Military Review

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Soldiers assigned to the 11th Engineer Battalion, 2nd Infantry Division Sustainment Brigade, 2nd Infantry Division/ROK-U.S. Combined Division, conduct bridge building operations alongside Republic of Korea Army (ROKA) soldiers assigned to the 908th Cross River Company, 3rd Engineer Brigade, III Corps, and 11th Chemical Battalion, I Corps, at the Imjin River, South Korea, on 15 March 2023. Warrior Shield is a combined training event with the ROK Army, highlighting the combined aspects of military opera-tions. (Photo by Spc. Gwang Neung Kim, U.S. Army)

Wars may be fought with weapons, but they are won by men.
—George S. Patton Jr.

As a career armor officer, I often looked to this quote from one of armor's paragons as an accurate description of the conduct of warfare. Over the years, as I gained both experience and knowledge, I realized just how limiting a description this was of an Army's preparation and actual execution of war.

Patton's quote, though properly highlighting the conduct of war as a human endeavor, makes assumptions about both men and machines. Key among these assumptions is that the men and women engaged in combat are ready for its application. Warfighters require adequate tools and the spirit to win, but they also must be properly trained, organized, led, practiced, and resourced to have any chance of winning. Where Patton's aphorism is sufficient to inspire and motivate, it is insufficient for the professional soldier.

In "What Constitutes a Capability?," Lt. Cols. Kyle Hatzinger and Molly Schaefer provide an illuminating article on the war in Ukraine that provides the latest reminder of how to build true warfighting capability.[1] Referring to it as "a terrible acronym for a terrific idea," the authors reaffirm the effectiveness of our Army's application of the doctrine, organization, training, materiel, leader and education, personnel, facilities, and policy (DOTMLPF-P) initialism. Doctrine's "D" is in the first position not because it provides a great lead for a handy mnemonic but because building a warfighting capability always begins with doctrine. We devise how we are going to fight based on experience, current conditions, and possible futures. This is where the blueprint for readiness has its intellectual foundation. Every component of DOTMLPF-P must follow doctrine in a logical and integrated way.

Preparing the force to win today and tomorrow is the daily concern of the Training and Doctrine Command, the Combined Arms Center, and Army Futures Command. These key elements of the institutional Army encompass and drive every aspect of integrating DOTMLPF-P. The Army's obligation is to effectively organize, lead, and train every soldier. They must have dependable equipment and be afforded the time and space to practice its application. Resourcing and synchronizing each step on this road to readiness is a complex endeavor but essential to creating a winning force.

Col. Andrew Morgado, U.S. Army Director, Army University Press

Current conditions complicate the Army's current rendition of the DOTMLPF-P model. Daily reports from the Ukrainian front and Gaza reveal a steady stream of both novelties and anachronisms, from drones to trench warfare. Parsing out true lessons learned from basic observations requires a great deal of discrimination and judgement. Concurrently, the Army is "transforming in contact" as it actively competes with adversaries around the world and across the continuum of conflict.[2] This drives urgency for change and a legitimate need for speed, but buyer beware—acceleration should not mean expediency. While process will not win the war, the intellectual work of putting the DOTMLPF-P puzzle together is ignored or short-circuited at the Army's peril.

Throughout the Army's nearly 250 years of history, these periods of transformation, in and out of crisis, are a familiar occurrence. In each of these periods, getting to a shared understanding, fostering innovation, and solving thorny problems began with the exchange of ideas and debate. Our hope is that the reader of this current edition of *Military Review* engages with its content and joins the conversation. ∎

Notes

Epigraph. George S. Patton Jr., "Mechanized Forces," *Cavalry Journal* 42, no. 179 (September 1933): 8.

1. Kyle J. Hatzinger and Molly J. Schaefer, "What Constitutes a Capability? Leveraging the Ukraine Experience to Define an Overused Term," *Military Review* 105, no. 2 (March-April 2025): 53–66.

2. James E. Rainey, "Continuous Transformation," *Military Review* 104, no. 5 (September-October 2024): 10–26, https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/SO-24/SO-24-Continuous-Transformation/.

THE BRITISH ARMY REVIEW

WINTER 2024 / ISSUE #190

DEFENCE IN THE DIGITAL AGE

THE JOURNAL OF BRITISH MILITARY THOUGHT

ARMY

Under the direction of the Centre for Historical Analysis and Conflict Research, the *British Army Review* is intended to provide a forum for the discussion of all matters of professional interest to the soldier. To read the latest edition of the *British Army Review*, scan the QR code or visit https://chacr.org.uk/2024/12/04/the-british-army-review-190-defence-in-the-digital-age/.

2025 General William E. DePuy Special Topics Writing Competition

This year's theme: "The challenges of planning for security in a world that is increasingly borderless, multicultural, and economically interdependent."

Developments in modern technology, changing global demographics, increasingly complex economic ties among nations, and the speed and ease of population mobility have dramatically highlighted factors that now must be considered and dealt with to achieve success in modern conflicts. The age of empires that overtly built on the assumption that some states had a natural Darwinian entitlement for military conquest of other states viewed as racial or cultural inferiors has largely disappeared. However, while the age of empires is arguably over, the myths of empire remain. Different permutations of the same instinct to pursue imperial ambitions, but in a different guise, appear to remain powerful underlying elements of aggressor ideologies, nationalism, racial animus, some forms of organized religion as well as international economic and criminal cartels of one stripe or another. It is also a key impetus for resurgent revanchism, a state posture seeking to retaliate against other states for perceived historical wrongs that animates the desire to recover lost territory.

The intent of this year's DePuy competition is to identify by close examination where such factors strongly influence today's operational environment and to identify specific strategies to either mitigate their influence or provide solutions for exploiting them to achieve the accomplishment of strategic objectives. A few examples of such possible topics are provided below. These are provided primarily to encourage authors to identify on their own the most salient of any of a myriad of other such topics relevant to the theme.

- How are China, Russia, and the United States viewed by the populations in Central and Southern Africa as each nation competes to exploit Africa's natural resources? How are they viewed by the international community with regard to their presence in Africa?
- Does racism, tribalism, ideology, and religion play a role in China, Russia, Iran, and other states where conflict has emerged or is emerging? How do they manifest?
- Does regionalism, racism, ideology, or history play the most prominent role in Chinese aggression in the Indo-Pacific region where increasing tensions and potential for conflict are emerging? How do they manifest?
- How much influence do cartels of different varieties and international business conglomerates have on foreign policy dealing with the U.S. military deployments overseas? Do such entities view themselves as virtual independent nations without an obligation of loyalty to traditional nation states?
- What long-term impact would a large-scale war (non-nuclear) between China and the United States have on their mutual economies? Impact the world order?

Competition opens 1 January 2025 and closes 31 May 2025

1st Place: $1,000 and publication in *Military Review*
2nd Place: $750 and consideration for publication in *Military Review*
3rd Place: $500 and consideration for publication in *Military Review*

Prize money contributed by the Association of the United States Army

For information on how to submit an entry, please visit https://www.armyupress.army.mil/DePuy-Writing-Competition/.

Write for *Military Review*
Suggested Themes and Topics for 2025

- From a U.S. military perspective, what are the greatest near-term external threats to the United States? Why, and how?

- What are the greatest long-term threats (looking out twenty-five years)?

- Many observers assert that Russia, China, and Iran already see themselves at war with the United States. Is there evidence that these and other actors are conducting actual "war" against the United States, and what are the probabilities of their success?

- What confederated blocs of nation-states are now aligned against the United States, and how do they cooperate with each other? What types of treaties or agreements do they have that outline relationships they share to reinforce each other?

- Which U.S. adversaries best synchronize their DIME (diplomacy, information, military, and economic) elements of power to achieve their strategic goals? Contrast and compare employment of DIME by China, Russia, Iran, and the United States. How should the United States defend itself against foreign DIME?

- Do China, Russia, and Iran have "Achilles' heels"? What are their centers of gravity? If each has one, how can it best be attacked/exploited?

- What do China, Russia, and Iran view as the United States' "Achilles' heel" or center of gravity? How specifically are they attacking it?

- What is the role now of the U.S. Armed Forces in Africa? Far East? Middle East?

- What does the future hold for nanoweapons? Electromagnetic warfare? Artificial intelligence? Information warfare? How is the Army planning to mitigate effects?

To learn more about submitting an article to *Military Review*, scan the QR code or visit https://www.armyupress.army.mil/Publish-With-Us/#mr-submissions.

Soldiers assigned to 2nd Battalion, 278th Armored Cavalry Regiment, Task Force Reaper, conduct training operations during the Jade Cobra V exercise in the U.S. Central Command's area of responsibility 5–16 January 2025. The Jade Cobra bilateral series between the United States and Jordan is designed to strengthen interoperability, increase warfighting readiness, and set the conditions for the culminating exercise, Desert Tempest 2025. (Photo by Master Sgt. Alexa Brumfield, U.S. Army)
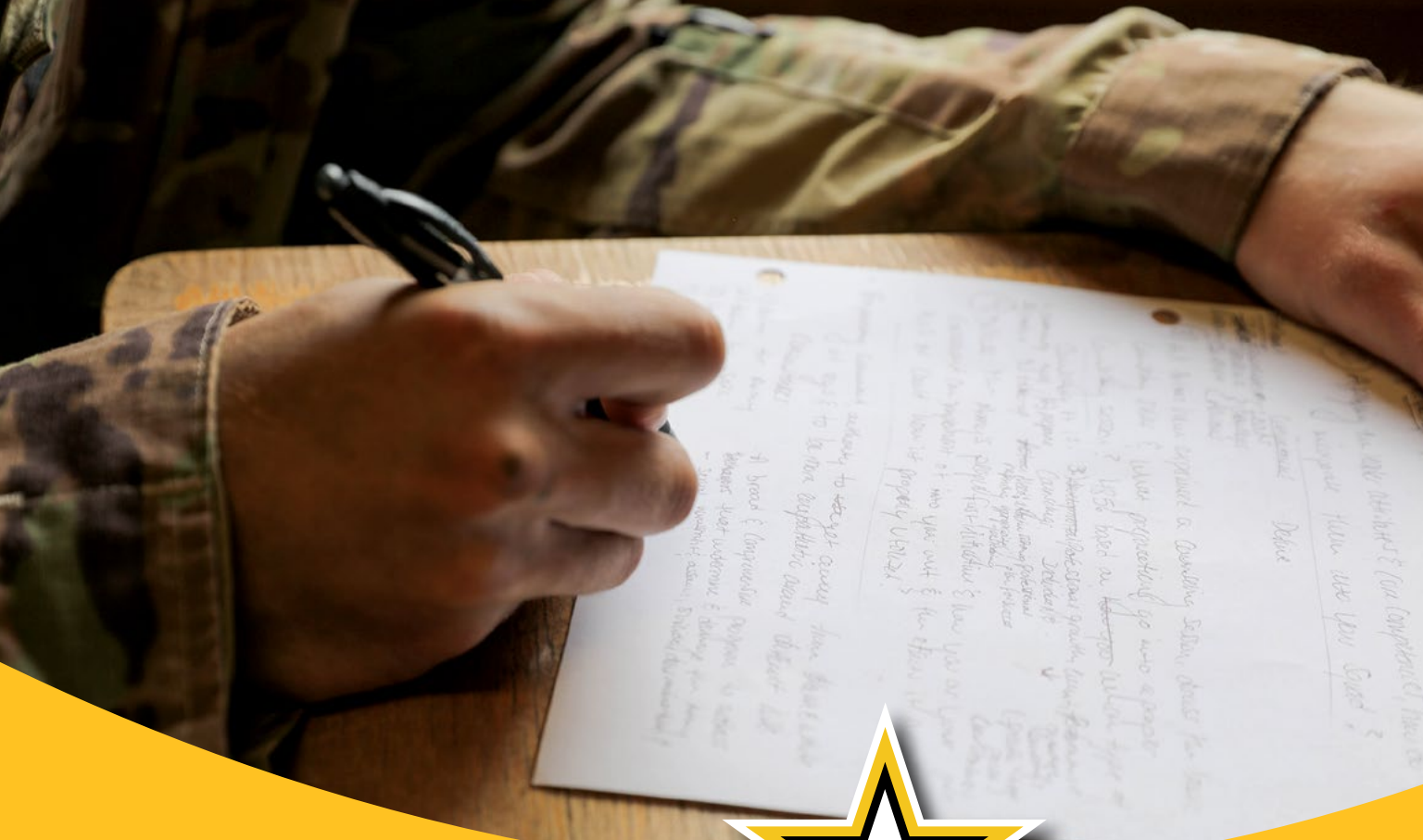
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Army University Press

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An artist's rendition of the commencement of Operation Glowing Symphony, a broad, synchronized cyber and psychological operations attack conducted against terrorist and administrative operations of the Islamic State by elements of the U.S. military with other agencies' participation from 2016 to 2017. (AI image by Gerardo Mena, Army University Press)

Exploring Artificial Intelligence-Enhanced Cyber and Information Operations Integration

Brig. Gen. Russell E. McGuire, JD, Virginia Army National Guard

Maj. Andre Slonopas, PhD, Virginia Army National Guard

Capt. Edward Olbrych, Virginia Army National Guard

The integration of artificial intelligence (AI) into military information operations (IO) cannot be left to the random evolution of a capability that is becoming already widely recognized by friend and foe alike as an essential component for support of all current and future multidomain operations.[1] Consequently, for U.S. forces and its allies, full-spectrum implementation of AI must be a very focused and carefully directed transition that is properly disciplined by exhaustive research to formulate and coordinate doctrine development, experimentation, applied lessons learned from actual practice, and then supported by robust resourcing in application.

Because there is no doubt that our adversaries are becoming more sophisticated in employment of AI in an information environment that is increasingly complex, leveraging AI's capabilities will not only be essential but will also be pivotal for maintaining the needed strategic edge and battlefield dominance to achieve success in the future. The potential capability of AI is such that failure by the United States to achieve AI dominance on the global stage will almost surely result in strategic failure for it and its allies in any future conflict.

After providing a brief historical summary of IO for context, this article will examine some specific applications and implications of AI in IO, offering insights into how it can be effectively employed to enhance the effectiveness of military campaigns. Given the limitations of an article-length work, it explores the impact of AI on modern IO by focusing on the lessons gleaned from two significant case studies: Operation Glowing Symphony, overseen by Joint Task Force (JTF) Ares, a real-world operation that was key to the dismantling of the Islamic State (IS) of Iraq and Syria in the late 2010s; and Cyber Fortress, an exercise series introduced in 2021 that grew directly out of lessons gleaned from major offensive and defensive cyber operations against IS and elsewhere in the Global War on Terrorism.

Past Precedent and Future Use of Information as Weapon

The use of information to influence, mislead, disrupt, or otherwise affect the enemy's decision-making and capabilities has been a cornerstone of military strategy throughout history.[2] Commanders have long understood that controlling the flow of information shapes the final outcomes of conflicts, making it an essential component of military operations.[3] From the ancient strategies of Sun Tzu, who emphasized deception and the use of spies, down to the complex psychological operations through the Cold War, Desert Storm, and the Global War on Terrorism, and currently in the Russia-Ukraine war, the competing struggle for information has remained a critical component of warfare.[4]

Notwithstanding, historically, the greatest challenge to what we broadly refer to as information operations has always been the formidable prospect of sorting through collected information in a timely fashion to distinguish important data from the less important and the unimportant. In that process, the major common impediment down through the history for exploitation of information effectively for various purposes has been the nagging challenge of speed in processing (i.e., creating an effective process for sorting rapidly through the information collected to distinguish the most salient data from the less relevant within the extreme limitations in the time frame for which analysis is needed).

Key features of anticipated modern warfare are rapidly evolving in such a manner as to often make some of the already inherent problems of information analysis harder rather easier.[5] For example, the ability to collect great amounts of data is easier than ever before, but the fact that the process has resulted in much greater amounts of information being collected than ever before makes the problem of sifting through and making sense of such massive quantities of accumulated data qualitatively more difficult given the tight deadlines for decision-making imposed by the increasing speed and pace of unfolding operations in the modern era. The problem has only been exacerbated by the rapid advances of computer technology in the first quarter of the twenty-first century that have dramatically increased even further the capability to collect vastly greater amounts of information than previously. The result is that it is now essentially impossible to effectively process and analyze the massive quantities of information now collected using just the traditional means of "hands on" human analysis even with the assistance of legacy computer systems.

Concurrently, irrespective of the challenges posed by technological advances related to information, reliance on traditional kinetic operations in conflicts

has been increasingly augmented and sometimes even supplanted by operations in the information domain, shifting the paradigm of war itself. This shift is largely driven by the exponential growth in digital communication technologies, the internet, and social media platforms that have radically transformed the landscape of information dissemination and manipulation.[6]

In this new emerging information era, the integration of advanced technologies using AI is indeed revolutionary—an often-abused word—that, in this case, is entirely accurate. AI-driven IO can automate and scale tasks that would be impossible for human operators to manage manually through traditional techniques and procedures.[7] Therefore, AI provides to the user for the first time in history the ability to effectively organize, categorize, and analyze previously unimagined vast amounts of data at unprecedented speeds—a genuine transformative revolutionary development not only in the domain of information but in the waging of warfare overall. Consequently, AI-enabled collection, collation, and analysis capabilities are increasingly recognized as a transformative force

that must be incorporated for the timely planning and execution of military operations in an unprecedented manner, the boundaries of which are still unknown and provide a fertile field for expansion. The necessity for dramatically upgrading capabilities for processing information should highlight the need for investing in AI as a national strategic priority since it is already a crucial element for maintaining a strategic advantage in the modern global operational environment and in the future will only be more so.[8]

Additionally, the formulation of complex AI algorithms that enable rapidly winnowing through analysis of great amounts of data may in time mimic, replicate, or even supplant the arcane and mysterious factors thought to be behind the kind of human intuition military leaders have always cherished in the calculation of risk to improve decision-making that were previously believed to be outside the capabilities of machines and technology. In addition, such extreme sophistication in personality analysis may enable the weaponization of AI to create more effective psychological operations by providing real-time analysis and predictions regarding the predicted decisions of opponent forces based on comprehensive and exquisitely detailed data sets regarding the personality profiles and proclivities among the leaders of an adversary. Plausibly, in the exploitation of this advancement, AI has the potential to simultaneously generate and disseminate prodigious amounts of refined propaganda at the same time it manages complex targeted disinformation campaigns that exploit predicted human behavioral responses to influence

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Maj. Andre Slonopas, Virginia Army National Guard, holds a PhD in aerospace engineering from the University of Virginia and is pursuing a second PhD in materials science and engineering at Johns Hopkins University. He is a former Presidential Management Fellow, and a graduate of the Command and General Staff Officer College, Cyber Operations Office Course, and the Information Operations Qualification Course, among other specialized information operations and cyber courses.

Capt. Edward Olbrych, Virginia Army National Guard, serves as a research electronics engineer at the U.S. Army Research Laboratory, focusing on electronic warfare technology. He is also an operations planner for the U.S. Army National Guard, where he has contributed to planning and execution of multiple joint international and interagency exercises. Olbrych's background includes contributions to defense projects at the U.S. Army Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, Reconnaissance Center and at Lockheed Martin.

public opinion on social media. These applications highlight AI's potential to act as a force multiplier that amplifies the impact of traditional IO strategies. This just of itself would make it an indispensable tool supporting implementation of IO in a future conflict.[9]

Consequently, the capabilities AI provide are now essential in most forms of modern warfare where the speed and accuracy of information given to decision-makers will make the difference between success and failure. This means that the military's adoption of AI is not about incrementally improving existing legacy processes but about acknowledging and adjusting to a new paradigm shift in the nature of warfare overall that demands a revolutionary effort to employ new digital tools to vastly improve strategic and operational planning and analysis while also directly disrupting and degrading the information sharing and communication channels of the adversary on the world wide web.

The Rise of AI Applications in Military IO

As noted, AI technologies are transforming how militaries conduct information warfare, offering unprecedented capabilities and new challenges. AI can generate immense of amounts of information aligned to specific narratives, analyze massive volumes of data, and predict adversary maneuvers based on historical data and current patterns.[10] These capabilities enhance situational awareness and decision-making but also risk overwhelming decision-makers with information.

One of the most significant advantages of AI in IO is its ability to process and analyze large volumes of data quickly and accurately. AI can sift through satellite photos, real-time signal intercepts, and open-source intelligence data to identify patterns and trends that would be impossible for human analysts to detect. This capability dramatically improves situational awareness and decision-making, allowing military commanders to make better informed decisions in real-time.

However, as previously noted, the sheer volume of information needing analysis presents significant challenges. Without radical improvements to the tools needed for analysis, decision-makers risk being overwhelmed with data as they attempt to single out and act on the most critical information promptly. Such information overload can lead to decision paralysis, where commanders are unable to make timely

decisions due to the overwhelming amount of data at their disposal that cannot be efficiently and usefully analyzed within the constraints of a highly sensitive timeline. AI in its many variants will be essential to remediate this challenge for decision-makers.

Additionally, weaponized AI can also generate deceptive information, leading adversarial AI to derive incorrect conclusions and mislead decision-makers. It can also facilitate analysis of the psychological characteristics of target groups, allowing for more effective and focused psychological operations.[11]

At the same time, defensive AI will be necessary when facing adversaries who may use AI-generated deepfakes and malevolent synthetic media to construct misinformation and morale campaigns aimed at adversely affecting friendly public opinion.[12] AI-generated videos and images can be used to both spread false information as well as undermine public trust in legitimate sources of information. Acknowledging this challenge, it is also necessary to recognize that the rapid advancement of AI technology means that deepfakes are becoming increasingly difficult to detect, making it challenging to counter these disinformation campaigns effectively.

Operation Glowing Symphony: A Pivotal Shift in Cyber and Information Warfare

Operation Glowing Symphony, part of the broader campaign against IS, represented a landmark in the use of the types of offensive cyber capabilities alluded to above to disrupt and degrade an adversary's information dissemination networks. This operation demonstrated how AI and cyber tools could be integrated to achieve strategic objectives in the information domain. It represented a pivotal shift in the integration of cyber and information warfare, marking a significant advancement in how these tactics are leveraged to combat adversaries like IS.[13] JTF Ares conducted operations as part of the broader campaign against IS, and this operation not only disrupted and degraded the group's ability to disseminate information, recruit members, and execute its digital communication strategies but also demonstrated the power of integrating offensive cyber capabilities with traditional IO to achieve strategic objectives.

