urban areas over the following weeks. Noriega had fled as soon as the invasion started, and it would take another 2 weeks to take him into custody.

From a tactical intelligence standpoint, conditions during Operation Just Cause were described as "ideal." Before the invasion, the 470th Military Intelligence (MI) Brigade was already in Panama and had been monitoring the PDF's and Noriega's movements for years. Its personnel knew the strength and location of PDF units and had identified targets of military and political value. According to one S-2 who deployed with the XVIII Airborne Corps, the intelligence systems were already "intact and flowing [and] you [could] just plug into them to get what you wanted."

Human intelligence (HUMINT) proved to be the most important and effective collection effort. At this time, MI units had a higher ratio of signals intelligence (SIGINT) to HUMINT assets. As a result, SIGINT operators often found themselves conducting collection missions for which they were not specifically trained. For example, years later SGM Wilfredo Nieves, a voice interceptor with the 747th MI Battalion, 470th MI Brigade, remembered his platoon being tasked to process detainees. "The platoon did not have any experience in this type of operation since the entire platoon was SIGINT operators and not HUMINT operators." The platoon, however, quickly established a compound and in 2 weeks processed more than 500 detainees, "collect[ing], exploit[ing],

U.S. Army Photo

The 470th Military Intelligence Brigade in Panama.

and disseminat[ing] valuable intelligence which led to numerous kill/captures of enemy forces." Because of HUMINT personnel shortages, SIGINT linguists also found themselves conducting document exploitation and serving as interpreters where needed.

HUMINT personnel were kept busy collecting and disseminating intelligence on the locations of PDF personnel and weapons caches, as well as trying to identify Noriega's sanctuaries. The 470th chose its finest Panama expert to assist United States Army South in these efforts. SSG Tony Bonilla served as First Sergeant of C Company, 746th MI Battalion, and had recently led the unit to its title as Director of Central Intelligence HUMINT Collector of the Year for Fiscal Year 1989. Bonilla understood the Latin-American culture and, after nearly 3 years in Panama, was intimately familiar with the operations of the PDF. He had established an extensive HUMINT network to obtain real-time information on troop movements and internal PDF conflicts, morale, and will to fight. In addition, a failed October 1989 coup to oust Noriega had provided valuable intelligence on the PDF's capabilities.

Using his insight into the mindset and intentions of the PDF commanders, Bonilla and his team spent hours on the telephone persuading many of the commanders in outlying military zones to surrender without a fight. His persuasive argument was that they should "serve their country by living to see its rebirth instead of dying needlessly." Their peaceful capitulation saved both American and Panamanian lives and prevented the unnecessary destruction of Panama's towns and villages.

Bonilla then focused all his available intelligence assets on tracking the whereabouts of Noriega. He again took to the phones to collect information from the Panamanian people. The resulting response threatened to overwhelm the intelligence staff. Although the number and quality of the reports inhibited careful analysis, this network provided critical information instrumental in flushing out Noriega. Bonilla's network also produced information leading to the discovery of the largest weapons cache found during the entire operation.

In January 1990, MG Marc A. Cisneros, U.S. Army South Commander, awarded SSG Bonilla the Bronze Star for his efforts during Operation Just Cause. CW2 Alfred Villasenor, Headquarters and Headquarters Company 470th MI Brigade, also received a Bronze Star. Villasenor, a task force liaison officer, briefed raiding parties, participated in 11 raids,

Photo in USAICoE Historical Document Collection

MG Marc Cisneros, U.S. Army South Commander, presents the Bronze Star to SSG Tony Bonilla in January 1990.

and acted as the liaison for the task force during operations at the Apostolic Nunciature where Noriega was eventually located and apprehended. At the award ceremony, MG Cisneros highlighted the often unsung nature of intelligence operations when he stated, "In an engagement such as Just Cause, the attention and publicity often goes to fighting elements. However, without soldiers like Bonilla…and Villasenor, the mission could not have succeeded."

While other intelligence sources contributed, HUMINT operations were the most effective in Operation Just Cause, during both the combat and peacekeeping phases. HUMINT was successful due partly to the fact that the majority of personnel were already familiar with the area of operations—its culture, people, terrain, and political and physical infrastructure—and the local population was already familiar with U.S. forces. Even given this "ideal" situation, mission requirements often stressed available intelligence capabilities. MI personnel, however, proved to be flexible and adaptable and materially contributed to the successful accomplishment of United States objectives in Panama.

Endnote

1. *The Oxford Companion to American Military History*, encyclopedia.com, s.v. "Goldwater-Nichols Act," accessed June 26, 2019, https://www.encyclopedia.com/history/encyclopedias-almanacs-transcripts-and-maps/goldwater-nichols-act.

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