Although many of the details about the Operation Glowing Symphony are not publicly releasable, the

operation began in 2016 and continued into 2017. The core of Operation Glowing Symphony was mounted from the U.S. Cyber Command's facilities, but the effects were dispersed against IS online infrastructure across the Middle East, Europe, and beyond. The success of the operations stemmed in large part to its seamless integration of cyber capabilities with traditional IO strategies. U.S. Cyber Command targeted servers, websites, and data centers used by IS, gaining control over their digital infrastructure. This allowed U.S. forces to disrupt IS's information capabilities while simultaneously implanting and executing friendly information aimed at the same audiences. By combining these approaches, the operation effectively neutralized IS's ability to influence and recruit through digital means. On the day of the operation multiple teams executed their scripts within a ten-minute window after getting the final go-ahead. They targeted various parts of IS's media network, including servers, social media accounts, and email addresses. The operation was described as a "symphony of destruction," systematically disabling and disrupting key parts of IS's digital presence.[14]

This integrated approach illustrates the evolution of modern warfare, where the boundaries between cyber operations and IO are increasingly blurred. Traditional IO focuses on influencing, disrupting, corrupting, or usurping the decision-making processes of adversaries while protecting friendly decision-making processes.[15] When these principles are combined with advanced cyber capabilities, the effectiveness of IO is significantly amplified. Cyber operations can directly manipulate the information environment, creating opportunities to insert counternarratives and disrupt adversary communications in real-time.

Additionally, one of the key innovations of Operation Glowing Symphony was its strategic use of friendly information to counter IS's propaganda. By infiltrating IS's digital platforms, U.S. cyber forces

were able to not only halt the spread of IS's messages but also replace them with content that supported U.S. objectives. This proactive dissemination of friendly information helped to undermine IS's credibility and influence, sowing confusion and doubt among their supporters.

The U.S. ability to implant friendly information within enemy networks demonstrates a sophisticated understanding of the psychological aspects of warfare. Instead of merely silencing the adversary, the operation turned IS's own platforms against them, using them as channels to broadcast messages that contradicted and discredited the group's narratives. This tactic not only disrupted IS's recruitment efforts but also eroded their support base by providing alternative viewpoints and information that challenged their propaganda.

Operation Glowing Symphony also highlighted the effectiveness of using cyber capabilities to disrupt adversary IO.[16] By targeting the critical infrastructure that IS relied on for communication, U.S. Cyber Command was able to dismantle the group's digital networks. This disruption hindered IS's ability to coordinate attacks, recruit new members, and maintain their online presence.

The operation employed advanced hacking techniques to penetrate IS's defenses and manipulate the data and communications transmitted. This level of disruption required a deep understanding of both the technological and informational aspects of IS's operations. By effectively severing IS's communication lines, U.S. forces were able to isolate the group, making it difficult for them to sustain their operations and reach their audience.

Operation Glowing Symphony represented a watershed moment in the integration of cyber and information warfare. By successfully disrupting IS's digital communication networks and leveraging friendly information to counter their propaganda, U.S. Cyber Command has demonstrated the power and potential of combining cyber capabilities with traditional IO strategies.[17] This operation not only highlights the effectiveness of integrated approaches in modern warfare but also sets the stage for future innovations in the field. As the digital battlefield continues to expand, the principles and tactics employed in Operation Glowing Symphony will be crucial in guiding the evolution of cyber and information warfare.

Previous page: An artist's rendition of Operation Glowing Symphony attacks against terrorist operators during 2016 and 2017 that included hacking into Islamic State cell phones, computers, and other devices for the purpose of covertly stealing information, altering information, interrupting communications, and sowing confusion by misleading and promoting distrust among enemy belligerents with targeted propaganda. (AI image by Gerardo Mena, Army University Press)

Amplifying Cyber/IO with AI: A Cyber Fortress Case Study

Cyber Fortress is an exercise series that began in 2021 and is sponsored by the Virginia Department of Emergency Management in collaboration with the National Guard and other federal and private partners that was a direct outgrowth of the success of Operation Glowing Symphony. It is a powerful idea of a proactive cybersecurity relationship between private and public partners for the defense of the homeland. At present, Cyber Fortress is an annual event held in Virginia Beach that brings in dozens of participants from the federal and state government, and uniformed partners, and representatives from private, critical infrastructure, and academe.

The Cyber Fortress exercise involves a comprehensive simulation of digital and information environments, allowing military and civilian participants to practice and refine their IO strategies in a controlled setting. It showcases the evolving nature of information warfare training and preparedness.[18] The inclusion of AI in these exercises underscores its importance in future military operations and highlights the need for continuous adaptation and innovation.

Exercise Objectives Including Expanding Concepts for Employing AI

This exercise involves a comprehensive simulation of digital and information environments, allowing military and civilian participants to practice and refine their IO strategies in a controlled setting. The inclusion of AI in these exercises underscores its importance in future military operations and highlights the need for continuous adaptation and innovation.

The exercise examines and applies in various scenarios the lessons derived from the successes of Operation Glowing Symphony but also expands on the lessons learned to enhance consideration of additional steps for the defense of critical infrastructure. In doing so, it continues to explore and demonstrate the efficacy of AI in both cyber and IO. By leveraging emerging artificial intelligence, Cyber Fortress has not only improved domestic cyber defense capabilities but also has expanded consideration of complex scenarios involving extensive IO to create a more robust and adaptive response framework.

One of the main goals of the current Cyber Fortress is to use new AI tools in cyber security and IO. AI enables humans to assess network traffic, find anomalies and trends in large datasets, and react to events faster and more accurately than "unarmed" human analysts. AI-driven systems make it easier to find and stop cyber threats. These AI systems analyze data in near-real time incessantly, so any possible threats are found and stopped before they have an opportunity to do extensive damage. One important feature of AI is that it frees up human operators to make more important strategic decisions by automating routine tasks that would otherwise be time-consuming and debilitating in terms of slowing reaction time to events. This makes protecting critical infrastructure more efficient and efficacious.

In Cyber Fortress, AI is also used extensively to exercise both offensive and defensive IO. For hostile purposes, AI technologies allow customizable information campaigns as well as the creation of realistic fake media and changes to messages based on real-time feedback. Because of these features, red teams can run complex IO campaigns that can successfully distract, trick, and sway their targets.

Cyber Fortress also uses the exercise area to gather information about its users, which is then used to teach advanced machine learning algorithms. This method is based on data, which makes sure that AI systems keep learning and become better, which makes them more useful over time. The AI algorithms can find patterns and trends by looking at how people act and react to information. This makes it easier to predict and deal with future threats. In the ever-changing world of cyber and information warfare, this process of constant learning is essential for staying ahead of the enemy.

The main goal of Cyber Fortress is to create human skills that are enhanced by machines and can work well with limited funds. Cyber Fortress aims to improve the skills of human workers by integrating AI tools that will help them handle more complicated cyber and IO. This partnership between people and AI makes sure that tasks are done quicker with fewer errors, using the best parts of both human intelligence and machine accuracy.

Red Team versus Blue Team in AI-Driven IO Campaign Simulations

In Cyber Fortress, red teams employ AI to execute intricate and aggressive IO. Their goal is to disseminate

Cyber and information operators undergo training in preparation for Cyber Fortress, a cyber-information operations exercise for the defense of critical infrastructure, in July 2024 at State Military Reservation near Virginia Beach. (Photo courtesy of Virginia National Guard Public Affairs)

disruptive information to sow distrust and panic among the public. They use AI-driven algorithms to create messages in multiple languages, embedding cultural and ethnic nuances to ensure messages resonate deeply with various ethnic groups in the United States.

Red teams also use AI for adaptive messaging and real-time feedback, monitoring public reactions to adjust messaging accordingly. AI-generated chat conversation generators post comments across digital platforms, engaging in online discussions to influence public opinion and amplify disinformation campaigns.

The use of AI for adaptive messaging allows red teams to continually refine their tactics based on real-time feedback. By monitoring public reactions to their messages, they can identify which narratives are gaining traction and adjust their strategy accordingly. This adaptive approach ensures that the red teams' information campaigns remain effective and relevant, continually influencing public opinion and deepening divisions within the digital discourse.

Blue teams counteract these sophisticated operations with their AI-driven strategies. They rapidly generate accurate and reliable information to mitigate false narratives and employ AI for language translation tasks to monitor and counteract misinformation across diverse linguistic spectrums.

During Cyber Fortress, the Information Operations Support Cell (IOSC) serves as the analytical and strategic hub for blue teams. The IOSC oversees the information environment, utilizing advanced AI algorithms for natural language processing, sentiment analysis, and pattern recognition to identify and address deceptive content.

The IOSC's use of AI in natural language processing and sentiment analysis allows it to quickly identify the underlying strategies of the red team's campaigns. By analyzing target demographics, message frequency, and thematic content, it can tailor its countermeasures more effectively, ensuring rapid and strategically targeted responses. This capability is vital in maintaining

the integrity of information within the exercise and safeguarding the digital information landscape from corruption by falsified narratives.

Blue teams also use AI to develop proactive strategic communication plans, customizing content dissemination based on audience analysis. This approach ensures counternarratives reach the right people effectively.

language are getting smart enough to create and share believable narrative content on their own at a scale and speed that humans can't match.

In terms of strategy, the continued use of AI in military operations will have a huge impact on world politics. Information campaigns that use AI could lead to a new type of warfare in which digital battles happen and

> " Information campaigns that use AI could lead to a new type of warfare in which digital battles happen and drive public opinion and national policies without any physical confrontation. "

Ethical considerations like privacy, transparency, and accountability are paramount in AI utilization.

Understanding that different demographics consume information differently, blue teams use AI to customize the dissemination of their content. AI algorithms determine the most effective channels and formats for different audiences, ensuring that counternarratives reach the right people in the right way. This targeted approach enhances the effectiveness of the blue teams' information campaigns, helping to prevent the spread of harmful misinformation and build resilience within the public against future disinformation campaigns.

Emerging Technologies and Future Applications

There are monumental changes ahead for the future of AI in military IO. New technologies will make capabilities more accessible and will drive strategic changes in military operations. Advanced AI systems can handle unfathomable amounts of data and make complex psychological profiles, predictive models, and information campaigns that run themselves. These models can predict possible threats and make computerized responses to information campaigns. This gives military strategists a level of understanding and foresight that has never been seen before.

Using AI in deep learning and neural networks is one of the most important steps in technology development. This technology makes it possible to make a huge number of synthetic media that look and feel very real. This gives psychological operations a strategic edge. Also, tools that use AI to process and generate natural

drive public opinion and national policies without any physical confrontation. Countries that are very good at AI could gain significant leverage in international relations through influence operations. This could start a new arms race based on who has the best and most efficient "intelligence."

Also, the automated tracking and analysis features of AI systems are very important for finding fake news and strange behavior quickly. These AI systems constantly look through digital interactions and media to find and flag possible threats or campaigns of false information. The unsupervised analysis of voluminous data, however, runs the risk of mislabeling legitimate information and amplifying false narratives. Hence, the human interaction assisted with AI is still required. This automated watchfulness improves defenses and makes sure that information activities are honest and work well. So, the future of AI in military IO isn't just about new technology, but it's also about making sure that strategic decision-makers always have the most up-to-date information and fighting new digital threats in a world that is becoming more and more linked.

Unsettled Ethical and Privacy Concerns in AI-Driven IO

As AI becomes more integrated into military IO, ethical considerations must be at the forefront of its deployment. The use of AI in creating and disseminating information raises significant ethical questions, particularly regarding privacy, transparency, and accountability.

The ability of AI to process and analyze vast amounts of data raises significant privacy concerns. AI systems

AI-generated images and narratives in multiple languages were developed as part of the information campaign during Cyber Fortress 24. (AI-generated images by authors via MidJourney; text generated by ChatGPT)
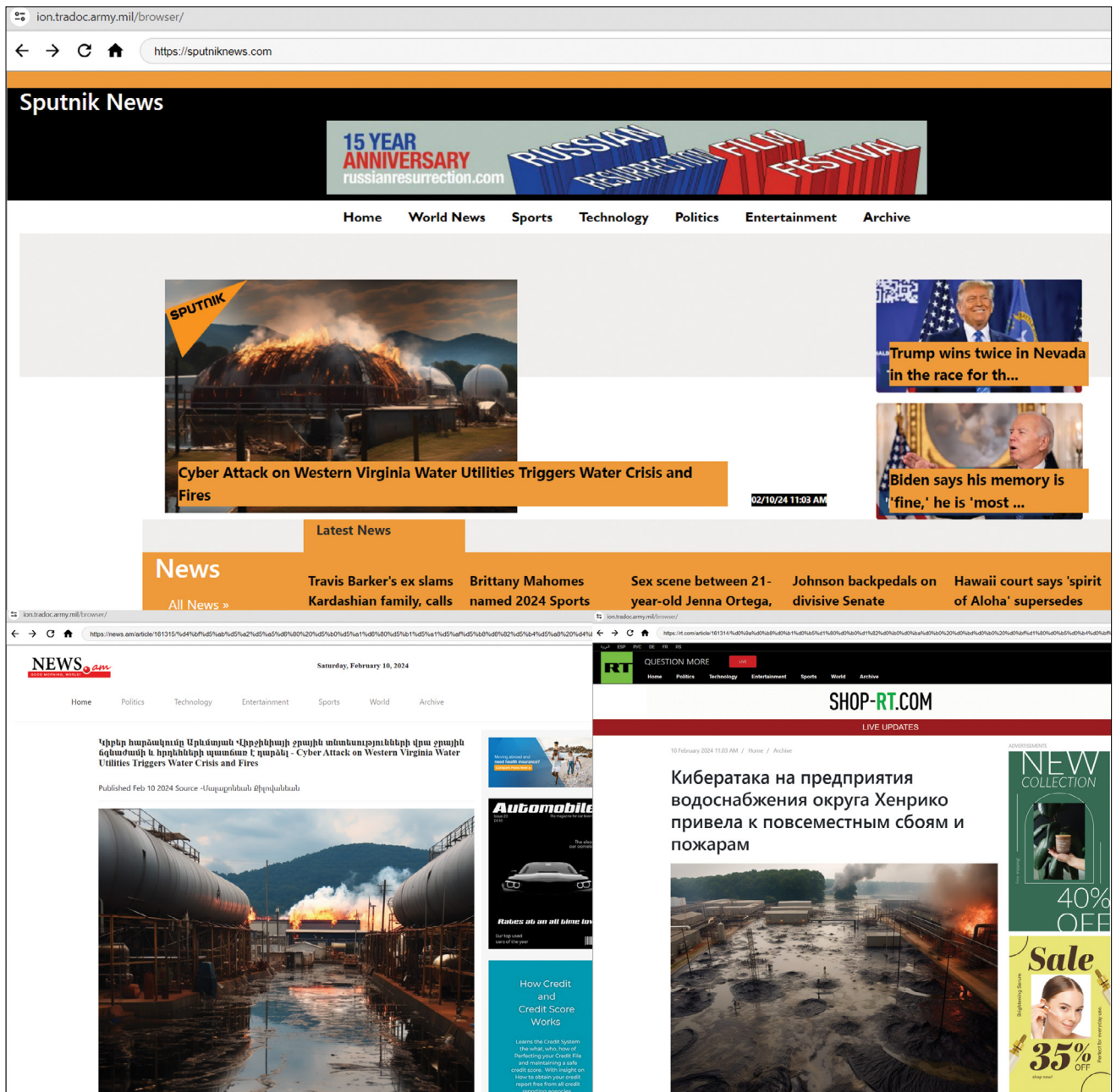
can collect and analyze data from various sources, including social media, communications, and other digital platforms, to identify patterns and trends. While this capability is invaluable for IO, it also raises concerns about the privacy of individuals whose data is collected and analyzed. Ensuring that AI systems are used responsibly and that data collection adheres to privacy laws and regulations is crucial. This involves implementing strict data governance policies and ensuring that data is anonymized and used only for legitimate purposes.

Furthermore, military use of AI must be scrutinized to prevent potential abuses. The aggregation of

personal data can lead to unintended consequences, such as the targeting of individuals based on their digital footprint. Safeguarding personal information and preventing misuse requires robust security measures and continuous oversight.

Transparency in the use of AI for IO is essential to maintain public trust and ensure ethical conduct. The

creation and dissemination of information using AI must be transparent, with clear guidelines on how AI is used and what data is collected. Transparency also involves informing the public and relevant stakeholders about the objectives and methods of AI-driven operations. This can help demystify AI technologies and build public confidence in their use.

Accountability is another critical aspect of ethical AI deployment. There must be clear lines of responsibility for the actions taken by AI systems. Human oversight is necessary to ensure that AI-generated content is accurate and ethical and that any misuse of AI is promptly addressed. Establishing accountability frameworks can help monitor and evaluate the impact of AI systems, ensuring that they are used in ways that align with ethical standards and legal requirements.

The use of AI in warfare, particularly in IO, raises ethical questions about the manipulation of information and the potential for psychological harm. AI's ability to create realistic deepfakes and synthetic media can be used to manipulate public opinion and spread false information. The ethical implications of using AI in this manner must be carefully considered, and guidelines must be established to ensure that AI is used responsibly and ethically in military operations.

Ethical guidelines should address the potential for AI to be used in ways that could deceive or manipulate people, leading to unintended psychological or social consequences. For example, the use of deepfakes in propaganda can undermine trust in legitimate sources of information and contribute to social instability. Ethical frameworks must ensure that AI is not used to exploit vulnerabilities in human cognition and psychology in ways that are harmful or coercive.

Conclusion

AI in U.S. military IO is a strategic need for contemporary battlefield dominance. AI can analyze vast datasets and automate difficult psychological functions, transforming IO. Successful AI use requires a comprehensive and flexible strategy that combines innovation, strategic vision, and ethical responsibility. The U.S. military must invest in AI as a tool for efficiency and a transformational force influencing combat as the digital battlespace changes. This necessitates a move from existing paradigms to an AI-driven approach that prioritizes quick decision-making, agility, and cyber-information warfare integration. Responsible implementation also requires addressing data privacy, algorithmic bias, and AI abuse. The adoption of AI in IO will define military operations. It offers unprecedented opportunities to influence the global information ecosystem, prevent new dangers, and protect national security. In a constantly changing battlefield, the military's capacity to innovate, cooperate, and adapt will determine the effectiveness of this integration. ■

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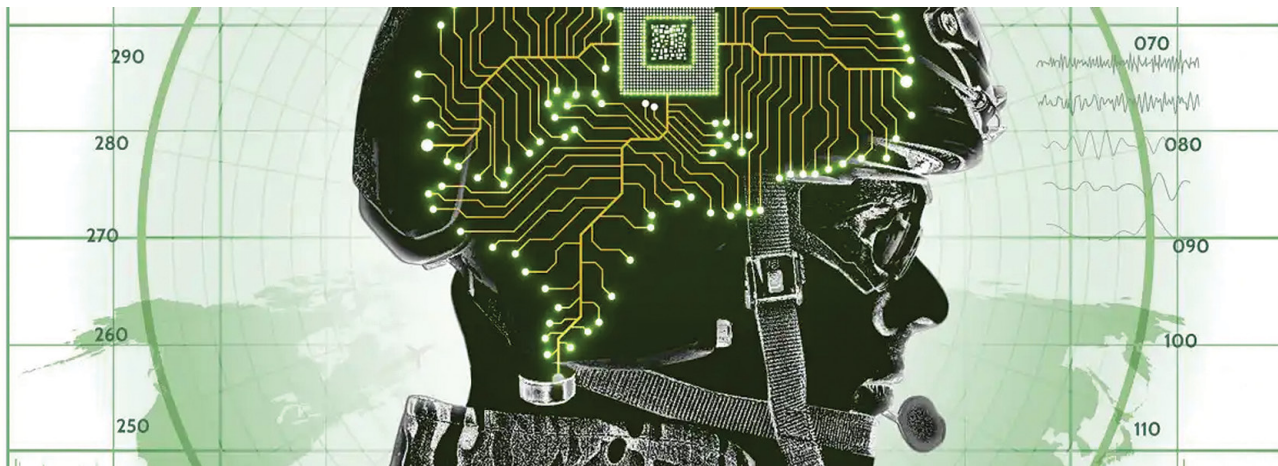
(Graphic courtesy of the NATO Innovation Hub)

Lessons on Public–Facing Information Operations in Current Conflicts

Maj. Joseph D. Levin, JD, U.S. Army

To achieve success in the future security environment, the Joint Force must shift how it thinks about information from an afterthought and the sole purview of information professionals to a foundational consideration for all military activities. The Joint Force must design all activities and operations from the outset to account for the use and impact of information on relevant actors.

—Joint Concept for Operating in the Information Environment

Information operations seeking to influence public opinion have an increasingly important role in modern conflicts. By studying the impact of public-opinion shaping information operations on the Israel-Hamas and Russia-Ukraine conflicts, it is apparent that information environment dominance is increasingly important to a nation's ability to achieve its strategic objectives in modern warfare. America must apply lessons learned about cognitive warfare and information domain operations from current global conflicts to be fully prepared for modern large-scale combat operations (LSCO). The lesson for America in the Israeli-Hamas conflict is that a democratic nation with power overmatch that is achieving consistent tactical victories still risks strategic defeat when its enemy effectively uses cognitive warfare to undermine public support. In the Ukraine-Russia conflict, Ukraine's use of the information domain to secure popular support can be comparatively highlighted as an example of the successful application of cognitive warfare to secure vital international support toward its strategic objectives. America must prepare for the role that information domain dominance will play in future military conflicts.

This article will begin by defining relevant terms and briefly considering the significance of the information age in context of this article. Next, it will consider how cognitive warfare has been employed by Hamas to prevent Israel from achieving its strategic objectives. Hamas's exploitation of Israel's critical vulnerability in the information domain will then be contrasted with Ukraine's effective information domain operations that secured international support resisting the Russian invasion. It will then discuss U.S. focus on LSCO and identify information domain risks to America's military based on lessons learned in Gaza and Ukraine. Finally, this article will offer suggested courses of action to better incorporate cognitive warfare into America's military planning and address a counterargument.

Foundation

Civilization is in the latter stages of entering a new age defined by technology and large-scale, rapidly flowing information. As seen through the lens of current conflicts in Gaza and Ukraine, military tacticians are witnessing a revolution of military affairs about how information is gathered and used in real time. This is aptly timed to align with America's in-progress transition from twenty years of counterinsurgency (COIN) back to LSCO-focused preparation. However, while much of the attention focuses on how collected information is used to achieve tactical objectives, less attention is being paid to how information can be shaped and publicly distributed to achieve strategic objectives.

As part of the transition to LSCO-oriented combat, units are now applying lessons learned from Ukraine to further incorporate drone warfare into their tactical formations. These changes are fundamental to the U.S. military's ability to fight and win in future LSCO scenarios. On both sides of the Ukraine battlefield, drones have improved information, surveillance, and reconnaissance to achieve precision targeting; prevented units from gathering in conventional tactical formations; and made the element of surprise harder to achieve. Ukraine's drones have increased their range and the scale of their effects, enabling precision penetrative strikes deep within Russia's borders.[1] Indeed, the best characterization of the discussion about drones is not their relevance; it is whether they are revolutionary or merely evolutionary.[2] A point in favor of the merely evolutionary argument is that drone warfare has

presently only changed the *tactical* battlefield.[3] Drones have not changed the operational and strategic echelons of battle.

Another use of information from the battlefield—targeted, public-facing messaging and use of internet-based media—has proven effective at shaping all echelons of conflict, from the tactical to the *strategic* level. This public-facing use of information from the battlefield is referred to as *cognitive warfare*.

NATO defines cognitive warfare as "activities conducted in synchronization with other Instruments of Power, to affect attitudes and behaviors, by influencing, protecting, or disrupting individual, group, or population level cognition, to gain an advantage over an adversary."[4] Cognitive warfare has become a widely recognized part and parcel of everyday life. Examples of this include the online use of troll farms, misinformation and disinformation, and propaganda to manipulate populations' collective perceptions on prominent issues. It has been used effectively to undermine trust in America's democratic institutions and to inflame tensions between political groups nationally and internationally.

In addition to cognitive warfare's outright effectiveness is its low barrier to entry. Cognitive warfare can be conducted online with low financial costs and virtually no consequences for the bad actors. Once a false narrative becomes ingrained or goes viral, it will continue to be spread by private citizens—often unwittingly—and may even become part of mainstream media narratives. By targeting public perception, every

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In response to the incessant rocket attacks from the Gaza Strip in November 2012, the Israel Defense Forces launched a widespread campaign against terror targets in Gaza. The operation, called Pillar of Defense, had two main goals: to protect Israeli civilians and to cripple the terrorist infrastructure in Gaza. (Graphic courtesy of the Israel Defense Forces)

One of the many posters disseminated by Hamas in August 2024 following a failed suicide attack in Tel Aviv, vowing to blow up Israeli buses. (Graphic via Telegram)

act of cognitive warfare is creating effects that can impact the *strategic* echelon of decision-making. For this reason, cognitive warfare is now "an essential component of modern strategy" requiring "tailoring messages to diverse global audiences" and "timing counternarratives for key points in conflicts."[5]

During the Global War on Terrorism, cognitive warfare turned friendly populations away from working with and supporting U.S. troops and helped terrorist organizations effectively recruit more individuals to their cause. The Army is slowly learning to appreciate the role of the information domain in the era of social media and the internet. It now acknowledges that allowing the information domain to be dominated by misinformation or disinformation poses a risk to mission when timely, accurate, and credible information is not provided early and throughout.[6] For these reasons, the Army has developed doctrine on how commands should employ coordinated responses to public affairs crises.[7]

Hamas's Cognitive Warfare Campaign

Maintaining public support has long been recognized as a key element of a nation-state's ability to conduct combat operations.[8] This is particularly true today in democratic nations where leaders must maintain popular support to stay in power. Despite the brutality of Hamas's 7 October 2023 terrorist attack and the continuing national security threat it poses to Israel, Hamas has effectively shaped the public narrative in such a way that Israel may be prevented from achieving its strategic objectives despite power overmatch. This was not a fortunate byproduct of circumstances but rather an asymmetric advantage that Hamas exploited from the outset of the conflict.

The 7 October terrorist attack was distinctly brutal. Hamas terrorists killed over 1,200 Israeli citizens and committed rape, torture, and corpse desecration against civilian victims. Further, Hamas took over two hundred hostages who have been tortured and many killed. Many of the hostages (or their remains) remain in Hamas's possession at the time of writing this article. Hamas has expressed intent to conduct future similar attacks against Israel.[9]

The attack was quickly labeled "Israel's 9/11," and Israel had initial international support for enacting a military retribution campaign with the stated objectives

of eradicating Hamas and recovering the hostages.[10] The beginning of this campaign displayed strong parallels to the American authorization for the use of force after 9/11.[11] However, after twenty years of America's War on Terrorism, nations have learned how to fight Western democracies who have power overmatch.

Hamas's cognitive warfare campaign was ready. During Israel's previous campaigns against Hamas in Gaza, Israel initially had public support but lost that support due to the media's portrayal of their aggressive tactics. After 7 October, Hamas was waiting to do it again through effective use of video and still images along with statistics of questionable veracity.[12] The media was blanketed with stories of Israel causing starving Palestinian refugees and high civilian casualty numbers, targeting protected buildings, and other wartime tragedies designed to undermine public support.[13]

Through cognitive warfare, Hamas is exposing one of Israel's critical vulnerabilities: its vulnerability to being influenced by allies who are concerned with public opinion. Undoubtedly, Israel may share some blame in its conduct where it exercises insufficient regard to collateral damage. However, what Israel has been unable to adequately inject into the narrative is that Hamas is forcing many of these incidents not out of necessity but by design and exaggerating the effects with false or misleading statistics. Hamas chooses to place its headquarters and weapons caches in highly populated and protected locations such as hospital basements. Hamas controls the offices of Palestinian government that are reporting the inaccurate civilian casualty numbers. Through official channels of Palestinian government, Hamas continues to publish unsubstantiated, inaccurate civilian casualty numbers that media outlets are reporting as fact.[14]

Leveraging cognitive warfare and the public's receptiveness to a sympathetic narrative driven by the ugly realities of LSCO, Hamas has positioned itself to fully exploit its asymmetric advantage: its ability to affect international pressure on Israel. Despite the unthinkable situation that Hamas created on 7 October, Israel has been cast as the aggressor in this conflict and is quickly losing public support for its strategic objectives. Israel is playing into it.[15]

Protests across the world, including in the United States, quickly sprang up after Israel began its military operation and have been pressuring political leaders to withhold support and compel Israel into seeking a ceasefire. Simultaneously, according to U.S. officials, Hamas continues to make "unreasonable" demands during ceasefire negotiations and has not released its hostages, thus forcing the conflict to continue.[16] Due to Hamas's effective use of cognitive warfare, Israel is at risk of being compelled through international pressure to accept a ceasefire agreement that is inconsistent with its strategic objectives despite having power overmatch and consistent tactical victories. Israel may be pressured to agree while knowing that the few concessions Hamas makes will not be honored, and that Hamas will continue attacking Israel in the future.[17] Even if Israel does not fully give in to international pressure for a ceasefire before it achieves its objectives, it will be forced to make tactical decisions and place additional restrictions on its rules of engagement (ROE). These limits may put its own troops at additional risk or limit its options for most efficiently achieving its objectives.

The Israel-Hamas conflict represents a potential turning point in the role of the information domain in LSCO. Although information domain operations have played a role dating back millennia, this represents something new. A distinctly weaker entity started a war with a stronger neighbor with no hope of conventional tactical victories but fully prepared to achieve strategic victory through information operations. Thus, cognitive warfare became Hamas's center of gravity because it is necessary for Hamas to achieve its strategic objectives and prevent Israel from achieving its own.

Although it is unclear at the time of writing this article how the conflict will be resolved, Hamas's exploitation of Israel's critical vulnerability to cognitive warfare is allowing a weaker opponent to potentially defeat a conventionally stronger enemy. Hamas's information domain dominance can be compared to the early days of the Ukraine conflict, where international support combined with Ukraine's resolve allowed it to resist the initial onslaught of the Russian invasion.

Dominating the Public Narrative: Ukraine's Resistance to Russia

The earliest days of the Russian invasion of Ukraine through present are a story of successful information operations enabling Ukraine to continue receiving vital international assistance. Without this assistance, Ukraine cannot continue resisting

the more powerful Russian military. Ukraine's early information operations rallied its people, built support for international sanctions against Russia, and maintained momentum convincing countries to contribute hundreds of billions of dollars in equipment and support to Ukraine's military.

When Russia invaded Ukraine, it initially pursued a strategy of rapid overthrow. Ukraine's President Volodymyr Zelenskyy went on an overt, conscious public relations campaign to win support through rousing speeches and use of his talented showmanship. Zelenskyy's messaging inspired Ukraine's population, providing popular support to the resistance and inspiring a willingness to continue to fight at great personal risk and cost rather than giving in to Russian control.[18] This allowed Ukraine to survive that initial onslaught against a foe with substantial power overmatch. Although Russia's artillery onslaught targeting civilian population centers continues, its progress for land control has largely stalled, resulting in a drawn-out war of attrition.

In addition to maintaining the domestic population's will to fight, Zelenskyy's charismatic leadership gained overwhelming international support. Zelenskyy has toured the world giving countless speeches about Ukraine's plight and Russia's war crimes. This created rapid, early momentum from the international community, who was all too prepared to embrace a narrative of resisting Russian aggression. Early public narratives highlighted Ukraine's heroic resistance, Russia's flagrant violations of the law of armed conflict (LOAC), and even contemplated Russian President Vladimir Putin's psyche, suggesting he may be suffering from a terminal illness causing him to lose rational thought.[19]

The Ukraine conflict has continued to inflame people's emotions with a continuous flow of real-time photographs, video evidence, statistics, and compelling narratives being distributed through mainstream and social media. Social media websites such as Reddit have maintained continuous posts discussing the conflict in real-time and have accrued millions of individual posts and responses. In such conversations, pro-Russia comments are targeted by regular users for ridicule and fact-checking, often being downvoted into the nether regions of the post hierarchy, where casual readers are unlikely to ever see them. Pro-Ukraine narratives are the accepted dialogue of the majority population.[20]

This is particularly significant given that 86 percent of Americans now get their news from digital platforms with more than half of U.S. adults getting their news from social media at least sometimes.[21]

Nations across the world have responded to the tremendous international public support for Ukraine. Russia has faced aggressive sanctions targeting its national resources, its money, and even the private property of its oligarchs.[22] Countries cut economic ties with Russia, and private companies faced public pressure to withdraw their businesses. These sanctions forced Russia to restructure its economy and increased domestic tension between its people and their leaders. Although the international sanctions have met with admittedly limited enforcement success due to some nations bypassing them, they have increased Russia's everyday cost of doing business and isolated Russia from several international markets.

Perhaps most significantly, Ukraine has been directly supplied with advanced weapons systems, access to technology and intelligence, training, and billions of dollars of munitions. Zelenskyy has continued his role as national fundraiser, traveling the world and giving daily statements about Ukraine's needs. He is channeling support and pressuring nations to keep Ukraine at the center of public attention so the public will keep pressuring their leaders to support Ukraine. It is working. Ukraine continues to receive more funding, progressively more advanced weapons systems, and more leeway to use them offensively inside Russia's borders. It is able to continue resisting Russia while also slowly improving its ability to strike deeper into Russian territory to bring the consequences to the Russian people's doorsteps.

Like the Gaza conflict, a weaker opponent is preventing a stronger force from achieving its strategic objectives by leveraging public opinion to influence international support. Ukraine's resistance combined with international support has turned what Russia expected to be a three-day operation into a multiyear, drawn-out conflict that has weakened Russia's international standing. While the outcome of the conflict is uncertain, it cannot be understated that Ukraine's stubborn resistance against a more powerful enemy is largely attributable to Zelenskyy's talent for influencing the international public narrative.

Without continuing international support, Russia will quickly achieve its strategic objectives against

Ukrainian President Volodymyr Zelenskyy makes a speech to the National Assembly of the Republic of Korea during the Russo-Ukrainian War on 11 April 2022. (Photo courtesy of the Presidential Office of Ukraine)

Ukraine. Thus, controlling the public-facing information domain is vital to Ukraine's achieving its strategic objectives. The role of public support in the Gaza and Ukraine conflicts carries a powerful lesson for America: international public support can allow a weaker opponent to resist a nation that has substantial power overmatch. This can happen either through the international support the weaker nation receives (Ukraine) or the limits that international pressure place on the stronger force's actions (Israel). America must pay attention to the role of the information domain and its ability to shape a conflict at the tactical, operational, and strategic levels.

U.S. Cognitive Warfare Considerations in Multidomain Operations

America is sensitive to its international reputation and vulnerable to the effects of losing public support when engaging in prolonged combat operations. The Army is rapidly transforming into a division-centric fighting force designed for technologically modern, total LSCO, and some subject-matter experts (SME) are being reassigned from brigade staffs to the division or

higher. America must acknowledge it is susceptible to public pressure and prepare all echelons for their role defending against cognitive warfare attacks. Failure to do so will allow America's adversaries to outmaneuver it at all echelons in the public-facing information domain.

As the transition to LSCO preparedness progresses, many information operation SMEs are being centralized at higher echelons than the brigade. These include civil affairs and public affairs personnel. This decreases information operation considerations in tactical planning at a time when it should be increasing.

Cognitive warfare is effective against democratic nations that are concerned with public opinion, but not equally effective against authoritarian regimes that are not concerned with public opinion (except insofar as it is being used to increase support for the authoritarian regime's adversaries). Thus, authoritarian regimes have an asymmetric advantage when using cognitive warfare against democratic nations. For example, during the

War on Terrorism, America imposed tactical guidance that limited the military's available courses of action in response to negative public opinion while its adversaries did not concern themselves with even basic LOAC standards. This overly restrictive COIN-era ROE has been identified as something that could present a risk to mission and risk to personnel in a LSCO conflict.

During the COIN era, America spent twenty years fighting the Taliban to a stalemate in Afghanistan despite power overmatch. Due to concerns of public opinion, America placed an overly restrictive ROE upon itself without legal requirement to do so. Simultaneously, the Taliban, who did not adhere to any ROE, was being given material support by America's enemies, and America did not publicly confront those countries that were providing this support. Ultimately, America did not achieve its strategic objectives in Afghanistan because the Taliban endured. In a future LSCO conflict, America will not have the luxury of allowing these conditions to be repeated.

When the Army identified what was necessary to transition from COIN back to LSCO, Lt. Gen. Charles Pede, then the Army's judge advocate general, identified a cognitive gap: during the COIN era, the Army's overly strict application of ROE was limiting commanders' legal maneuver space.[23] Pede described this as a policy-driven, public-perception-cognizant application of ROE that resulted in self-imposed limitations on the use of force. He highlighted policy-driven commentators who were providing inaccurate descriptions of what LOAC requires and accusing America of violating their erroneous standards, when America was in fact meeting the legal standards. The result was a chorus of individuals (some well-intended, some not) erroneously accusing America of ROE and LOAC violations, with predictable impact on public opinion and international support.[24] At times, this caused America to further restrict its ROE, increasing risk to personnel.

Pede's article is (in part) an effort at countering misinformation: it is publishing accurate information to help inform the conversation. This is a countereffort in the information domain pushing back against false narratives about the lawfulness and legitimacy of American actions. This is a cognitive realm information operation.

Like Israel, America is susceptible to asymmetric cognitive warfare and must prepare to defend itself against such tactics. As Pede observed, LOAC allows for significantly broader use of force than became the norm in COIN. A total LSCO scenario will necessitate broad legal maneuver space for commanders. If America finds itself in a true LSCO scenario, it should consider how different its tactics will be than those used by Israel. America's enemies—who do not respect LOAC—will use the same illegal tactics that Hamas is using against Israel.

America faced damaging, erroneous allegations of LOAC violations even when it was exercising the overly stringent COIN-era ROE standards. In LSCO, how will America's military minimize risks to civilians to differentiate itself from the tactics the public is condemning in Gaza? What will America do to inform the public narrative about the harsh realities of war?

In future conflicts, America must anticipate that its adversaries will conduct cognitive warfare campaigns to prevent it from achieving its strategic objectives. America must be prepared to offer a timely, accurate counternarrative to prevent losing international and domestic support when the enemy conducts cognitive warfare that well-intending media and other public institutions will repeat to a potentially receptive public audience. America's frontline, tactical echelon fighting units must understand their role in the information domain fight.

Before the first shot is fired, a public-facing information domain battle will struggle over the narrative of who is justified in using force. When the fighting starts, the brutality of war will be highlighted to diminish public support. The enemy will force America into impossible situations to create negative narratives that will feed into information operations designed to weaken the American public's resolve. If American military units are not factoring this into their planning, they will be caught unprepared.

America's military needs to institutionalize and operationalize the integration of physical and information power.[25] The American military is not adequately incorporating information domain operations into its military decision-making process (MDMP) at all stages of planning.

Next page: An example of the rules of engagement during hostilities from the 101st Airborne Division during the invasion of Iraq in 2003. (Photo courtesy of the U.S. Army)

ROE DURING HOSTILITIES

NOTHING IN THESE RULES PROHIBITS YOU FROM EXERCISING YOUR INHERENT RIGHT TO DEFEND YOURSELF and OTHER ALLIED FORCES.

FIRING AT COMBATANTS

1. Fire at all members of forces DECLARED HOSTILE. You may immediately fire upon any force that you know to be hostile.

2. You may use necessary force, including deadly force, against any person, vehicle, or aircraft that commits a hostile act, or exhibits hostile intent.

3. Employ only observed fire, unless unobserved fire is necessary for the immediate defense of friendly forces receiving fire **or** is approved by designated authority (See ROE Annex).

4. Do not use incendiary weapons such as napalm or white phosphorous against targets in populated areas. Tracer and illumination rounds and smoke are authorized in all areas.

5. You may employ command-detonated claymores when authorized by the Division Commander. Keep claymores under continuous observation, and remove them when no longer necessary.

6. You may use Riot Control Agents (RCA), i.e., pepper spray or CS, when authorized by your Brigade Commander. Only use RCA in noncombatant situations, such as riot control against civilians, or when civilians are used as human shields, or to control EPWs in rear areas.

USING FORCE AGAINST CIVILIANS

1. You may stop civilians and check their identities, search for weapons and seize any found. Detain civilians when necessary to accomplish your mission or for their own safety. Use the Four S's when dealing with civilians demonstrating some form of hostile intent.

    1. **SHOUT** verbal warning to halt! In English: "HALT! DON'T MOVE! HANDS UP!"
        In Farsi: "Askaree Amriekk. Dresh ya fire may kenoom!"
        In Urda: "Amriki Forge. Ruck Jow! Warna goli ma-roongo!"
        In Arabic: "Al Kawat al Amrikia. Kef ow atlook al nar!"
    2. **SHOW** weapon and intent to use it.
    3. **SHOVE** Use non-lethal physical force.
    4. **SHOOT** to eliminate the threat. Fire only aimed shots. Stop firing when the threat is neutralized.

2. Do not fire upon civilian infrastructure facilities (i.e., communication, water treatment, power) unless such facilities are being used in a manner that threatens the security of the force.

3. You may fire upon civilian vehicles carrying enemy forces, weapons, or supplies.

4. You may confiscate the property of hostile forces, except captives' personal property and equipment necessary for their protection and welfare.

5. Seize PRIVATE property only if it has a military use (e.g., weapons, ammunition, communication equipment, or transportation) & your commander authorizes the seizure based on military necessity. Give the owner a receipt. Check to see if PUBLICLY owned property can substitute. **TAKING WAR TROPHIES IS PROHIBITED.**

Lessons Learned in Action

The Army must plan for and utilize public-facing, integrated information operations at each echelon from the strategic to the tactical levels. First, the Army must assess whether it has adequate information domain SMEs at the appropriate echelon units. Second, the Army must proactively rather than reactively integrate information operation planning. Third, the Army should consider the capabilities and potential usages of cognitive warfare to expand the scope of its operations.

The Army must first ensure units at all echelons are appropriately equipped with the tools and expertise needed to integrate information operations into their planning. As part of the division-centric restructuring for LSCO, brigade-level public affairs and civil affairs slots are being consolidated and realigned into the division echelon or above. Consistent with the *Joint Concept for Operating in the Information Environment*'s guidance, the Army should consider whether the brigade has adequate subject-matter expertise on cognitive warfare to integrate it into their planning.[26] At the operational and strategic levels, that expertise should be actively incorporated into the MDMP process. Such integrated planning would result in operation orders that include guidance to subordinate units for incorporating these considerations into their own planning. Operational and strategic commands should be conducting their own public-facing information operations as part of their multidomain operations. Tactical units should be considering how their actions will impact those information operations and how they can support them.

America *knows* that its enemies will publish false information in the public domain and violate LOAC in such a way that places American forces into challenging situations. At the strategic and operational levels, information operation planning should be anticipating LOAC violations by the enemy as well as ways the enemy will attempt to entrap American soldiers into actions that, although lawful, are subject to negative portrayal in the media. America must anticipate that its lawful tactical actions will be twisted into informational weapons against it to undermine public support for American operations. Proactive information operations designed to maintain control of the narrative and prevent the enemy from effectively wielding misinformation and disinformation will help America convert tactical success into strategic victory.

One of the most important things tactical echelon units can do is to be ready for these traps. Tactical units must report to higher headquarters when enemy cognitive warfare traps are emplaced and feed the information needed for the American military's operational and strategic elements to conduct its own information operations.

Additionally, the Army must provide accurate training on ROE to help commanders maintain a mindset that is anchored to the actual requirements. At the tactical level down to the individual soldier, it must be reinforced that soldiers should "do no harm" by not committing bad acts that give the enemy cognitive warfare ammunition. This was repeatedly the case in Operation Iraqi Freedom, where both aggressive detention policies as well as crimes by individual soldiers undermined global support and increased insurgent resistance to all American forces.[27] It must be emphasized to every soldier that one of America's key asymmetric advantages over its adversaries is its global reputation for upholding the international rule of law, and their individual actions can undermine this.

Third, America should leverage its historic position as the lead defender of the international rule of law and its own capacity for operating in the public-facing information domain to proactively prevent its adversaries from achieving their strategic objectives. When adversaries violate LOAC, America must dominate the narrative by highlighting their criminal acts and seeking accountability. Tactical-echelon units should be on alert for such violations and feed that information to operational-echelon commands that are ready to publicize and highlight adversaries' bad acts to the world. While this will not stop all the bad acts, it will increase adversaries' cost of doing business. It may make other nations more hesitant to ally themselves with such bad actors knowing that they will become associated with such illegal acts.

Additionally, America should proactively reinforce its global reputation by highlighting the positive work it does around the world and strengthening alliances. This will strengthen America's global posture and public support while also strengthening partner nations.[28] Indeed, if proactively integrated into operational planning, America should see informational operations and thematic messaging as a strength rather than a liability.[29]

By fully integrating information operations into MDMP at all echelons, the Army will be able to

proactively rather than reactively plan for cognitive warfare campaigns. When operating at its full capacity, America can leverage its reputation as the leading supporter of the international rule of law to dominate the information domain and place its adversaries in a defensive posture that increases their cost of doing business when they violate LOAC.

Planning for Cognitive Warfare Does Not Disturb the Military's Apolitical Tradition

It is an American military principle that its members remain apolitical.[30] One potential counterargument to this article is that its suggestions would move tactical military operations too far into the political realm. This counterargument must fail because the information age has fundamentally altered the relationship between the battlefield and the public-facing information domain. Because America's adversaries will use battlefield tactics that target public opinion, America's military must adapt to remain competitive and can do so without violating its apolitical traditions.

The public-facing information domain is now a part of multidomain operations with a direct impact on tactical, operational, and strategic considerations.[31] While messaging guidance and strategic-level decisions must be made at the appropriate level, tactical units must remain cognizant of these considerations and appropriately factor them into their planning. This is consistent with America's apolitical military tradition, where it is recognized that military leaders at all echelons must understand national objectives and the strategic implications of their actions.[32]

Ultimately, while it is important that information domain considerations are factored into planning at all echelons, it is given that those planning considerations will be appropriate for the given echelon. Tactical-level information considerations will be informed by the operational order and other guidance from higher-echelon units, while key information operations will remain an operational- or strategic-echelon fight.

Appropriate planning at the tactical echelon will ensure units down to the individual soldier understand the secondary effects of their actions and may influence how certain operations are conducted. It will also help the ground-level units identify when adversaries create scenarios that place American soldiers in a situation designed for propaganda exploitation. If a situation arises such as an enemy fighting from a hospital building, tactical units should have already planned how such a situation will be addressed. The tactical-level units should understand the need to rapidly report such information to the higher echelon where the public-facing information domain fight is being managed.

At the operational and strategic levels, there should be an integrated information domain plan in which civil affairs, legal, and public affairs are involved in the planning and can immediately engage in preparing countermessaging. This will help America hold its adversaries accountable for their own LOAC violations while protecting American interests from misinformation, disinformation, and other cognitive warfare campaigns.

It is given that Army leaders must tread carefully to remain apolitical, especially when it comes to cognitive warfare. Public-facing information operations should be carefully coordinated with the strategic echelon. This will not significantly change the nature of the American military's traditional apolitical stance but, rather, simply ensure it remains cognizant of all possible threats to achieving its strategic objectives.

Conclusion

Pede, in his critique of legal commentators who are unfamiliar with the realities of war, asked his readers to imagine the well-intended, overly stringent, COIN-era ROE standards being imposed upon American soldiers during the largest battles of World War II.[33] In information age warfare, one must imagine those same historical battles are being video recorded, the choice portions selectively edited and mass-distributed on social media within minutes of happening. Troll farms and bots are reposting the images, flooding X, YouTube, and Instagram with their crafted narrative. Those videos are showing the ugly realities of war to influence public opinion against the war.

One should imagine that, in the next conflict, the American military is lawfully targeting no-strike-list entities because the enemy intentionally positioned its command nodes underneath these buildings, knowing the unlawful advantage it would provide them. The hypothetical enemy planned to compel America into targeting these buildings, knowing that the world will hold America to a higher standard regardless of the legal

standard or realities of military necessity in LSCO. Media commentators and private citizens are sharing these feeds and calling for public pressure campaigns to influence elected leaders to apply a more restrictive ROE on American soldiers, not appreciating the risk to mission and risk to personnel they are calling for. This is the reality of information age war where a picture, video, or tweet going viral could influence international events. American military units at all echelons must be prepared for cognitive warfare.

The Israeli-Hamas conflict offers lessons about a nation with power overmatch that is achieving consistent tactical victories but risks strategic defeat due to its enemy's effective use of cognitive warfare. Comparatively, the role of the public-facing information domain in the Ukraine-Russia conflict offers lessons about the successful application of information operations to further Ukraine's strategic interests. America will face similar risk from adversaries' efforts to dominate the information domain with misinformation and disinformation in future conflicts. America must apply lessons learned about cognitive warfare and information domain operations from current global conflicts to be fully prepared for modern LSCO. ■

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The Battle for Attu (1943)
Virtual Staff Ride
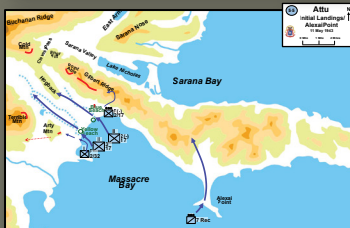
This new virtual staff ride (VSR) from Army University Press's Combat Studies Institute examines the U.S. invasion of Japanese-held Attu Island in the Aleutian Island chain. Ultimately, U.S. forces (primarily 7th Infantry Division) triumphed, but it was a difficult and costly campaign in which weather and terrain were as much a foe as the determined enemy resistance. The study provides relevant insights into numerous aspects of warfare to include operations in a unique arctic environment, joint/amphibious operations, mission command, and many other facets of combat.

The Attu VSR is a four-hour study that uses simulated 3D terrain presented in front of the audience to help immerse participants in the terrain.

To learn more about VSRs, visit https://www.armyupress.army.mil/Educational-Services/Staff-Ride-Team-Offerings/.

Soldiers assigned to 1st Battalion, 4th Infantry Regiment, are given instruction on the use of the Project Origin robotic combat vehicle in the Hohenfels Training Area, Germany, on 6 June 2022. Project Origin uses autonomous ground vehicles to support Army maneuver by providing a variety of load packages, depending on the situation. Its use was demonstrated during exercise Combined Resolve 17 as part of the Army's modernization and emerging technologies initiatives. (Photo by Spc. Christian Carrillo, U.S. Army)

Prioritizing Maintenance Restructuring and Resourcing for Autonomous Systems

Maj. Dennis A. Vinett, U.S. Army

Yesterday I flew in the F-16 for the first time. Last night, as I reflected on that machine, on the M1 tank, the AH64, the Bradley fighting vehicle and the levels of technology they represent compared to the equipment the Army I joined as a private soldier thirty-eight years ago, my judgment switch locked firmly into the "better quality" divot—better quality, almost regardless of how we recruit and what it costs. There's just no way to realize the combat potential of those machines without very smart guys who are very, very well-trained.

—Gen. Donn Starry

In keeping with national strategic guidance from the Department of Defense (DOD), the Army has devoted a significant amount of time and research into exploring the application of autonomous vehicles on the battlefield. The topic appears in every significant strategy from the national level down to the major Army command level. Approaching a decade after the 2016 publication of a Defense Science Board (DSB) recommendation for a wholistic approach to autonomous capability integration, the U.S. Army has surprisingly avoided spending the energy to analyze, understand, and address the dramatic degree of complexity these technological advances place on maintenance support structures. Institutional trust in the acquisition process as a means of writing off the challenges of maintaining and sustaining autonomous systems seems to have masked the need for senior leader acknowledgment regarding the risk and resourcing. While industry leads the way in this field, the Army cannot afford to forget about all aspects of tactical employment of autonomous systems. Resourcing for correctly trained soldiers within properly designed maintenance structures at echelon must remain a part of the autonomous vehicle conversation because the Army cannot afford to outsource its tactical maintenance capability.

Maintaining an autonomous fleet under challenging tactical conditions requires a fundamental adjustment to how the Army structures and executes maintenance support due to the significant increase in software/hardware requirements on top of the physical act of maintaining a given platform. If maintenance operations remain unchanged, increasingly complex maintenance tasks associated with autonomous ground vehicle platforms will require significant maintenance support from nontactical commercial/

contracted services, at a greater cost than deliberately accounting for the increase in challenges along the way. This adjustment, while significant, is evolutionary, not revolutionary. The Army has adapted to seismic changes like this before. While he focused on rebuilding a shattered army after U.S. involvement in Vietnam, Gen. Donn Starry found himself needing "to put doctrinal and organizational muscle on the technological skeleton" of the "Big Five" systems.[1] A deliberate and wholistic approach to the acquisition and implementation of autonomous systems must include senior leader acknowledgment and resourcing with respect to maintenance and sustainment across the lifetime of the platform through the operational support phase. Currently, strategic guidance on maintenance resourcing is thin at best, absent any acknowledgment at worst. Autonomous platforms will require a striking redefinition of the duties and responsibilities of maintainers, tailored and resourced maintenance organizations that blend physical and digital maintenance capability, and trained technicians with broad crossover experience at the forefront of autonomy in industry. Maintaining autonomous platforms also requires either a dramatic investment in resourcing Army structure or the complete transition of these support requirements to a civilian contracting model with an eye-watering price tag. In either case, these requirements demand senior leader acknowledgment and emphasis to ensure that any autonomous system the Army acquires has the associated support, resourced at the strategic level, and employed at the tactical level, to fight and win our nation's wars.

The 2017 and 2022 *National Security Strategies* (*NSS*) address the growing national focus on innovation within the artificial intelligence (AI) field, and by extension, the autonomous field. President Donald Trump's *NSS* mentions autonomous vehicles and weapons while

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President Joseph Biden's *NSS* goes one step further and associates a combat-credible military with investments in "trusted artificial intelligence."[2] The U.S. Department of Transportation (DOT) continued this line of thought in the *Strategic Plan for Fiscal Year 2018–2022*, noting that the DOT "must be prepared to respond to challenges posed by emerging technologies, while accelerating their development and deployment to realize potential benefits."[3] As expected, this ability to respond is heavily dependent on the relationship between the DOT and industry, as maintenance of autonomous systems occurs on the industry side conforming to DOT policies. On the military side, the Army published its *2020 Army Artificial Intelligence Strategy*, which acknowledges the guiding assumption that "the Army will transition from an incremental acquisition approach by reforming processes, resourcing, and governance to embrace the continuous development, acquisition, and employment of AI capabilities."[4] This trend of expediting how the Army acquires AI and autonomous technology will have significant second and third order effects if the associated ongoing assessment of the evolution of sustainability and supportability for this technology is not a vibrant and supported process. To this point, the Army's strategic approach involved the creation of the Army Artificial Intelligence Integration Center (A2IC), which operates "across the full AI application lifecycle [sic] with an emphasis on near-term execution."[5] Regrettably, the language allows for an easy and understandable slide toward the over prioritization of acquisition now at the expense of deliberate support and resourcing later. Additionally, much of the current consideration blends the training and maintaining tasks across AI and as associated autonomous platform efforts but while these circles overlap, they should receive separate consideration since maintaining AI software involves bringing the physical world to the digital world and maintaining autonomous technology centers on bringing the digital world to the physical world.

Even national and military strategies have conflated the definitions of AI, autonomy, and machine learning. The scope of this argument defines AI as "a collection of disciplines that enable some autonomous systems to sense, plan, adapt, and act based on their knowledge and understanding of the world, themselves, and the situation."[6] In turn, this argument advances the definition of autonomy proposed by Andrew Ilachinski: "A range of

context-dependent capabilities, which may appear at different scales and in varying degrees of sophistication, that collectively enable the coupled human-machine system to perform specific tasks."[7] As technology and capabilities continue to develop, the Army, DOD, and the U.S. government must pay closer attention to these terms and how they interplay with each other. While AI and machine learning have opportunities and challenges intrinsic to their specific fields, autonomous systems carry both a physical and mechanical consideration along with a digital and software-oriented consideration. This places autonomous systems squarely between traditional Army circles that began to overlap at the genesis of the internet of things and now have smashed into one another, erasing former distinctions. To keep pace, maintenance structures and training must account for this blending across the mechanical and digital divide at a scale previously unnecessary to consider.

In 2016, the DSB made several recommendations that portended the fundamental shift in how industry and the military had to define the role and scope of a mechanic. The DSB argues that the U.S. military, "formerly equipped with largely electro-mechanical platforms," had already begun the transition to platforms and systems with integrated software essential to the operation of those systems.[8] By adding a digital component to the electrical and mechanical components, the requirement for supporting these systems changes how the U.S. military must train technicians and importantly, will only grow as the complexity of the digital/electric/mechanic nature of the platforms grows.[9] The DSB observed that acquiring these systems would be "data-heavy in all phases, from design, through modeling, simulation, validation, verification, tech insertion, and operational concepts and tactics, techniques, and procedures."[10] In accordance with the U.S. military's acquisition process, the support requirements including maintenance through the life cycle of these platforms should, logically, be as intensive across all described areas because these data-driven, digitally integrated tactical platforms must function on contested and multidomain battlefields.[11] The mechanic of today's U.S. Army does train across the categories of "maintenance, repairs, electrical systems familiarity, and electronic trouble shooting," which addresses to some degree the mechanical, electrical, and digital maintenance support for a platform.[12] When compared

Soldiers from Detachment E, Army Applications Group, 75th U.S. Army Reserve Innovation Command (USARIC), learn about the design and components of a V-BAT unmanned aircraft system after evaluating a demonstration of its autonomous capabilities on 17 September 2024 at Yuma Proving Ground, Arizona. Through direct collaboration with industry experts at Yuma Proving Ground, the soldiers provided frontline insights to refine these cutting-edge technologies, bridging the gap between concept and real-world application. (Photo by Sgt. 1st Class John Carkeet, 75th USARIC)

to industry, the divide between approaches to future maintenance becomes apparent. Tesla aspires to create autonomous vehicles "paired with remote diagnostics and over-the-air software updates" that require no services thanks to fewer moving parts.[13] Tesla's "mobile technicians" conduct mobile service from anywhere, maximizing remote diagnostics.[14] While industry, including Tesla, has not fully realized these lofty goals, the differences in how the Army describes the mechanic versus how Tesla describes the mobile technician are striking. To add to the challenge, Tesla does not have to consider battle damage, cyberattacks, restricted terrain, or any other host of military issues in anywhere near the fidelity that the Army must acknowledge due to the nature of multidomain, large-scale combat operations.

Elaborating on the increasing need for digital skill, even eclipsing the electrical or mechanical skills already inherent in Army maintenance, autonomous systems have only grown more complex. In late 2017, Ilachinski noted that "as autonomous systems increase in complexity, we can expect a commensurate decrease in our ability to both predict and control such systems: i.e., the 'spectre of complacency in complexity.'"[15] While Ilachinski meant this as an observation universally applicable to how humans interact with autonomous systems, the comment specifically applies to the maintenance of autonomous systems. Due to the lack of senior leader resourcing for maintenance structures and the associated training, the Army has turned its eyes away from the hard reality of creating a "common language" between human maintainers and autonomous systems
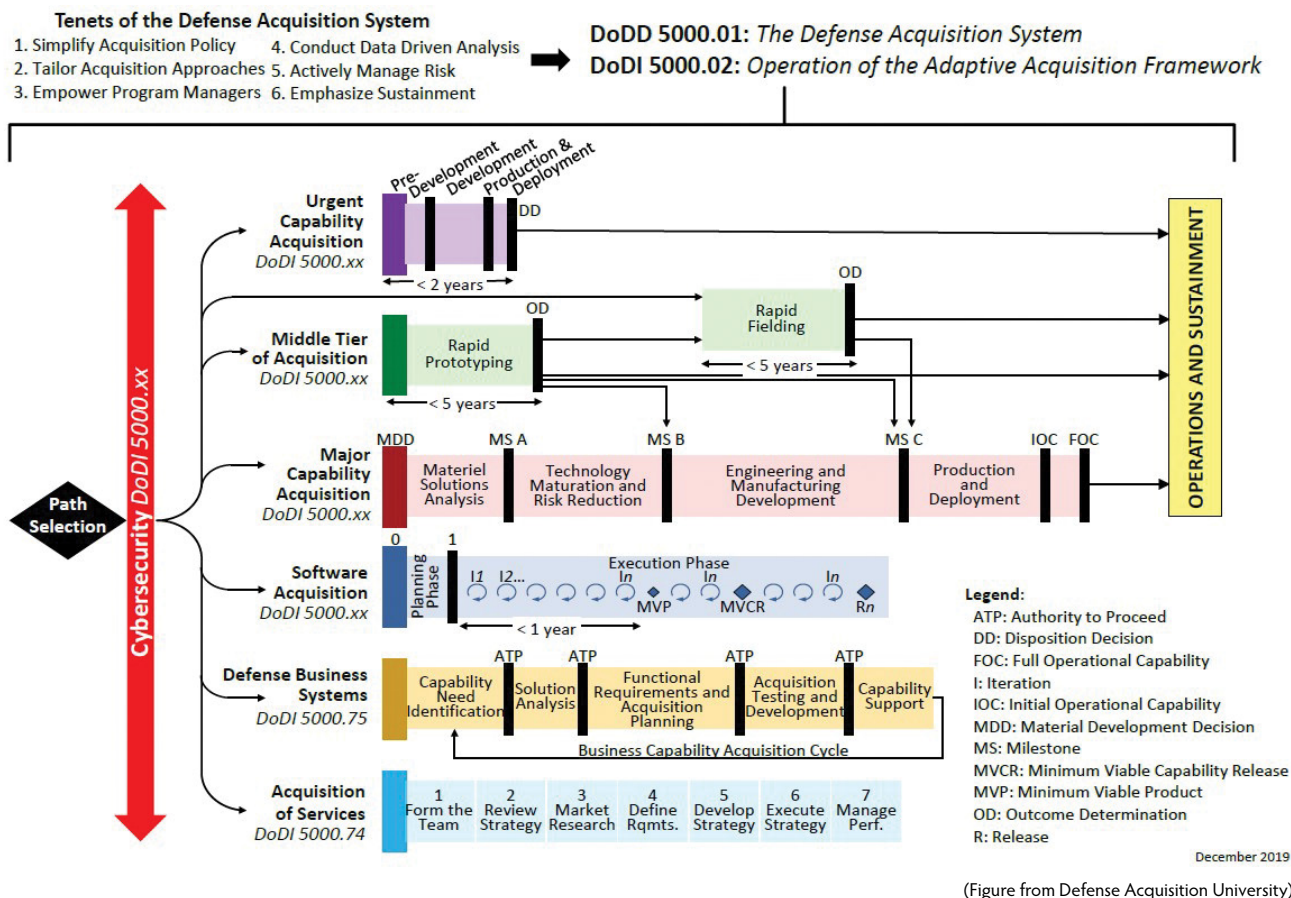
Figure 1. Army Adaptive Acquisition Framework

requiring digital, mechanical, or electrical maintenance. Constructing a common maintenance language for autonomous platforms requires acknowledgment of the value in understanding not only how autonomous platforms "achieve a given performance" but in understanding the support required to enable an autonomous platform to "achieve a given performance."[16] The second step in creating a common maintenance language for autonomous platforms requires acting on this understanding in the form of resourcing organizations and maintainers or technicians so that support for these platforms remains at the forefront of the acquisition process. Based on the significant drop off in mentions of maintenance and sustainability of autonomous platforms in strategic guidance between 2016 and 2024, this understanding of the need for a common maintenance language is at risk of relegation to a future, significantly more costly, military problem set.

The Hague Centre for Strategic Studies provides a simple, four-pronged assessment of "the military value of RAS," which covers robotics and autonomous systems.[17] Under this model, the Army continues to make great strides studying the effectiveness of autonomous systems, pushing for legitimacy in the form of ethics and safety, and through strategic guidance, has directed the overhaul of systems and processes to support an agile and adaptive acquisition framework (see figure 1).[18] The final category, efficiency, recommends the consistent assessment of resourcing that includes maintenance costs. This is an area the Army acquisitions system traditionally struggles with, especially for the "urgent operational needs" acquisitions pathway, which prioritizes agility over deliberate and wholistic considerations.[19]

Using this evaluation metric framework, the Army can prevent natural decay in priority for sustainment. This decay is even more pronounced with respect to autonomous systems because the Hague Centre for Strategic Studies clearly points out that maintenance "is especially difficult to evaluate for RAS [robotics and autonomous systems] in general," but it remains "an
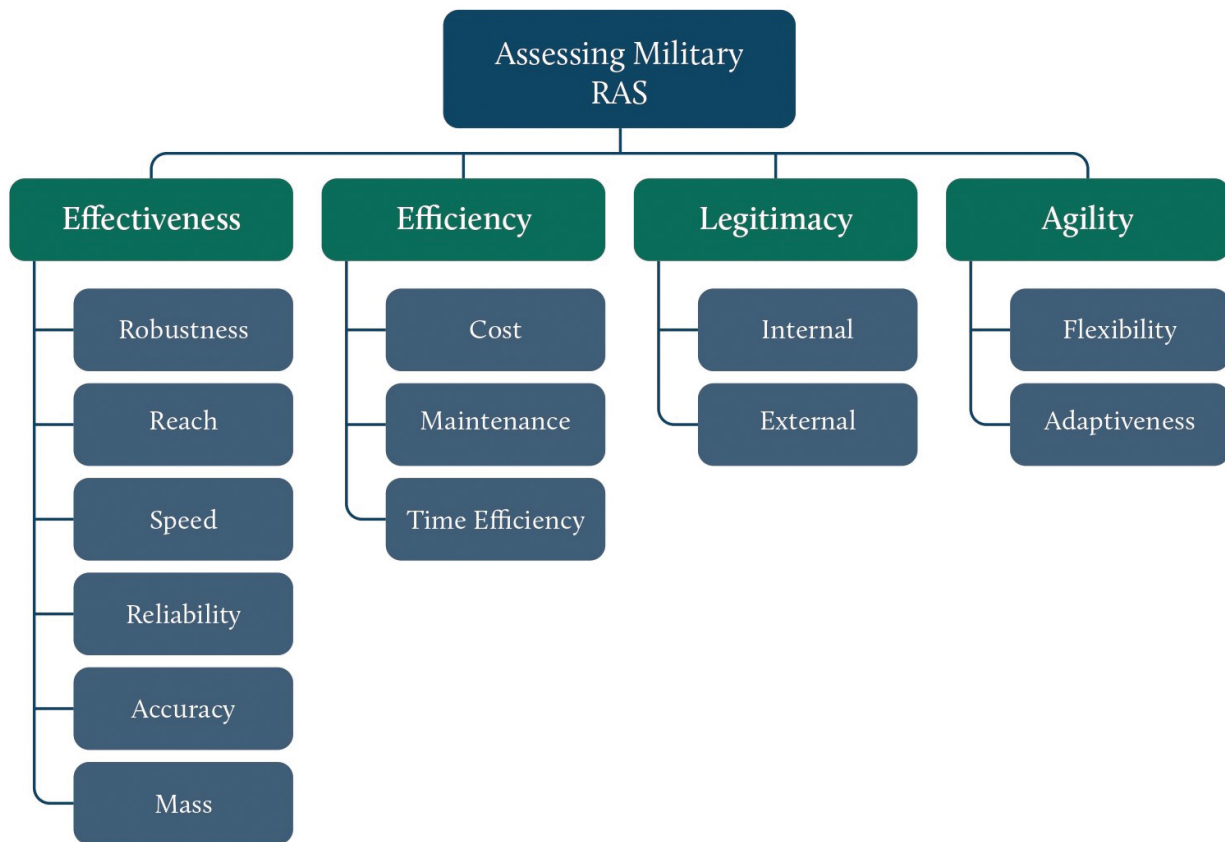
(Figure from The Hague Centre for Strategic Studies, *The Military Applicability of Robotic and Autonomous Systems*)

Figure 2. Evaluation Metrics Used to Assess RAS

important factor to consider when developing, purchasing, or introducing RAS [robotics and autonomous systems] into a context."[20] Regarding this context, the Hague Centre for Strategic Studies assesses the service and support sector as the second largest domain for investment in autonomous or AI systems, after information and intelligence (see figure 2).[21] The primary risk underlies the fact that as the Army increases agility in the acquisitions process, "experimentation and rapid innovation do not align with a culture of meticulous planning and linear requirements assessment, development and acquisition process."[22] This disconnect between acquisition and development "can lead to difficulty in keeping up with the speed of technical advancements," especially relevant for technological innovation spurred by industry innovation as is the case with autonomous systems.[23] Supportability in the form of maintenance cannot slip out of the Army's field of vision.

The recently shuttered "Expedient Leader Follower" (ExLF) effort provides a functional case study on the

importance of maintenance in autonomous innovation. The ExLF program aimed to reduce operator risk by pairing human operated platforms (leader) with autonomous platforms (follower), putting less crews on high-risk roads while still accomplishing the same throughput. After six years, the Army officially canceled the ExLF program, choosing instead to seek a "commercial solution offering," due to the allure of "matured technologies" in the uncrewed vehicle field.[24] Importantly, before the ExLF system officially ceased, the risk assessment of the ExFL program conducted by Booz Allen Hamilton provided several interesting insights into risk that could broadly function as considerations for all developing efforts in the field of autonomous vehicles. Outside of noting the importance of funding for the developer to ensure maintenance for ExLF systems during testing, the risk assessment explicitly stated the obvious but critically important observation that "due to the nature of unmanned vehicles there is not a driver in each vehicle to process and react to the

An Army autonomous vehicle, palletized load system, arrives at the Port of Shuabia in Kuwait on 24 June 2023. U.S. Central Command and U.S. Army Central are leading the way in innovation with autonomous vehicles, enabling the integration of emerging technologies. (Photo by Capt. Katherine Alegado, U.S. Army Reserve)

warnings the automotive system provides."[25] As a result, additional information and training are necessary to "allow operators to coordinate with maintenance assets to prepare to support the unmanned vehicles following missions."[26] Not stated explicitly but related to these observations, autonomous vehicles with no crew rely on the associated operator for this function which increases the workload for the few remaining operators and has not to this point resulted in a related balancing of maintenance support capability to mitigate the lack of operator availability to conduct the first and most basic level of maintenance. The beginnings of this revelation first appear in this risk assessment and the continued line of logic should inform future efforts. Cutting operators decreases the first and most consistent maintenance operation and displaces that workload on existing maintenance organizations lacking the needed redesign to account for this displacement. As the Army transitions to seeking commercial solutions, those companies sell their maintenance support structures as a package deal. Army maintainers who can function at the tactical level of autonomous application will lack the skills required to conduct meaningful maintenance on these increasingly complex systems. Commercial vendors will continue to sell their innovation and associated support but by nature of their external relationship to the military, lack the ability to provide significant functional maintenance at the tactical level, which will leave the Army with higher maintenance costs, lower tactical capability, and longer lead times to return battle damaged autonomous platforms back to the tactical echelon.

Training remains at the heart of the entire conversation on systems maintenance and takes on a special relevance when it comes to maintaining autonomous systems. The gap between the military approach to maintenance and the industry approach to maintenance continues to widen and remains fundamentally linked to training programs aimed at core competencies relevant to emerging autonomous technology. The military has the added challenge of ensuring maintenance training includes future battlefield considerations like increased lethality and multidomain

threats that do not apply in the same way to the civilian sector. In *The MANTIS Book: Cyber Physical System Based Proactive Collaborative Maintenance*, the authors describe future maintenance as an informed blending of collaboration between humans and autonomous systems.[27] Failing to prioritize the understanding of this collaboration will result in the need for wholesale replacement of large systems within the autonomous system, or in the worst case, the replacement of the entire system. Both are expensive and unsustainable.[28] Whether this collaboration and human-machine teaming represents the introduction of cybernetic or autonomous diagnostic capacity on an external platform or the blending of technology and technician for the purpose of self-diagnosis on an autonomous platform and human maintenance based on the system information, both represent the essential need for training a human within a maintenance system to the same level as the new technology. Humans represent the physical manipulation of the system while autonomous platforms represent the digital manipulation of the system. Without the correct training, the "man-machine collaboration," which remains essential, cannot exist in a functional way.[29] In a distant future, there may be technology that can maintain itself, but given the kinetic environment that the Army must operate in, maintenance remains a human endeavor because maintenance today "includes all technical, administrative and management actions implemented during the lifetime of a machine" and autonomous systems still require human collaboration for that.[30]

Returning to 2016, the DSB made several critical recommendations relevant to ensuring the human side of the collaboration described above will remain trained and capable of maintaining autonomous systems. The competition between the military and industry for talent frames this retention challenging in a more meaningful way than most fields. Traditionally, the military has retained the capability to conduct its own training but the state of autonomous innovation and advancements in the civilian sector relevant to the *2020 Army Artificial Intelligence Strategy* imperative to "maximize human/machine potential" through an AI-enabled force means the Army can no longer insulate its training programs from the civilian sector for fear of falling behind.[31] The DSB recognized in 2016 that the commercial sector was and remains "an effective competitor for talent."[32] Any effort for the military to turn inward for training and modernization in this field continues to put the military at "a serious disadvantage to retain experience—talented operators, maintainers, supervisors, and technology leaders."[33] To overcome this disadvantage, the DSB argued for "necessary measures," including "categorizing autonomy trained personnel in the highest pro pay category" and "offering significant re-enlistment bonuses and officer retention bonuses."[34] The DSB also recognized the need to "formalize broad exchanges between government, military, and commercial enterprises for extended periods—closer to months rather than days—so that both government and commercial personnel can learn and understand emerging technologies and capabilities as well as the range of user concepts and applications."[35] All suggestions generated in 2016 by the DSB could have benefited the current ability to modernize maintenance at pace with autonomous innovation. Unfortunately, eight years after the publication of these recommendations, the Army has not resourced these opportunities to the degree required to keep maintenance on track.

The U.S. Army Ordnance Corps and School, the Army proponent for maintenance, has made efforts toward these recommendations. The Ordnance Strategic Plan 24-30 seeks to "build the future technician," adapting the verbiage used by several industry innovators in the field of autonomous vehicles.[36] This line of effort within the strategy addresses the need for modernization within the ordnance corps but does not go far enough toward the radical blending of military and industry efforts described by the DSB. Resourcing remains the primary barrier to entry and undoubtedly, an unconstrained maintenance strategy from the Ordnance Corps and School would involve large-scale and lengthy training with industry requirements to ensure the maintainers of today become the technicians of tomorrow. Without the opening of the aperture for the flow of resourcing to critical efforts like those recommended by the DSB though, the Army locks its maintenance transformation to incremental progress while at the same time unlocking its acquisition of autonomous systems, shedding the incremental acquisition and widening the gulf between systems and those who maintain systems.

The Ordnance Corps and School also has a line of effort built into their strategy that aims to "Transform

the Ordnance Corps," which includes "incorporating emerging technologies [and] capabilities" as well as "aggressively advocating for funding Army of 2030-2040 targets" that certainly include the required maintenance capability for those emerging technologies.[37] Unfortunately, the degree of resourcing required to truly posture Army maintenance for autonomous vehicles and enable Army maintenance to evolve and adapt at pace with autonomous technology resides many echelons above the Ordnance Corps and School. The U.S. Army does not have the available resources to fully fund maintenance support for the future without creating significant risk in other efforts. Unconstrained resourcing remains an unrealistic goal when fiscally responsible resourcing of associated maintenance requirements could solve many of the underlying problems. Adjustments to force structure including updates to the "Manpower Requirements Criteria (MARC)," directed by the Department of the Army, to ensure organizational designs account for maintenance demand going forward could account for the lack of crew availability for operator-level maintenance and counterbalance to increase maintainer requirements across all Army organizational designs.[38] Increasing access to training-with-industry opportunities, especially for maintenance managers, could result in a better trained force operating in a better designed organization. Creating professional incentives for technicians who have advanced credentials in the maintenance of autonomous systems could increase retention. Blending the digital skills of the Signal Corps or Cyber Corps with the physical skills of the Ordnance Corps could result in a new military occupational specialty, custom built for maintaining autonomous platforms. All these suggestions require resourcing. In 2024, the Army remains constrained, grappling with retention problems across the board and modernization challenges in every field. While that is an unfortunate reality, aggressively pursuing innovation and acquisition of autonomous systems without an equally aggressive pursuit of transformation across the Ordnance Corps and through maintenance capabilities at all echelons will end up creating more problems than it solves.

Given the significant advances in autonomous technology over the last eight years, research into understanding the full scope of supporting these requirements must catch up. Significant research into a side-by-side comparison of current and future maintenance tasks will help identify the exact areas of increased workload as well as the associated training investments needed. Additional research into the scope of practice for a maintainer or technician should include detailed analysis of the kinds of tasks and ways in which Army proponents across the force can participate to optimize the maintenance field. Autonomous vehicles require significantly more digital maintenance support and should warrant a discussion among the Sustainment Center of Excellence, the Cyber Center of Excellence, and other Army commands that own portions of these new maintenance responsibilities. Research into the feasibility of a new military occupational specialty for autonomous maintenance or a direct study of existing niche maintenance military occupational specialties could shed light on the added challenges of training and retaining skilled digital maintainers already in the force, but in specific applications. Researchers have a lot of ground to cover, and every bit of quality scholarship will help bring attention to the urgency of this problem.

Maintenance is an essential consideration for all platform-based forms of movement and maneuver. The Army has generated and directed allocation rules for maintainers inside organizational designs because the Army cannot overstate or forget the importance of maintenance in organizational design. For this specific function, the "nature" of maintenance, like war, remains unchanged, but the "character" of maintenance is undergoing seismic adjustments that will require accounting for an agile and adaptive maintenance operation now, as these technologies are in their relative infancy.[39] Army and DOD senior leaders cannot afford to fundamentally adjust maintenance after the fielding of autonomous vehicles. Maintenance operations must evolve concurrently to remain relevant and reliable. The national, DOD, and Army strategies all stress the importance of remaining ahead of our adversaries with respect to AI, machine learning, and autonomous capabilities. Unlike many examples from the past, the Army cannot remain relevant and ensure the support structures exist by itself. Industry continues to lead the way for autonomous technology. The Army continues to focus on the agile and adaptive acquisition of autonomous technology but has not acknowledged, articulated, or resourced

an equally agile and adaptive maintenance support structure. But just as the Army learned with the acquisition of the "Big Five" technological advances, we remain in an environment that requires human-machine collaboration and teaming. Well-trained soldiers still have a place working with autonomous platforms to achieve the best outcome with the lowest risk. Behind that, well trained maintainers in purpose-built maintenance formations end up enabling the true potential of these systems. To enable that potential, maintenance considerations require senior leader time, attention, and resourcing in concert with technological innovation in the AI and autonomous fields. ∎

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Leveraging Data for Warehouse Distribution Success During Operation Allies Welcome

A Retrospective on Operationalizing Data

Maj. Daniel Marcey, U.S. Army

The soldiers of the 2nd Armored Brigade Combat Team, 1st Armored Division (2/1AD) received the first 322 of 11,427 Afghan evacuees at the Doña Ana Village, New Mexico, on 21 August 2021. Led and supported by the entirety of "Team Bliss," 2/1AD assisted the Afghan resettlement effort for 132 days.[1] In all, elements of the division, intergovernmental organizations, and many nongovernmental organizations worked together to resettle asylum seekers in the United States.[2] The operation was remarkable in purpose and effort, and the division's planning phases, execution, and lessons learned are available in a multitude of professional publications.[3] Many of these assessments cover the breadth of the operation. To offer a substantively different perspective, this review focuses on the framework and methodology employed by a company headquarters to leverage data to support the distribution of the provisions, donations, and government-purchased aid required to meet and sustain the needs of those being resettled. Drawing from theoretical and practical sources, this review alternates between technical writing and storytelling to explain complex topics in an engaging and informative narrative. Upon reading, practitioners will have a reference point to understand and apply emerging data-intensive solutions inherent to twenty-first-century operations.

Bottom Line Up Front

By comparing the principles of data strategy and examining the framework and methodology employed by a company headquarters to leverage data, this review serves as a foundation for future leaders to create, acquire, and manage data. Additional lessons include

Pvt. Hasaan Credle, a signal support systems specialist with 1st Squadron, 1st Cavalry Regiment, 2nd Brigade Combat Team, 1st Armored Division, restocks the snack cart with bags of cereal bars, water bottles, chips, and other snacks to hand out to Afghan families as they process through the Arrival and Departure Air Control Group as part of Operation Allies Welcome on 8 September 2021 at Fort Bliss, Texas. The Department of Defense, through U.S. Northern Command and in support of the Department of Homeland Security, provided transportation, temporary housing, medical screening, and general support for at least fifty thousand Afghan evacuees at suitable facilities in permanent or temporary structures. This initiative provided Afghan personnel essential support at secure locations outside Afghanistan. (Photo by Sgt. Christina Westover, U.S. Army)

the fact that data tools do not have to be technologically sophisticated, they do not have to be expensive science projects, and data tools created by those at the threshold of execution can manage adaptive solutions. Commands must prioritize data employment, as in-depth analysis empowers leaders, culminating in shared understanding. Key to championing data is underwriting the residual risk of organizational change during execution. Notably, the risk is prudent, and when data is integrated into the operations process, commanders are better equipped to visualize, describe, and lead their organizations. Armed with these insights, leaders can make faster and better-informed decisions by leveraging data to assess risk, optimize combat power, and fully employ their organization to win.

Receipt of the Mission

On the afternoon of Friday, 1 October 2021, Headquarters and Headquarters Company, 1st Battalion, 35th Armored Regiment, received the warning order to support the Doña Ana Village (DAV) (the operational name for Fort Bliss's newly formed life support area) distribution warehouse beginning 3 October 2021. The distribution warehouse aimed to coordinate, receive, and provide aid to the Afghan evacuees housed at the DAV. However, by the beginning of October, the stock levels at the distribution warehouse did not reflect the need. Team Bliss had been receiving evacuees for forty days and distributed approximately nine thousand prepackaged aid bags, resulting in shortages of the aid items comprising a complete aid bag.

Therefore, considering the total planning population for DAV was ten thousand evacuees, the mission, determinable by reduction, was to estimate the required aid necessary to construct prepackaged aid bags for one thousand Afghans. More specifically, Headquarters and Headquarters Company needed to estimate for, assemble, and provide one thousand prepacked aid bags, referred to by the nongovernmental organizations as "kits," to a sister battalion whose mission was to distribute the kits during reception and staging.

A Primer on Data Centricity

The future digital Army requires commanders to operationalize data and data analytics. To realize the future, leaders must be held accountable for data management, governance, and analytics. In combination, these data initiatives result in data centricity, which, as an organizational disposition, enables rapid decision-making.[4]

Secretary of the Army Christine Wormuth described data centricity as "empowering leaders and Soldiers with the right information at the right time to gauge risk, optimize combat power, fully employ national means, and attain decision dominance at all echelons."[5] A data-centric vision is realized as information seamlessly flows through channels accessible in real-time rather than limited to scheduled and specialized data collection points. A data-centric force can more quickly access and understand new data's relevance, enabling iterative decision-making.[6] To hasten the transformation, commanders at all levels must see themselves responsible for realizing the Army's data goals.

Central to delivering a data-centric organization is a commander's data strategy. Data strategies are emergent or deliberate. So, no matter the approach, the organization will have a data strategy.[7]

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Commanders who value data will foster a data-centric culture. Conversely, commanders who do not value data will find their reliance on industrial-aged data collection methodologies lacking, and the organization's data resources will be underutilized. These shortcomings generate increasing organizational technical debt, detracting from winning on the twenty-first-century battlefield.

Framework for Developing a Data Strategy

As done in the reverse planning process, commanders must visualize the effects and outcomes to service the objective and then work backward by implementing policy, dedicating resources, and task-organizing formations to achieve dominance. Describing the framework in technical terms, a data strategy details use cases supported by *data products* and *data assets* whose workflows and usage modalities meet the needs of distinct business processes. Therefore, generating use cases is the start of a data strategy. From the use cases, technical specifications define the capabilities of the database. Then, metrics are identified to satisfy the capabilities. Commanders must also implement data governance to manage the inputs and outputs and ensure activities are supported by adequate resourcing.[8]

Data Products

Next, commanders are tasked with developing solutions for the use cases, called data products, which require constant organizational effort to create and maintain. Even the best-designed products, requiring low or no user input, consume organizational resources, and their elicitation requires a well-planned data product strategy. A data product strategy is an optimized value chain generated from patterned activities to create a data artifact (see the figure). Further demystifying the technical jargon requires an explanation of a data artifact. A data artifact is a digital product derived from a subset of a data source. It is created by an intelligent agent, either a human or software, by performing a unique function on the data source. In simpler terms, a data set sources, defines, baselines, and leverages data for decision-making.[9] In a sophisticated strategy, the data source is continually mined, and the baseline is updated. This repetition is the beginning of machine learning models.
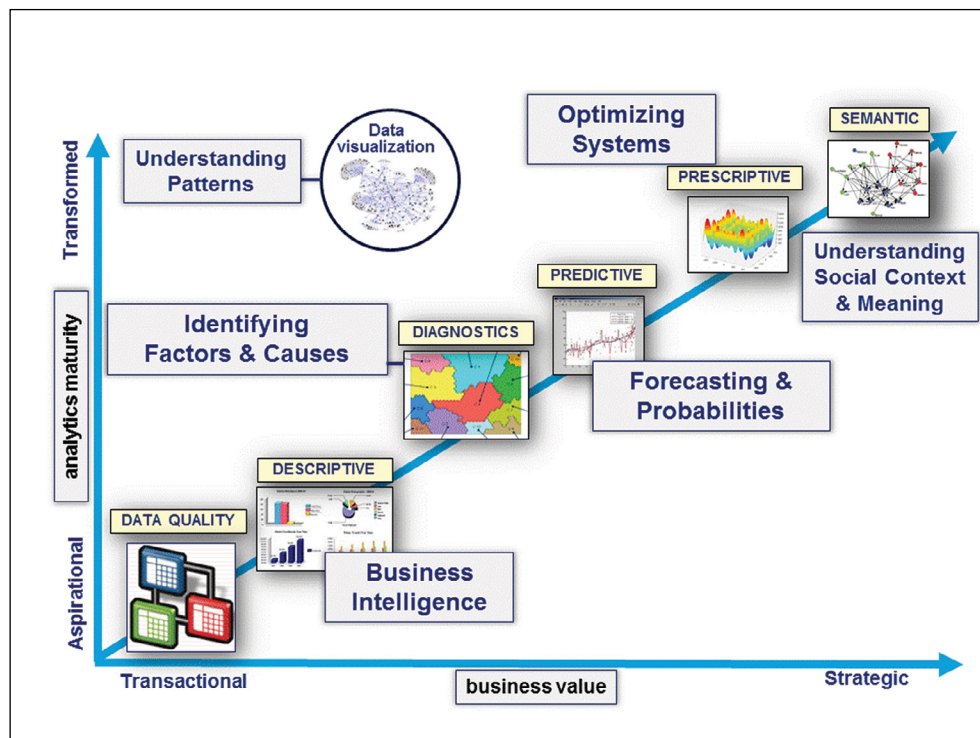
(Figure from Office of Business Transformation, *The Enterprise Data Analytics Strategy for Army Business, 2018–2022*)

Figure. The Analytics Continuum

Data Assets

Organizations create data assets from well-formulated data strategies and optimally designed data products. Data assets are highly sought-after models, dashboards, reports, and interfaces enabling decision-making.[10] Not discounting the effort required to create a data asset, the most significant organizational resource consumption occurs here at the data-human interface. On average, our ability to understand or operationalize the data is less than our ability to gather or aggregate the data.[11] The inefficiency is primarily attributable to suboptimal user experience. Alternatively, an experienced user can rapidly consume the "nth" order trends, discern higher-order observations, and infer value beyond the display—achieving predictive, prescriptive, or semantic levels of understanding.[12] Put plainly, users struggle to gain understanding because they lack the experience to visualize the data's tangible manifestation. Notably, such inexperience is magnified by the users' well-intentioned but inefficient data product strategy. Much time and effort are lost from the compounding effects of inexperience.

However, occasions to gain experience are abundantly available, and deliberate data strategies mandate data inclusion to capitalize on those occasions. There are many opportunities to lead product delivery teams focused on the continuous improvement, ingestion, and deployment of data sets.[13] Moreover, leaders must interact with the underlying data. Following the business process from data ingestion to dissemination, commanders must execute simulated transactions to develop an understanding of programmatic assumptions, case behaviors, and boundary conditions.[14] Failing to grasp the limitations can risk results in a misaligned decision. Considering commanders are responsible for organizational alignment, misaligned business intelligence tools are also their responsibility and pose a considerable risk to the mission. Investing in our understanding of the digital systems aiding in decision-making is more critical than understanding the inner workings of our data-adjacent hardware. To correct poorly aligned data and generate value from data centricity, commanders must ensure their organizational data is visible, accessible, understandable, linked, trustworthy, interoperable, and secure (VAULTIS). These seven goals, called VAULTIS, support the Department of Defense's eight guiding principles:

- data as a strategic asset,
- collective data stewardship,
- data ethics,
- data collection,
- enterprise-wide data access and availability,
- data for artificial intelligence training,
- data for purpose, and
- data designed for compliance.[15]

Table 1. Forecasted Gender & Size

Size Chart with Raw # Requirements		Ratio		# Required with Factors of Safety	
		Male	Female	Male	Female
Adult	XS	1	1	43	25
	S	2	3	86	74
	M	3	3	129	74
	L	2	2	86	50
	XL	2	1	86	25
Child (4–13)	XS	1	1	19	12
	S	2	3	37	36
	M	4	3	73	36
	L	2	2	37	24
	XL	1	1	19	12
Toddler	2T	2	2	16	5
	3T	1	1	8	3
	4T	3	3	23	7
	5T	1	1	8	3
	6T	3	3	23	7
Baby	Newborn	0	0	0	0

(Table by author)

This table presents the initial forecast utilized in the distribution warehouse to estimate the number of kits based on gender and size, 2 October 2021.

Admittedly, this collection of principles and goals gives pause. Determining the essential tasks among those listed requires intimate knowledge of intent throughout the vertical chain of command.

Here again, a data strategy at echelon pays dividends. One of the primary purposes of a command is to discern higher headquarters' intent for subordinates. Therefore, explaining how and why the complex strategic document applies will remove barriers. In lay terms, data strategies identify how to use raw data, manage bureaucracy through transparency, and emphasize the skills required to create, acquire, clean, manage, and analyze data.[16] Finally, strategies include training to enhance practitioners' data operationalization.

Implementing Data Solutions

Up to this point, the soldiers and the volunteers of Team Rubicon (the NGO leading donation efforts) had been sorting, conducting spot inventories, and packaging donations on a first in, first out basis, maximizing throughput.[17] However, the needs of the life support area were maturing, and the rapid but unfocused donation process needed manageable controls.[18]

The initial mission of developing "kits" rapidly expanded into a diverse set of tasks. The variability in persons and provisions precluded the use of a single kit (see table 1). Instead, the distribution warehouse managed thirty-seven size variations. Notably, a single "kit" included a pair of pants, two shirts, socks, undergarments, and a small assortment of toiletries. Children's kits also included a small stuffed animal. The company headquarters' first attempt at a data product was realized with these inputs. The data product was rudimentary, but the generalized size chart became the building block for projecting how many kits by size and gender would be required to serve the remaining one thousand evacuees.

Recognizing the practicality of the "powers of ten" approach, we promptly assigned values to illustrate the size distribution across a theoretical population of ten evacuees. Each grouping of ten represents one of the eight major divisions of the dataset—for example, adult-male, male-child, female-toddler, or newborn. However, having no experience clothing one thousand people, the estimate needed an authoritative reference point. Scholarly results on warehousing and managing at distribution points were used to provide an educated estimate and establish a baseline commensurate with an average American distributor. The estimate was then skewed toward smaller sizes after considering the differences in the height and weight of an American versus an Afghan. From the original ratio-based estimate, an estimate generating raw numbers was formulated. The subsequent raw number estimate is a product of DAV's census data draped across the corresponding demographic's size chart ratio. The resultant model became the basis for reporting. Notably, the combination of these two models introduced risk.

"Iron" soldiers collaborate with nongovernment organizations and translators to distribute prepackaged aid bags to incoming Afghan evacuees on 9 November 2021 at Fort Bliss, Texas. (Photo courtesy of 2nd Armored Brigade Combat Team, 1st Armored Division)

Most consequential was that the recommended plan assumed the previous nine thousand evacuees would be representative of the next one thousand.

Nevertheless, the risk was underwritten, and the resultant model became the basis for reporting. Notably, sizes were weighted with factors of safety (FOS) and increased the planned requirement to reduce the risk. The deliberate effort to assess and mitigate risk is crucial to emphasize for leaders. The probability of model error was likely, and the consequences were moderate. Therefore, the model was a medium risk to the mission. Maintaining "guest goodwill" was an essential task, and linkages between aid and goodwill are evident.[19] For these reasons, failure to provide aid poses a clear risk to the mission. With an understanding of the operational environment, a requirements model, and known risk mitigated and underwritten by commanders, a predictive requirement emerged.

Theory Explained Practically

Relating the effort to the principles of data, the first use case was resolving and forecasting the requisite aid. Considering data usage was not a specified or implied task, the data strategy and subsequent use case emerged in response to the evolving needs and circumstances.

In fact, the entire process was impromptu, and leaders had no formal training or schooling in data utilization; instead, numerous repetitions, problem-solving principles, and forward-thinking led to many organic decisions. Such a scenario is common among data novices. Ignorant of the industry terms, leaders fail to seek out the most appropriate tools and instead are left re-creating rudimentary single-use data products. Such extraneous effort delays execution and, more importantly, prohibits iterative improvements and limits opportunities to maintain the data or create "net new features."[20] Notably, such a phenomenon is well known and identified in the *Army Intelligence Data Strategy*; cultivating data literacy is a primary line of effort to overcome the shortfall.[21]

Notwithstanding such shortfalls, the first use case came with the principal data product, the ratio-based estimate. From the data product, the size report, exported nightly in a situation report, was the data asset. Finally, the human-data interface operationalized the

An aerial photo of Fort Bliss's Doña Ana Complex in New Mexico on 30 August 2021. The permanent metal buildings (*center-left*) served as the warehousing and distribution center for the duration of the mission. (Photo by Pfc. Luis Santiago, U.S. Army)

data, apprising the commander. In this specific case, we can observe the entire data product life cycle. However, the considerations that remain for review are necessary to build the data product.

From the outset, the database's format prioritized data entry. The formatting was prepared in accordance with the inventory procedures to streamline manual data entry. Focusing on acquired data ensured the outputs were limited to the inputs. Specifically, because the tool was initially focused on data collection, the data product was not reliant on any information not primarily available. In a word, the tool measured what mattered, and its success hedged on the core metrics. Yet, with many unknowns, the model was developed to leverage a scalable, flexible formula. Recognizing demographics and the gender-size ratios would drive the data product; the formulary was separated from the aid forecasts and subsequently linked through sheet-to-sheet formularies. The product of these linkages was the primary data artifact. Isolating the data product and the subsequent artifact allowed the holistic model to undergo numerous tests to ensure its behavior was as expected. Such test pages and intermediate outputs confirmed the model's training and inferencing performed correctly. Taking

the time to ensure model behaviors is a must for two reasons. The first is preventing data drift or "nth" order transformations, which result in accuracy breakdowns. Notably, the model, which operated with little sophistication, required intermediate reports as they were the only leading indicators of a data problem. The second is education. The reports taught the creators how the model responded to stimuli and familiarized senior leaders with the model's theory and risk, generating trust through understanding. Teaching others and generating buy-in was invaluable.

Operationalizing Data Solutions

Armed with an unproven model and an end state in mind, the task at hand was influencing the current scheme of sustainment. In general, Team Bliss had developed a hub-and-spoke distribution model. The distribution warehouse served as the hub. The spokes comprised the various outlets, serving as both enduring

points of supply and event-based distribution nodes. For example, the shoe store, infant store, and the "storefront" were enduring locations. Alternatively, pop-up distribution points were used for one-time issuance of items like winter jackets and sleeping bags.

Considering the scheme of sustainment's level of maturity, the distribution method was well-established. However, as was the case during requirements generation, the initial scheme lacked the deliberate planning common in the later crisis response phases.[22] Therefore, instead of spot inventories, which were outdated at the time of recording, the priority was to institute an inventory method accounting for the intake and distribution of aid.

Summarily, it was clear the warehouse needed to change its process immediately, but expecting such rapid change was unwise. In hindsight, any approach should have anticipated resistance to change, necessitating a deliberate strategy to build consensus and gain buy-in. The storming, forming, and norming processes were initially disruptive, producing fewer kits than in previous days. However, by consistently promoting data-driven operations, the organization reached an inflection point, and incremental success fostered widespread buy-in.

Changing the Data Culture

Up to this point, the sustainment scheme's "problem structure" exhibited characteristics of an "ill-structured adaptive iteration." In other words, leaders continuously changed requirements to refine the problem's structure and solution.[23] Informal command relationships within the interagency working group magnified the challenges inherent to numerous adaptations. Together, the uncertainties created a considerable amount of organizational churn. Given the issue's complex, nonlinear, and dynamic nature (providing the right aid at the right time in the correct quantities), the warehousing effort was an ideal opportunity to replace reactive solutions with data-driven forecasting. Overcoming the organizational cultural barrier required consensus, team building, and a deliberate change strategy.

Ultimately, the working group found value in the data, creating many new features. In fact, the number of products overran the organization's ability to integrate the information, which led to conflicting data. The conflict was the result of nonexistent data governance. In short order, informal agreements between

the creators and consumers of the data resolved the issue, and a loosely enforced governance served the organization for the remaining months. Highlighting the challenges associated with disruptive data leadership is not an indictment of an actor or demonstrable grand achievement. Instead, the review presents the complexities of culture change. Commanders change cultures by changing what an organization prioritizes and reinforcing pockets of success. Such was the case within the working group and among the consumers of the data products. From here, data operations focused on maintaining the learning algorithm, generating new features, and normalizing the dataset.

Managing the Data Products Algorithm

The accompanying table illustrates the fluctuations in averages categorized by size and gender. Precisely, table 2 captures the change in consumption rates influenced by reintroducing data reflective of the actual size requirements on DAV. As stated, the model was constructed to accept such information. Crafting the learning model was not without difficulty, especially since the model is hosted in Microsoft Excel. Creating a learning algorithm is often prohibitive in Excel, or at least for the general user. Linking too many interlocking variables together commonly drives Excel into an error. The circular dependency prevents automatic updates. However, the crucial breakthrough in overcoming this limitation was the explicit separation of the constants associated with the data products, particularly the gender-size ratios. Creating an adjacent column, translating the linkages, and manually transcribing the dependent averages allowed the cycle to repeat continuously without falling victim to the prohibited circular dependency.

Reflecting on the averages, numerous observations are readily available. However, in some cases, the cause of the change requires a caveat. The most prominent example is the skew toward larger sizes for adult-female clothing. Through conversation, made more productive via a translator, we discovered the women chose the larger sizes stylistically, preferring more modest forms instead of the more Western concept of fit.

Additionally, eliminating sizes contributed to the ratio redistribution. Choosing to eliminate the sizes was done because either the demand was too low, the supply was too low, or as is the case for 5/6T toddler

Table 2. Gender-Size Ratio Trends

		Moving Average by Date (Male)						Moving Average by Date (Female)			
		Original	1-Nov	7-Nov	12-Dec			Original	1-Nov	7-Nov	12-Dec
Adult	XS	1.00				Adult	XS	1.00			
	S	2.00	3.41	2.95	3.35		S	3.00	2.57	3.20	1.02
	M	3.00	4.52	4.85	4.74		M	3.00	4.02	4.00	4.36
	L	3.00	1.64	1.53	1.39		L	2.00	2.39	2.09	1.99
	XL	2.00	0.44	0.67	0.52		XL	1.00	1.02	0.72	0.63
Child	XS					Child	XS				
	S	2.00	3.62	3.51	3.24		S	3.00	3.45	3.87	3.31
	M	4.00	3.06	3.90	3.92		M	3.00	3.79	3.89	3.74
	L	2.00	1.68	1.55	1.69		L	2.00	1.63	1.54	1.69
	XL	1.00	1.31	1.04	1.15		XL	1.00	1.13	0.70	1.26
Toddler	2T	2.00	1.79	2.65	2.71	Toddler	2T	2.00	2.09	3.16	3.07
	3T	1.00	2.83	3.04	3.06		3T	1.00	3.18	3.76	3.46
	4T	3.00	3.05	2.80	2.67		4T	3.00	3.05	2.16	2.24
	5/6T	1.00	2.33	1.51	1.55		5/6T	1.00	1.67	0.93	1.23
	6T	3.00					6T	3.00			

(Table by author)

Once able to forecast requirements, aid was distributed cyclically; the model was trained using results from the largest cycles, improving forecasting capabilities, and this table details the evolution of the model's controlling ratios.

clothing, it was more common for manufacturers to combine the sizes.

Preventing the tool from driving execution is seemingly obvious, but all too often, we allow the inflexibility of data tools to steer our behavior. This stark reversal in logic is misguided. Moreover, in the case of the most sophisticated tools, digital safeguards are withheld at a higher echelon by the manufacturer or granted to a single super user, which results in users at the lowest level re-creating the valuable functions on their own in separate software. However, since those safeguards were not in place, this tool is an example of the inverse, illustrating the significant impact of allowing users to restructure it fundamentally.

Learning Models Enhance Use Cases

From the original data product and its first two use cases, additional data products and numerous data artifacts were generated, and each data artifact was used to create a data asset. In essence, the model served as the template for similar tools. These additional tools expanded data analysis capabilities far beyond the prepackaged kits. The models were then synthesized and added to the nightly reporting format. In practice, this allowed the model to drive resourcing and economically assign forces to appropriate resupply missions by optimizing daily expenditure rates, forecasting shortages, or identifying opportunities for pop-up distribution points (among other functions). In total, the model facilitated the distribution of more than twenty thousand articles of clothing. While impressive, the aid distribution estimate is much higher since numerous other product types managed at the warehouse were not included in the tally. Left uncounted are diapers, formula, hygiene products, traditional clothing, scarves, shoes, toys, books, jackets, and many other items.

Not a Database

Taking a moment to address data scientists, analysts, or experts, an observation may be accurate. The tool defined by the data it collects, its object-relationships, and its use within Excel does not qualify as a "true database." Instead, Microsoft Access or Azure would be more suitable as database management systems. However, to this end, such an assertion is not correct. Leaders must conclude that early data adaptations at the tactical level must prioritize inclusion over technological capability, justifiable by recognizing that specialized data collection points are nearly prohibitive and numerous. VAULTIS goals accommodate the substitution.[24] Which is to say, based on a unit's data maturity, data-forward leaders must focus on teaching and improving a unit's data culture while finding ways to have their work included in current operations. If inclusion requires manual translation, copy-and-pasting screenshots (or the like) for now, so be it. Achieving information dominance takes precedence over strict academic precision.

Analog Data

Numerous articles emphasize the role of data in shaping the common operational picture (COP). These examples often showcase cloud-based tools informed by data insights from business intelligence suites powered by artificial intelligence. These examples represent the extreme cutting edge of data operationalization. Organizations must develop a very mature data culture to implement these solutions, acquire the infrastructure, and specialty train users. Many organizations are not prepared to leverage these tools. Alternatively, commands must find ways to operationalize their data using traditional techniques. To this end, the anecdotes herein are offered as a solution.

Moreover, we must recognize the enduring value of an analog COP. Undoubtedly, the idealized doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) solutions will eventually be integrated into the force, and all soldiers will be sensors and consumers on a networked battlefield. Until then, and perhaps even into the future, we must not underestimate the analog COP. What must change is the interaction between the analog COP and our data systems. Leaders must emphasize a two-fold approach:

- the information on the COP must be, on its own, value-added; and
- the analog COP must effectively inform and be informed by digital data.

The Many Ways Forward

In summary, the transformative role of data in organizational decision-making is realized when leaders embrace data strategies, utilize accessible tools, and integrate data into their operational processes for more effective and informed leadership. In the short term, leaders should prioritize data literacy training, encouraging hands-on use of existing tools. Advanced training programs for sophisticated data analysis should be implemented within the mid-range. In the long term, institutionalize data-driven practices through dedicated roles and continuous learning. Implementing a strategic approach ensures data's progressive and sustained integration into decision-making processes. Employing organizational resources to leverage data will result in implementing data-intensive solutions crucial for twenty-first-century operations, enabling leaders to assess risk, optimize combat power, and win. ■

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What Constitutes a Capability?

Leveraging the Ukraine Experience to Define an Overused Term

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Words mean things.

—Everyone, all the time

The staccato of 25 mm Bushmaster rounds pierced the air above Stepove's snow-covered ground northeast of Donetsk, Ukraine, in January 2024. Two U.S. Bradley Fighting Vehicles assigned to the Ukrainian 47th Mechanized Brigade were locked in a close quarters engagement with a Russian T-90M Proryv Main Battle Tank. A main gun salvo from the T-90 sailed by as the nimbler Bradley zipped amongst the remaining structures of Stepove. While the T-90M reloaded its main gun, the Bradley peppered the tank in such a way that blinded it by destroying its gun sights and striking one of its weak points between the hull and turret. The T90M's turret began to spin uncontrollably as it came to rest in a ditch.

A slew of articles and analyses have lauded the improbable achievements of this Ukrainian Bradley crew in slaying a most formidable battlefield opponent.[1] Before 2021, many observers might have been quick to give the advantage in this engagement to the Russians, given that their most advanced tank was essentially

fighting a lone Bradley after the latter's wingman broke contact. The head of the 47th Mechanized Brigade's public relations service stated, "[The video] with the destroyed tank has probably been seen by the whole world, and [people wonder] how it was possible."[2] Great credit is deservedly given to the crew for their heroic actions as well as to the Bradley Fighting Vehicle itself. The 25 mm Bushmaster chain gun, its various types of ammunition, the vehicle's speed, and its armor have all been cited as reasons this engagement turned out as it did. In a Ukrainian TV interview with the two-man crew, the men were asked how they pulled off such an improbable feat. The gunner, Serhiy, recalled how he knew where the respected T90 was vulnerable: "But as I played video games, I remembered everything. Both how to hit them and where," he told the reporter.[3]

Many have referenced Serhiy's video game line to help explain the crew's improbable success in Stepove. It certainly makes for a good story, and there was likely an element of truth because at the iron moment, Serhiy drew upon that knowledge to place effective fire on the T-90M's vulnerable spots. The reporter conducting the interview with the Bradley crew, however, made an offhand but telling comment that likely revealed where the seeds of this victory were sowed. The men had only

In drone footage released by the Ministry of Defence of Ukraine in January 2024, two U.S.-supplied M2 Bradley Fighting Vehicles, operated by the Ukrainian 47th Mechanized Brigade, can be seen engaging and ultimately destroying one of Russia's most capable main battle tanks, the T-90M. (Screenshots from the Ministry of Defence of Ukraine)

days before returned from Germany where they had undergone training on the Bradley Fighting Vehicle.

U.S. President Joseph Biden first ordered Bradley Fighting Vehicles to Ukraine on 5 January 2023 as part of a larger aid package to the country. By April, the first Bradleys began arriving in Europe amidst serious discussions as to whether such a move would escalate the war and whether the Bradley could be considered a tank. One year later in Stepove, the Bradley would prove its mettle against the most advanced tank in the Russian arsenal, the T-90M.

The advantage that January day was with the Ukrainians—not solely because of the hardware they drove but because of the full capability brought to the battlefield. The reader might wonder whether the terms "hardware" (i.e., the Bradley) and "capability" are synonymous, but there is a key difference between a piece of hardware and a capability: DOTMLPF-P domain integration. The war in Ukraine continually demonstrates the importance of tying together doctrine, organization, training, materiel, leader development and education, personnel, facilities, and policy (the aforementioned DOTMLPF-P) to achieve battlefield success. The Army—and joint force—tend to look heavily at materiel solutions alone as the key to addressing an operational gap. Yet, Ukraine illustrates that the materiel and nonmateriel domains are interdependent. Casually citing a "capability" without considering the full complement of personnel and equipment—organized, trained, led, and maintained to operate with shared understanding of doctrine and

policy limitations—assumes away the most complicated aspects of building an Army both within the United States and with partners through foreign assistance.

We believe that redefining (or perhaps simply defining) the overused term "capability" as the convergence of all DOTMLPF-P domains on the battlefield would add precision to a word with a multi-billion-dollar price tag while guiding force managers, security assistance practitioners, and senior decision-makers toward more effective investments.[4] We are not the first to make this recommendation, but it deserves reinforcement and further evidence of its effectiveness through the Ukraine case study, which we aim to provide in these pages.[5]

The Capability Conundrum

Two key Army references introduce and illustrate the fuzziness of the term "capability." Army Regulation 525-30, *Army Strategic and Operational Readiness*, defines capability as "the Army's ability to achieve desired effects with ready units, organizations, and systems to meet the requirements of the National Military Strategy."[6] This broad definition is not only tautological but also allows for a variety of interpretations, which we see in the Army's management handbook, *How the Army Runs*. The term "capability" appears 1,171 times in the 2022 edition, but it is notably absent from the glossary.[7] "Capability" appears on page iii of the book to tangentially describe the full spectrum of DOTMLPF-P domains ("Capabilities Integration and Development") but goes on to focus specifically on materiel solutions ("Major Capability Acquisitions").

Stevedore drivers work through the night to load Bradley Fighting Vehicles onto the ARC *Integrity* (vehicle carrier) on 25 January 2023 at the Transportation Core Dock in North Charleston, South Carolina. More than sixty Bradleys were shipped by U.S. Transportation Command as part of the U.S. military aid package to Ukraine. (Photo by Oz Suguitan, U.S. Transportation Command)

Meanwhile, the Defense Security Cooperation Agency (DSCA) employs its own definition and framework, titled full-spectrum capability development, which aims to merge a variety of considerations from the tactical to the institutional into final outputs.[8] This conflict of definitions explains the imprecise use of the word, not just within the reference documents but in practice across the Army, not to mention the joint force and the security cooperation community.

In his final think piece as chairman of the Joint Chiefs of Staff, Gen. Mark Milley noted, "As aspects of the [Joint Warfighting Concept] are validated through rigorous experimentation and analysis, those pieces of the concept must be translated into military requirements, both materiel and nonmateriel. Moreover, they must be fully integrated across DOTMLPF-P before we achieve a true operational capability."[9] Similarly, the Security Assistance Group–Ukraine (SAG-U) deputy

commanding general–training, Canadian Brig. Gen. Mason Stalker, noted during the 2023 Association of the U.S. Army convention, "A piece of equipment without a competent operator will not give the advantage that is required for Ukraine to fight and win … understanding how to operate, integrate, maintain and how to conduct combined arms maneuver is where that advantage is created."[10] Although key leaders endorse this view, formalizing "capability" into a term of art in order to standardize its usage and conceptualization throughout the entire force must occur. We aim to leverage ongoing efforts in Ukraine to illustrate the necessity of thinking through the DOTMLPF-P framework when developing and delivering capabilities within our own or partner forces.

A Terrible Acronym for a Terrific Idea

If the term "capability" is abused because of its apparent plain English, the acronym DOTMLPF-P

suffers the opposite problem. Because of its intractability (seriously, try saying dot-mil-pee-eff-pee if you haven't done so recently), this acronym is quickly dismissed as cumbersome force management-ese rather than embraced as a fundamental concept that must be realized in day-to-day operations, not only within the force management community but also by leaders at every echelon throughout the force.

The concept underpinning DOTMLPF-P predates the acronym. Previously titled DTLOMS from the mid-1970s until 9/11, the Army focused on doctrine, training, leader development, organization, materiel, and soldier support.[11] As the Requirements Generation System gave way to the Joint Capabilities Integration and Development System (JCIDS) in 2003, DTLOMS expanded to include personnel, facilities, and policy while removing soldier support. Both acronyms, however, reflect the general position that "all components … must develop synchronously for the Army to be effective."[12]

But what do these clunky acronyms actually mean? Again, we risk plain English obscuring or clouding terms of art:

Doctrine defines how we fight, such as by emphasizing combined arms, multidomain operations, or maneuver warfare. Doctrine also includes basic guidelines for day-to-day operations. While individual units develop tactics, techniques, and procedures and standard operating procedures unique to their respective missions or areas of responsibilities, doctrine aims to guide all units toward similar, standardized operating practices. Doctrine is a shared frame of reference.

Organization, also called organizational structure or just structure, describes how we organize our forces to fight or respond to contingencies. This includes the unit's primary mission, its size, the number and type of occupational specialties required, and the authoritative relationships within the unit and between the unit and its parent, sister, and subordinate units.

Training describes how we prepare to fight tactically. Training ranges from basic training to advanced individual training, small team and collective unit training, joint exercises, and a variety of specialty skill courses.

Materiel includes all the "stuff" necessary to equip our forces. This includes anything from highly technical armored vehicles to small arms, spare parts, and individual combat gear.

Leader development and education describes how we prepare our leaders to lead the fight through professional military education. Note that the joint term is "leadership and education."

Personnel reflects the availability of qualified people for peacetime, wartime, and contingency operations. Recruiting and end strength considerations, alongside the array of specialties the force requires, fall into this category.

Facilities include real property, installations, and industrial facilities (e.g., training areas, ranges, barracks, and organic industrial base assets like government-owned ammunition production facilities).

Policy refers to DOD, interagency, or international constraints that impact the other seven domains. These constraints may affect the ability to use a particular weapon in certain circumstances, or the standards for how frequently a unit or soldier can be operationally deployed.[13]

Each of the eight domains intersects with the others, some more obviously. Yet, thinking deliberately about each domain on its own helps to illuminate assumptions or gaps that would undermine the desired capability.

Transforming an Army in Contact

Back to Ukraine. Hardware support to the Ukrainian military has garnered significant media coverage since 2022, but the supporting activities have not been publicized to the same level, a shortcoming that leads to the misguided thinking that merely providing hardware can translate to battlefield success. Is this because nonmateriel support is overlooked or is there some other reason? The nuances of support to Ukraine are hard to parse mostly because the United States and its allies are arming an army in contact. The troops on the ground reportedly have little bandwidth to provide deliberate feedback or lessons learned, especially as it relates to combined arms operations.

Open-source reporting and discussions with security cooperation practitioners enable us to map U.S. efforts to support Ukraine across the full spectrum of DOTMLPF-P. Our analysis illustrates how vital the holistic approach has been to Ukraine's performance on the battlefield. We also highlight areas where a delayed or absent component has had deleterious results. We include activities conducted by the U.S.

Secretary of Defense Lloyd J. Austin III and Gen. Darryl Williams, commanding general of U.S. Army Europe and Africa, meet with soldiers assigned to 2nd Brigade Combat Team, 1st Infantry Division, and U.S. Army Europe and Africa's 7th Army Training Command on 17 February 2023 in Grafenwoehr, Germany. The U.S. forces were supporting combined arms training of Ukrainian armed forces battalions, and their training on the M2 Bradley Fighting Vehicle represented the continuation of a worldwide effort led by the United States and supported by more than fifty nations to help Ukraine defend itself from Russian aggression. (Photo by Staff Sgt. Jordan Sivayavirojna, U.S. National Guard)

European Command (EUCOM) via the Ukraine Security Assistance Initiative, the U.S. Army in Europe (USAREUR), the Joint Multinational Training Group–Ukraine (JMTG-U), the Security Assistance Group–Ukraine (SAG-U), the Security Assistance Training Management Organization (SATMO), and others. Our analysis emphasizes U.S.-led assistance but, as we will discuss later, the broader efforts by NATO and other partners both reinforce and complicate the pursuit of Ukrainian battlefield capabilities.

Doctrine. Both the United States and NATO employ an overarching doctrine of combined arms, which brings together multiple types of combat units to achieve complementary effects. Western militaries developed this approach during the Cold War as a means of advantage against a larger, more hierarchical, and siloed Soviet military. It is within this doctrine that the

Bradley Fighting Vehicle entered service and through which it excelled during Operation Desert Storm and the 2003 invasion of Iraq. Because of Ukraine's Soviet legacy, their combined arms doctrine remains in its early stages.

Since 1994, when Ukraine became a Partnership for Peace member, the United States and other NATO partners have worked with Ukraine to reform their military, including a shift away from Soviet doctrine. Russia's invasion of Crimea in 2014 galvanized Ukraine's interest in defense reform, and with the help of SATMO's Doctrine Education Advisory Group, change has been underway.[14] This relationship continues despite the Russian invasion as SATMO advisors endeavor to get Ukraine's doctrine and way of war to a NATO standard. "The doctrine advisers trained Ukraine's own doctrine writers, working from NATO

operating concepts, and assisted in establishing a major training center in the country's west," SATMO commander Col. Andrew Clark stated. "Other members of the team went to the country's National Defence University and helped standardize the logistics curriculum in addition to teaching classes there."[15] SATMO doctrine writers have their work cut out for them trying to document a new way of fighting while seamlessly integrating the various hardware provided from across NATO. This work, however, will be fundamental in ensuring Ukraine maximizes the potential of their new hardware and can fight alongside NATO partners in the future.

Organization. With the Bradleys inbound for Ukraine, organizations needed to be created or modified to accept the new equipment. Ukraine possessed mechanized brigades, which proved a common landing spot for Bradleys, but many of these organizations were employed under more Soviet-style principles. As the first Bradley M2s made their way across the Atlantic, Ukraine created the 47th Assault Brigade, which was heralded as Ukraine's pivot toward a modern, NATO-influenced force. The brigade consisted of all volunteers equipped with U.S. rifles, tanks from Slovenia remounted with British guns, and the Bradley Fighting Vehicle.[16] These new organizations would lead integration of the new hardware with trained personnel and leadership that understood how to operate under the combined arms doctrine professed by SATMO.

Training. U.S.-led training has encompassed a wide variety of platform-specific training over the last two years. In addition to the Bradley, other high-profile systems training such as that of the High Mobility Artillery Rocket System (HIMARS) along with other combat vehicles, radars, artillery pieces, antitank weapons, unmanned aircraft systems, and air defense systems, among others, have occurred both in Europe and in the United States. JMTG-U has trained fifteen battalion tactical groups in Grafenwoehr, Germany.[17] SAG-U members trained over seven thousand Ukrainian soldiers within the first year of the war, with another eleven thousand in the pipeline, a figure that has grown steadily since.[18] The first battalion level certification occurred at Grafenwoehr in February 2023 when 635 Ukrainian soldiers completed a five-week period of instruction beginning with basic soldier tasks through collective training at the platoon and company levels before culminating with a battalion force-on-force exercise. Another 1,600 soldiers were in the Grafenwoehr pipeline at that time as well.[19]

Platform-specific training has proven a cornerstone to the hardware sent to Ukraine. SAG-U has facilitated training on three pieces of hardware—specifically the Bradley, the F-16 fighter aircraft, and the HIMARS—training almost three hundred soldiers to operate these platforms.[20] This investment ensures that the Ukrainians are able to use their received hardware to its fullest potential but also keep it on the battlefield. Pentagon press secretary then–Brig. Gen. Pat Ryder detailed the necessity of such training in an exchange with reporters, saying, "[This] is a logical next step in our ongoing training efforts, which began in 2014, to build the Ukrainian armed forces capacity. While there's an understandable focus on the equipment being provided to Ukraine, training is and has been essential to ensuring Ukraine has the skilled forces necessary to better defend themselves."[21]

Materiel. The United States has provided well over 145,000 pieces of equipment, systems, and major platforms with associated equipment and ammunition through December 2023. This hardware—in the form of air defense systems, fires, ground maneuver, aircraft and unmanned aircraft systems, antiarmor weapons, and small arms—ranges from legacy systems to some of the best the United States has to offer.[22] As already mentioned, the Ukrainian army would face a significant challenge to accept this deluge of hardware without the DOTMLPF-P integration that would ensure that hardware is leveraged to its fullest potential on the battlefield. The correct doctrine with which to operate this hardware must be harmonious with organizations built to use the equipment properly. Training at individual through collective tasks ensures those organizations can fight and win on the battlefield.

Even so, the Ukraine case continues to illustrate how adaptation under fire generates novel techniques that can undermine any materiel advantage in unexpected ways. Reports from Ukrainian military officials in summer 2024 detail how the M982 Excalibur munitions are no longer employed thanks to Russian electronic warfare capabilities. Other precision-guided munitions, like those launched by the HIMARS and the new Ground-Launched Small Diameter Bomb, face similar electronic warfare threats that the Ukrainians

are actively working to address. Former USAREUR commander Lt. Gen. Ben Hodges was quoted as saying, "We have probably made some bad assumptions because over the last 20 years we were launching precision weapons against people that could not do anything about it … now we are doing it against a peer opponent."[23] Because of this, singular reliance on materiel solutions has grown even more precarious.

Leader development and education. Lack of initiative is a hallmark of the Russian military and Soviet legacy. As a former Soviet-bloc member, the Ukrainian officer corps suffered under Soviet doctrine.[24] Even with substantial combat experience, junior leaders often lack training in the fundamentals, which compounds as personnel are rapidly promoted to replace combat losses. As Western countries have helped rewrite Ukraine's doctrine, they have also developed leaders at all levels to operate in a more proactive manner under Western doctrine. Clark's SATMO team has helped Ukrainian leaders embrace decentralized decision-making and the use of commander's intent executed through individual initiative.[25] SATMO also advises the Ukrainian military on professional military education reform, linking their doctrine-advising efforts into curriculum development as well as strategic planning.[26] These efforts ensure Ukraine's systematic military reform takes root and can continue under the country's own direction.

Lt. Gen. Andreas Marlow, vice chief of the German army, stated, "The training of sergeants and officers is what moves the Ukrainians most because the professional soldiers have been fighting this war for one and a half years now, and many have died or been wounded—so they need a fresh supply of military leaders."[27] Through mid-2024, SAG-U has trained over fourteen thousand leaders in specific courses for noncommissioned officers at the squad and platoon levels, officers at the platoon and company levels and battalion staff assignments, along with instructors to build the program from within Ukraine's own ranks.[28]

Personnel. The right personnel possessing the knowledge, skills, and behaviors required to operate on the modern battlefield are critical. One can imagine the military occupational specialties within the U.S. military and how many of those are essentially needed in the Ukrainian military to operate and maintain the plethora of hardware delivered since 2022. Whether military manning occurs through conscription or a volunteer force, the personnel requirements remain the same.

Due to the sweeping changes underway in Ukraine's military, ensuring the right personnel fill the right billets is an end-to-end process. Especially as the conscription window expands and service qualifications relax, training grows in importance. As such, SAG-U's training program begins with basic military training followed by the aforementioned platform training and leadership training to help proliferate the required knowledge, skills, and behaviors throughout the force. Additionally, SAG-U conducts specialized training for the likes of medics, chaplains, explosive ordnance disposal experts, marksman, legal personnel, and more.[29]

Facilities. Facilities for housing, training, maintenance, and planning are critical to a military's continuous and effective operation. With Russia's invasion and subsequent ability to strike almost anywhere in the country, many military facilities were destroyed or displaced. As an example, the Joint Multinational Training Group–Ukraine (JMTG-U) stood up in 2015 at Yavoriv, Ukraine, just outside Lviv. While the land has been used for military training since at least the 1940s, it became a Partnership for Peace training center in 2003 and steadily expanded its mission until the Russian invasion.[30]

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Following a series of successful Russian strikes in February 2022, JMTG-U relocated to Grafenwoehr and resumed training operations.[31]

Moving facilities outside of Ukraine enabled training and maintenance to continue, but that distance from the battlefield extended the time to get trained soldiers and repaired vehicles back to the front. Two years into the war, a German firm became one of the first to establish a facility within Ukraine itself. Whereas the German Leopard tanks were previously sent to Lithuania for repair, the western Ukraine facility's establishment cut the supply line by hundreds of miles. Ukrainian Deputy Defense Minister Dmytro Klimenkov lauded the news, saying, "This facility will allow us to ensure quick repairs and maintenance of German equipment on Ukrainian soil, significantly enhancing the efficiency of our Armed Forces."[32]

Policy. In June 2024, the United States changed a long-standing policy by permitting Ukraine to use U.S. weapons to strike inside Russian territory.[33] Initially scoped only to targets over the border close to Kharkiv, the policy soon evolved to allow for targets anywhere "that Russian forces are coming across the border from the Russian side to try to take additional Ukrainian territory," as stated by national security adviser Jake Sullivan.[34] The United States has clear policies on end-use monitoring (EUM), specifically for equipment transferred to partners under the Arms Export Control Act, although EUM compliance relies on personnel physically inspecting the equipment and has therefore been difficult given the limited staff on-ground in Ukraine.[35] It also adheres to the so-called "Leahy Law," which requires vetting of any foreign security force member prior to receiving training, equipping, or other assistance.[36]

More broadly, the policy domain has the potential to shape the other seven domains. This domain also comes closest to addressing the overarching process that enables capability development through the DOTMLPF-P framework. The U.S. Army calls this force management, while the security cooperation community thinks in similar (but unhelpfully different) terms, that is, full-spectrum capability development (see figure 1).

Among the range of security cooperation activities, institutional capacity building (ICB) is the most likely medium for collaboration on capability development,

whether using the DSCA framework or DOTMLPF-P. By design, ICB programs focus on security sector governance and core management competencies necessary to achieve shared security objectives.

> ICB assists allies and partners in examining and addressing broader, systemic factors essential to delivering what is needed (e.g., money, things, people, ideas, decisions) to:
> 1. Understand requirements, develop forces, and purchase or obtain the articles and services as required to develop, employ, and sustain required capabilities;
> 2. Successfully absorb and integrate fully developed capabilities into their existing security forces;
> 3. Effectively and responsibly employ those capabilities in the pursuit of common objectives between the U.S. and the ally or partner; and
> 4. Adequately staff, sustain, and maintain those capabilities throughout their lifecycle and eventually retire them when appropriate.[37]

The United States has worked with Ukraine on defense reform through various ICB programs, including the Ministry of Defense Advisor Program, but perhaps unsurprisingly, these efforts have taken a backseat to the needs of the ongoing conflict.

Looking across this DOTMLPF-P review of U.S. support to Ukraine, the reader might notice an imbalance of sorts among the substance addressed within each domain. For instance, the evidence of training support far outpaces that of facilities support. Yet, considering the dynamics on the ground, such imbalances reflect the realities of developing different capabilities in different contexts. Within Ukraine, an army trying to rewrite its doctrine while accepting hardware from many different sources must emphasize training along with leader education domains over restructuring the force. Organizational changes are necessary but somewhat inconsequential if they happen without the training and education to make them lethal on the battlefield. Risk can be accepted in other domains as limited resources—time, money, and force structure—require prioritization. Throughout, changes must be orchestrated through the institutional processes that set policy to achieve larger objectives.

Weapons System

Supporting Systems

Spare/Replacement Parts

Munitions

Logistics
Facilities & Infrastructure
Maintenance
Command & Control
Intelligence Support
Battlefield Medicine & Education

Training
Professional Military Education
Recruiting & Retention
United Organization & Allocation
Deployment Management
Reserve Component Affairs

National & Defense Strategy

Military Plans

Doctrine & Concepts

Tactics, Techniques, & Procedures

Resource Management
Human Resource Management
Acquisition, Logistics Systems, & Supply Chains
Policy Overnight
Interagency Governance
Public Relations

DEFENSE SYSTEM

ENABLERS

PERSONNEL

STRATEGY/DOCTRINE/PLANS

INSTITUTIONAL SUPPORT

CAPABILITY

Inputs to Full-Spectrum Capability Development

(Figure from Defense Security Cooperation Agency [DCSA], *Transparency Handbook*)

Figure 1. DSCA Full-Spectrum Capability Defined

A Missing Piece—Sustainment

Sustainment, while not a component of the DOTMLPF-P framework, serves as a cross-cutting theme. Sustainment refers to "the related tasks and systems that provide support and services to ensure freedom of action, extend operational reach, and prolong endurance."[38] This warfighting function includes logistics, financial management, personnel services, and health service support. Whether maintaining equipment, reconstituting depleted formations, providing battlefield medicine to troops, or supporting the financial transactions that underpin operations, the sustainment warfighting function can make or break even the most comprehensively designed capabilities.

As a case in point, in 2022, Army Execution Orders 230-22 and 293-22 directed that equipment from Army Prepositioned Stock-5 (APS-5) in Kuwait be sent to Ukraine. A DOD inspector general audit in 2023 revealed that the HMMWVs and M777 howitzers slated for Ukraine had not been maintained to mission-ready standards. To avoid delaying shipment from Kuwait to EUCOM, the report showed that APS-5 contractors cannibalized parts from working equipment, which enabled them to fulfill the order for EUCOM, but degraded the readiness of those items meant to stay

in the APS-5 stock. A mobile repair team rushed to Kuwait and inspected equipment the contractors had deemed fully capable, finding instead issues that "would have killed somebody" in the current condition.[39] Even after corrective actions in Kuwait, equipment arrived in Poland with critical maintenance faults; notably, the team in Poland reported that all six M777 howitzers shipped from Kuwait had faults rendering them nonmission capable, while twenty-five of twenty-nine HMMWVs required tire replacements.[40]

Between Kuwait and Poland, efforts to bring the equipment to usable standards cost the Army $173,524 for labor and materiel just to replace the tires, not to mention the opportunity costs of redirecting soldiers away from their primary duties.[41] Yet, had these corrective actions not been taken, Ukrainian soldiers would have risked life and safety by operating faulty equipment. At a minimum, the Ukrainian military would have had to perform maintenance earlier than normally expected, thereby distracting from the fight.

The case touches all four pillars of sustainment. Logistics, specifically the maintenance of APS-5, had been shortchanged for years, arguably thanks to a complicated contracting relationship and unclear standards and funding for maintenance activity.[42] The unexpected, urgent requirements for maintenance in Kuwait and Poland affected both the financial management and personnel aspects of sustainment, as undue budget demands and the redirection of personnel for normal duties to critical maintenance duties triggered gaps in other operational requirements. Finally, while no injuries were reported because of the maintenance issues, the inspector general audit highlighted the risk and potential loss of life, which would have created an unnecessary and avoidable health service support requirement for the Ukrainian military.

While the APS-5 case reflects poorly on the Army's maintenance protocols, it reveals a broader trend in the multinational effort to equip Ukraine. Many countries have leveraged excess or older equipment models, using Ukraine as a clearinghouse to make room for their own modernization initiatives.[43] While the clearinghouse approach puts weapons into Ukrainian hands much more quickly than new production would, it raises the likelihood of maintenance lapses and the unavailability of spare and replacement parts. The diversity of equipment flowing into Ukraine complicates maintenance operations even more.[44] Moreover, it reinforces our argument that supplying hardware is not the "fire and forget" proposition many imagine.[45]

Bright spots exist, though. Since May 2022, the Army has operated the Remote Maintenance Distribution Cell-Ukraine out of southeastern Poland, enabling virtual maintenance support to operators in Ukraine. Given the limitations on U.S. personnel in the country, this creative solution allowed Ukrainian soldiers continuous access to maintenance expertise, supported by video footage of the problems on the ground, that would otherwise have been impossible.[46] While the United States maintains only a light presence in the country (via the U.S. Embassy in Kyiv), Germany has taken an important step toward in-country support. Rheinmetall, the producer of Leopard main battle tanks and other defense articles, opened the first maintenance and repair center physically located in Ukraine in June 2024.[47]

Accordingly, just as we advocate for a holistic, DOTMLPF-P-driven approach to capability development, we must advocate for proactive consideration of maintenance specifically and sustainment broadly. Each capability introduces its own sustainment implications, and despite improvisation being a principle of sustainment, it should not be the principle of first resort.

Peacetime Priorities

Our discussion thus far has focused almost exclusively on efforts to support Ukraine since February 2022, with some activities dating back to the March 2014 Russian invasion of Crimea. Yet, if arming an army in contact is complex to the point of ineffectiveness or wastefulness, that places even greater weight on the efforts undertaken during peacetime.

To be fair, the JCIDS already accounts for the DOTMLPF-P domains as part of the Capabilities Based Assessment.[48] The Capabilities Based Assessment not only considers whether a nonmateriel solution could fill the operational gap but also provides a first-round appraisal of the impact of a change in one domain on the others. This analysis is revisited throughout the force management process but shifts in terminology from DOTMLPF-P analysis to force integration functional area analysis. This shift suggests that the initial DOTMLPF-P analysis sufficiently captured

Domain	U.S. Army Responsible Parties	Security Cooperation Resources and Programs
Doctrine	Training and Doctrine Command (TRADOC) Combined Arms Center (CAC) U.S. Army Training Center (USATC)	Security Assistance Training Management Organization (SATMO) Doctrine and Education Advisory Group (DEAG)
Organization	Army Staff U.S. Army Force Management Support Agency TRADOC Centers of Excellence Army Futures Command	Indirect through Institutional Capacity Building
Training	TRADOC CAC USATC	Joint Exercises State Partnership Program Security Force Assistance Brigades
Materiel	Assistant Secretary of the Army for Acquisitions, Technology, and Logistics Army Staff Army Futures Command/Program Executive Offices	Foreign Military Sales (or Financing) Presidential Drawdown Authority Excess Defense Articles
Leader Development & Education	TRADOC CAC USATC	International Military Education and Training SATMO DEAG
Personnel	Army G-1 Human Resources Command U.S. Army Recruiting Command ROTC USATC	Indirect through Institutional Capacity Building
Facilities	Army Materiel Command Installation Management Command	Indirect through Institutional Capacity Building
Policy	Secretary of the Army Army Staff	Indirect through Institutional Capacity Building

(Figure by authors)

Figure 2. Comparison of DOTMLPF-P Domain Leads in U.S. Army Compared to Institutional Capacity Building

the intersections between domains and the associated implications of changes or new investments, and only integration issues remain. However, integration assumes the right components exist and simply require orchestration; Ukraine has illustrated that this assumption often fails to hold.

Reimagining the force management model exceeds the scope of this project, but our overall advocacy for elevating the DOTMLPF-P framework stands, most impactfully in the realm of security cooperation as demonstrated in Ukraine. Currently, when a partner requests materiel support, the DSCA via security cooperation practitioners in the appropriate combatant command assess the partner's "absorptive

capacity." As DSCA defines it on the initial requirements checklist, this assessment considers whether "the proposed recipient [has] the resources (financial, educational, doctrinal, etc.) to purchase, maintain, employ, and sustain the system in accordance with its intended end use."[49] DOD Instruction 5132.14, *Assessment, Monitoring, and Evaluation Policy for the Security Cooperation Enterprise*, lays out the information requirement much more clearly:

> The extent to which an allied or partner nation shares relevant strategic objectives with the United States, as well as the partner's current ability to contribute to missions to address such shared objectives, *based on*

detailed holistic analysis of relevant partner capabilities such as through application of the doctrine, organizational structure, training, materiel, leadership and education, personnel, facilities, and policy framework [emphasis added by author] referenced in the Joint Capabilities Integration and Development System, as established by CJCS Instruction 3170.01I.[50]

This instruction offers yet another example of high-level direction to think about capabilities through the DOTMLPF-P framework, yet in practice, the holistic approach is routinely shortchanged or overlooked entirely. Our personal experiences echo commentary from colleagues currently working on security cooperation issues, specifically vis-à-vis Ukraine: monitoring and evaluation, not to mention long-term planning, are commonly trumped by whatever short-term crisis emerges. Yet this trend undermines the longer-term benefit of whatever assistance the United States provides.

Let's take one more tour of the acronym, this time looking at the tools and security cooperation programs available to affect the recipient partner's absorptive capacity (see figure 2). The most direct support the United States or any partner can provide is through training and equipment. However, as discussed, ICB efforts offer enormous potential to raise absorptive capacity by guiding the partner's approach to force management, hence the recurring theme.

A Call for DOTMLPF-P Integration

As we endeavor to draw the right lessons from Ukraine, one such takeaway is the necessity of DOTMLPF-P (and sustainment) integration. The Army, and ideally, the DOD, must accept as a formal definition that a capability is the convergence of doctrine, organization, training, materiel, leader development and education, personnel, facilities, and policy, all underpinned by sustainment, on the battlefield. By formal definition, we mean inclusion in the *DOD Dictionary of Military and Associated Terms*, inclusion in the *How the Army Runs* glossary, and standardization throughout joint and Army doctrinal and reference publications. We also advocate for aligning the security cooperation definition and approach with DOTMLPF-P, even if security cooperation practitioners must also consider factors beyond the initial framework. While this will not fix the real problem of developing and delivering comprehensive capabilities, adjusting our thinking on the topic is an important first step. Moreover, we can collectively calibrate our expectations of even the most exquisite equipment, helping our leaders, our partners, and our taxpayers understand what equipment investments can and cannot deliver on the battlefield. We maintain that words mean things, and in this case, clarifying the meaning of *capability* can only strengthen our own forces and our support to partners around the world by unity of effort through a common language. ■

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Epigraph. The common phrase "words mean things" is most likely derived from Lewis Carroll, *Through the Looking-Glass and What Alice Found There*, ed. Florence Milner (Rand McNally, 1917), 99, https://archive.org/details/ThroughTheLookingGlass_201303/page/n105/mode/2up.

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"An Extremely Nebulous and Complex Task": Doctrine and Curriculum Development at the Command and General Staff College, 1946–1960
Maj. Jesse A. Faugstad, U.S. Army

From 1946 to 1960, leaders at the Command and General Staff College debated how to develop doctrine for the atomic age. Consensus, however, remained as elusive in 1960 as it did in 1946. In this Art of War Scholars Series publication, Maj. Jesse A. Faugstad investigates and engages doctrine development within the college as a microcosm of the debate among senior leaders of the U.S. Army. Examining the complex and nebulous nature of doctrine development in the 1950s demonstrates the important connection between tactical doctrine and strategic context, and how professional military education supports that connect.

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Military vehicles fill a holding area near the port of Dammam in Saudi Arabia on 11 November 1991 in preparation for transport back to the United States in the aftermath of Operations Desert Shield and Desert Storm. (Photo courtesy of the National Archives)

Theater Armies

Complex Yet Indispensable to Multidomain Operations

Lt. Col. Matthew A. McGrew, U.S. Army, Retired

Maj. Brandon J. Schwartz, U.S. Army

Army organization above corps, with its links to the joint and combined environment, is less easily described and understood than the structure at corps and below.

—Lt. Gen. John Yeosock, Commanding General, Third U.S. Army

Theater armies are the most obscure Army echelon. Nevertheless, their complex mission is indispensable to Army support to joint force campaigns through multidomain operations (MDO). Theater armies (TA) provide an extensive breadth of capabilities such as theater-level sustainment, intelligence, fires, information advantage activities, protection, signal, aviation, medical, and civil affairs formations and staffs. TAs also provide unique access to the joint- and national-level enterprise. As the Army integrates MDO, most leaders tend to focus on the corps and division as the decisive echelons for large-scale combat operations in the land domain. However, to be decisive, the corps and division must have areas of operation properly managed by a TA, which enables their focus on achieving their objectives in close combat. In other words, the TA is the most significant enabler of MDO.

Theater Army History

The Army designed TAs to fulfill theater-level requirements identified during numerous conflicts. Today's TA is recognizable back to World War I.[1] By the end of the war, the American Expeditionary Forces in France consisted of over two million soldiers organized into three armies, seven corps, forty-one divisions, the Army Air Corps, and the supporting Services of Supply.[2]

The Army shrank in the interwar period but quickly expanded again during World War II. By 1945, the Army had over 5.8

million uniformed personnel with 1.1 million organized into eighty-nine divisions.[3] The remaining manpower comprised corps and above formations to support and enable the divisions. In 1945, the Army consisted of six theater headquarters, three Army groups, and nine field armies.[4] Today, it contains no Army groups, one field army, and five TAs.[5] Decreasing the quantity of formations above the corps echelon concentrated tasks almost exclusively to the TA, increasing the complexity of their operations. It also increased the strategic significance of TAs by making them the sole formation responsible for theater-level activities, which are the foundation of all Army operations.

Theater Army Roles and Responsibilities

TAs are both an echelon and a formation. They operate at the intersection of the theater strategic and operational levels of warfare, which is its primary distinguishing characteristic compared to corps and divisions. TAs translate the joint force commander's (JFC) objectives into Army-specific campaigns and operations. This echelon links strategic objectives to tactical actions performed at the corps level and below. As the Army's highest echelon, the TA represents the connection between the Army Secretariat and Staff and the combatant commanders (CCDR). As a formation, the theater army is comprised of a command group, headquarters staff, and assigned subordinate formations. The TA plans and assesses operations in support of the CCDR while overseeing subordinate preparation and execution of those operations.

By Army doctrine, the TA performs a combination of four different roles. Its primary role is as the Army Service component command (ASCC) to CCDRs with geographic areas of responsibility (AOR). TAs can also operate in one of three joint roles, which are typically performed during operations of limited scope, scale, and duration. These roles include theater joint force land component command, joint force land component commander, and joint task force headquarters. However, their capability to serve in joint roles is limited because of ASCC requirements.

TA commanders possess an extremely broad set of responsibilities derived from Title 10, executive agency, and direct operational support to CCDRs. As the ASCC, TAs are responsible in their combatant

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Theater Joint Force Land Component Command

Prior to the establishment of a joint operational area or a subordinate joint task force, the geographic combatant commands (GCC) may designate a theater joint force land component for coordination and synchronization of daily operations across the area of responsibility. The most likely candidate for a theater joint force land component commander is the GCC's assigned theater army. Normally the theater joint force land component will be limited to coordinating authority over other land components and provide the GCC with a means to synchronize land force activities. This includes the initial development of an accurate, timely, and persistent common operational picture of all theater land force activities.

Source: Joint Publication 3-31, *Joint Land Operations* (U.S. Government Publishing Office, October 2019)

command's (CCMD) AOR for executing the secretary of the Army's congressionally mandated Title 10 requirements.[6] TAs routinely do this by executing the administration and support of all Army forces deployed to or transiting the AOR; providing administrative control (ADCON) and Army support to forces deployed in a joint operations area inside the AOR; coordinating, supporting, and integrating all Army forces committed to the AOR in the CCMD campaign plan; and exercising operational control of all Army forces within the AOR not assigned to a joint commander.[7]

TAs also fulfill the secretary of the Army's Department of Defense executive agent (EA) responsibilities within the theater. EA is the delegation of authority by the secretary of defense to a subordinate to act on their behalf to fulfill legal requirements, accomplish objectives, or minimize redundancy. Some of the most significant Army EA functions include theater detainee operations, theater chemical and biological defense, and counter-small unmanned aircraft systems.[8]

Finally, TAs must support the CCDR's daily operational requirements. The CCDR's authority to direct requirements and the Department of the Army's responsibility to support are derived from Title 10.[9] The specific requirements for support vary by AOR and include a broad set of responsibilities. The daily operational requirements generally include Army support to other Services (ASOS), providing Army forces for theater security cooperation, assessing and developing infrastructure, developing contingency plans for land operations, and providing intelligence-related indications and warnings of changes in an operational environment (OE).[10]

The Army further delineates the TA's responsibilities through its description of the echelon's seven functions, which must be performed daily.[11] TA functions include

- executing CCDR's daily operational requirements;
- providing ADCON of Army forces;
- setting and maintaining the theater;
- setting and supporting operational areas;
- exercising command and control over Army forces in the theater;
- performing joint roles of limited scope, scale, and duration; and
- planning and coordinating for the consolidation of gains in support of joint operations.[12]

Consequently, the TA must maintain an AOR-wide focus, providing Army support to all Army and joint forces across the AOR, in accordance with the CCDR's priorities of support. Army resourcing decisions to support TA requirements are often made on a case-by-case basis, balancing risks in a specific theater with other Army mission requirements.

TA roles and responsibilities require them to operate across the three Army strategic contexts. During competition, TAs gain relative advantages over adversaries by strengthening landpower networks, setting and maintaining the theater, and demonstrating readiness for armed conflict through the command and control (C2) of Army forces.[13] During crisis, TAs conduct reception, staging, onward movement, and integration (RSOI) of land forces moving into theater and support the planning and employment of Army forces in flexible response and deterrence options.[14] During armed conflict, TAs enable and support joint

force land component commanders' employment of land forces and play a key role in transition to postconflict competition.[15]

The TA is most effective when operating solely as an ASCC. The ability for a TA to maintain a persistent presence in its CCMD's AOR is essential to the success of MDO. In the physical dimension of the OE, presence is indispensable for deterring adversaries and assuring allies and partners. TAs maintain presence forward through the deployment of command posts, the employment of assigned army forces in security cooperation activities, and development of strategic infrastructure. This presence also facilitates developing enduring relationships in the human dimension of the OE. The combination of physical presence and human relationships translates into an opportunity to gain and maintain information advantage over adversaries in an AOR, which protects U.S. freedom of action. While corps and divisions enable the TA's security cooperation activities and perform operations during crisis and conflict, they are not designed to develop the enduring advantages in an AOR that a TA's persistent presence does as the ASCC.

Theater Army Staff and Supporting Formations

As the Army's highest echelon, TAs are designed with a more robust staff and C2 capability than lower echelons. Functionally, the TA staff conducts all the planning and assessing activities necessary for theater operations. They serve the CCDR by informing the CCMD's staff on the capabilities of Army forces and shaping their proper employment. They also communicate the CCDR's requirements to the Army staff and shape resourcing decisions within the context of the AOR.

Structurally, the headquarters staff supports the TA commander's C2. The heart of the staff resides with the command group in the main command post. The main command post is not designed to deploy; rather, it is primarily responsible for Title 10, ADCON, ASOS, EA, planning, and coordination. These responsibilities are most effectively executed through dedicated, persistent focus in the AOR, which subordinate echelons are not designed to perform. TAs also have a contingency command post (CCP). The CCP is an operational headquarters capable of deploying its personnel and equipment by air to conduct operations of limited scope and scale during competition or crisis. The CCP commander can C2 two to five subordinate units up to brigade size but cannot exercise C2 for protracted military operations or combat operations unless appropriately augmented or reinforced. Ultimately, the CCP creates flexibility for land domain C2 with a staff who is already assigned and familiar with the theater.

The Army assigns TAs enabling capabilities and provides them access to an assortment of functional and multifunctional units. Specific formations vary depending on the requirements specific to the AOR. Standard theater-level enablers include a theater sustainment command, theater medical command, signal command (theater), civil affairs command, and military intelligence brigade–theater (see figure 1). As theater operations expand, additional theater-level forces may include an Army air and missile defense command; a security force assistance brigade; a chemical, biological, radiological, nuclear, and explosives command (CBRNE); engineers; military police; a battlefield coordination detachment; regional support groups; theater liaison detachments; and Army field support brigades.[16]

The subordination of these units to the TA is essential to MDO. Corps and subordinate echelons do not possess the staff capacity and span of control to effectively manage so many disparate organizations. Even if augmented, the corps and subordinate

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Theater armies can serve as either a joint task force or a joint force land component commander in a crisis, but that can jeopardize their ability to perform their Title 10 U.S. Code Section 7013b and other Army Service component command responsibilities. For this reason, should the crisis transition to an enduring operation or larger conflict, these joint roles should be transitioned to a dedicated headquarters at the earliest opportunity.

—The Authors

CA   civil affairs   SUST   sustainment
MI   military intelligence   TSC   theater sustainment command
MP   military police
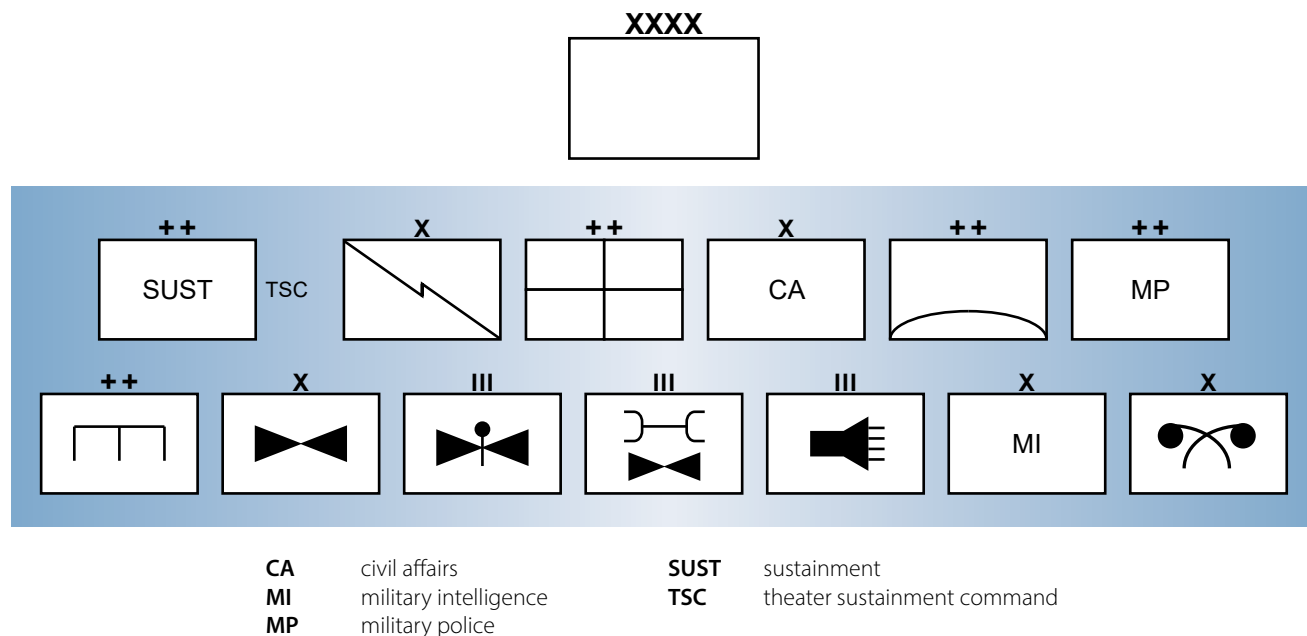
(Figure by authors)

Figure 1. Example of Expanded Theater Forces

echelon commanders would then have to split focus on conducting operations and performing the previously described roles of the TA. TAs therefore conduct MDO, especially during conflict, by providing unity of effort to the administrative and support aspect of Army operations. In addition, they may fulfill the role of land component command, thereby maximizing the focus of tactical-level echelons on combat operations. Finally, TAs operate with many theater-level forces on a routine basis, maximizing their ability to quickly integrate into large-scale combat operations in an AOR.

Evolving Warfare

The Army is constantly transforming to adapt to the rapid evolution of warfare. Warfare, defined as the conduct and characteristics of war, evolved in the last century alongside the industrial revolution, the information revolution, and the present data revolution.[17] The rapid technological evolution and corresponding military adaptation displayed in recent conflicts is changing warfare, forcing joint and Army forces to reconsider how they are organized, how they need to fight, and requirements for that fight.

In particular, new technologies relating to intelligence, surveillance, and reconnaissance and fires challenge how armies operate in the land domain. In the air domain, the proliferation of drones with advanced sensors have made it more difficult to conceal personnel and equipment. When paired with advanced fires capable of accurately targeting and rapidly engaging, the sensor-to-shooter connection is highly lethal. As Gen. Kenneth McKenzie, former commander of U.S. Central Command, stated, the proliferation of small, cheap drones is the "most concerning tactical development" since the rise of the improvised explosive devices in Iraq and represents "a new component of warfare."[18] Drone usage globally such as the war in Ukraine demonstrate the increased lethality resulting from sensor-to-shooter linkages from drones.[19] The proliferation and effectiveness of drones require land forces to adapt their tactics and capabilities, such as increasing tactical dispersion and focusing on air defense and electronic warfare capabilities.[20] The reality of drone proliferation in the OE is reflected at the TA level, where combatant commands are increasing demands on the Army for tactical and operational air and missile defense capabilities.

High above the drones in the space domain, the proliferation of adversary space-capabilities over the last twenty years has eroded a key U.S. advantage.

Sgt. Stefaan Lee, a gunner from 1st Battalion, 6th Field Artillery Regiment, 41st Field Artillery Brigade, receives target coordinates in a multiple rocket launcher system (MLRS) during the Thunder Cloud live-fire exercise in Andoya, Norway, on 14 September 2021. Sensor-to-shooter targeting and the utilization of the MLRS explores the multidomain capabilities of the force. These capabilities support the theater commander to deter potential adversaries and assure allies and partners. (Photo by Spc. Joshua Thorne, U.S. Army)

Adversaries have demonstrated increased ability to effectively employ space-based assets to improve their targeting and coordination. This will force changes to how Army forces operate. The (re)discovery of electromagnetic warfare as a powerful tool of war to counter these threats and attack adversary forces also affects how Army forces conduct operations. Cyberattacks and information campaigns will pose significant challenges abroad on operations as well as in the United States as the homeland is no longer a sanctuary. Finally, advances in machine learning and computing power leveraging big data and improved programming will provide a competitive advantage to those military forces able to harness them to drive better processes and

faster decision cycles.[21] Consequently, TAs are experiencing increased demands for space operations and cyber electromagnetic activities planning and capabilities.

In recognition of these changes, the Army recently adopted MDO as its operational concept. "*Multidomain operations* are the combined arms employment of joint and Army capabilities to create and exploit relative advantages that achieve objectives, defeat enemy forces, and consolidate gains on behalf of joint force commanders."[22] "It is how Army forces contribute to and operate as part of the joint force."[23] Successful MDO rest on four tenets: agility, convergence, endurance, and depth.[24] TAs enable combined arms formations to operate with the necessary endurance and depth to create and exploit relative advantages. The TAs' ability to employ capabilities from multiple domains helps to preserve combat power while providing JFCs options that create flexibility. TA operations also enable agility by setting conditions for operational movement that is quicker than our adversaries.

The rest of the joint force is adopting new operational concepts as well. The Air Force's new operational concept, Agile Combat Employment, shifted

Soldiers with the 1st Multi-Domain Effects Battalion (MDEB) train on the 1st Lt. John R. Fox Multi-Domain Operations Non-Kinetic Range Complex at Fort Huachuca, Arizona, 13 February 2023. The 1st MDEB demonstrated a wide array of nonkinetic effects, highlighting the significance of this milestone in the 1st Multi-Domain Task Force's path to become fully operationally capable. (Photo by Staff Sgt. Henrique De Holleben U.S. Army Intelligence Center of Excellence)

its operations from centralized locations to a network of smaller, dispersed locations to protect air forces, complicate adversary planning, and provide additional options for JFCs.[25] Both the Navy and the Marine Corps have adopted new concepts as well, Distributed Maritime Operations and Expeditionary Advanced Base Operations, respectively.[26] Like Agile Combat Employment, Distributed Maritime Operations and Expeditionary Advanced Base Operations focus on dispersing naval forces while controlling key maritime terrain to provide more options for JFCs. The focus on dispersion and mobility will stress the Army's ability to provide timely support to joint forces. Until additional joint experiments and war games integrate these new concepts, the impact of the increased ASOS bill of requirements remains largely undefined.

Challenges for Theater Armies to Overcome

MDO and modern warfare are driving changes in the focus of TAs. In the current OE, the ability of joint forces to conduct operational maneuver depends on the ability to protect, sustain, and C2 expeditionary forces. TA adaptation to these challenges will largely determine the Army's future operational success.

One overarching challenge impacting TA functions is the Army's component (COMPO) structure and force mix. Most CCMD contingency plans require expanded Army operations to support the joint force. Theater assigned and allocated forces are typically insufficient to the increased demand and create a shortfall in capability for the TA. While the shortfall is partially filled by the Army's COMPO 1 (active duty) response forces, most required capabilities are provided by COMPO 2 (National Guard) and 3 (Army Reserve) forces, which usually require extended timelines to be available for employment.[27] However, this is problematic because they are often immediately required. This

challenge is not restricted to specific echelons or warfighting functions. TAs can mitigate the resulting risk through numerous controls, but it cannot be eliminated. Therefore, the force mix and component structure challenge is reflected in the following warfighting function related challenges, where appropriate.

When CCDRs establish a joint operational area (JOA), they increase the TA's protection requirements. Protecting forces is more difficult today because of increasing battlefield transparency and adversaries who can target and attack forces across the depth of the AOR. Defending against adversary threats requires increased capability and capacity in the TA to employ air defense, CBRNE, area protection, and force health protection operations throughout the AOR. In particular, the proliferation of small, capable drones and loitering munitions will require increased short-range air defense capabilities for point defense of dispersed locations. Additionally, threat magazine capacity exceeds Army air and missile defense capacity, providing enemies the opportunity to overwhelm area defenses in a high-volume attack or to win the battle for local missile/interceptor superiority through attrition.

The establishment of a JOA also increases the demand for Army signal support for operations. While dispersion can aid protection, it also increases signal support requirements. For example, dispersed command posts down to the division level creates communication architecture bandwidth requirements that currently exceed tactical system capabilities. TAs must establish the theater communications architecture capable of meeting joint force requirements.[28] Most of the TA signal assets are in COMPO 2 and 3, further complicating supporting signal operations.

Signal concerns add to TA C2 challenges. Joint RSOI is usually an Army responsibility requiring multiple C2 nodes and intermediate headquarters. Most of those additional headquarters like regional support groups, maneuver enhancement brigades, and engineer brigades are in COMPO 2 and 3, complicating effective C2. When multinational forces join operations, the joint force will require a robust liaison capacity to conduct operations. The Army provides those forces in the form of theater liaison detachments, all of which are COMPO 2 and 3. Additionally, C2 becomes exponentially more difficult if the TA is tasked to perform one of its joint headquarters roles. For example, during Operation Inherent Resolve, Third Army experienced difficulties establishing unity of effort in the land domain when the headquarters assumed the role of Combined Joint Task Force–Operation Inherent Resolve.[29]

Setting and maintaining a JOA also increases the requirements for Army sustainment. Supporting operational maneuver over expanded distances requires a flexible, responsive, and protected sustainment network and physical infrastructure capable of supporting joint and multinational operations. Additionally, TAs depend upon COMPO 2 and 3 sustainment units to meet increased sustainment demand during a crisis or conflict. The actions that Army and joint forces take to survive while conducting operations will also complicate sustainment efforts. The more the joint force disperses, the greater the sustainment and protection challenges.

The final complication for TAs is performing their functions in operational areas with noncontiguous borders, especially maritime environments. Joint support requirements will likely increase, as air and maritime are typically the key to the JFC's operational approach.[30] However, Army requirements to support dispersed air and maritime forces are still under development and undergoing refinement, compounding already identified challenges in protection, sustainment, and C2. In general, theater sustainment will be more difficult simply due to the highly collaborative requirements of a maritime environment. Protection of extended and exposed lines of communication will be another TA problem. Finally, forward forces assigned or allocated to the TA create protection and C2 challenges. Protecting them during crisis and initial conflict is vital. Then, TA commanders may have to fight forward forces until other echelons arrive to establish subordinate C2 structures. All of this will be complicated by the adversary antiaccess/area denial (A2/AD) networks and the TA commander's requirement to assist with its defeat, at least until a subordinate land component command is established.

Way Forward

The TA is evolving to meet these challenges. The Army is fielding new theater-level organizations that the TA will employ in various strategic contexts. These organizations include the multi-domain task force (MDTF), theater fires command, theater strike effects group, and

Proposed symbology for TSEG and TIAD

CA	civil affairs	**TFC**	theater fires command
MI	military intelligence	**TIAD**	theater information advantage detachment
MP	military police	**TSC**	theater sustainment command
SUST	sustainment	**TSEG**	theater stike effects group
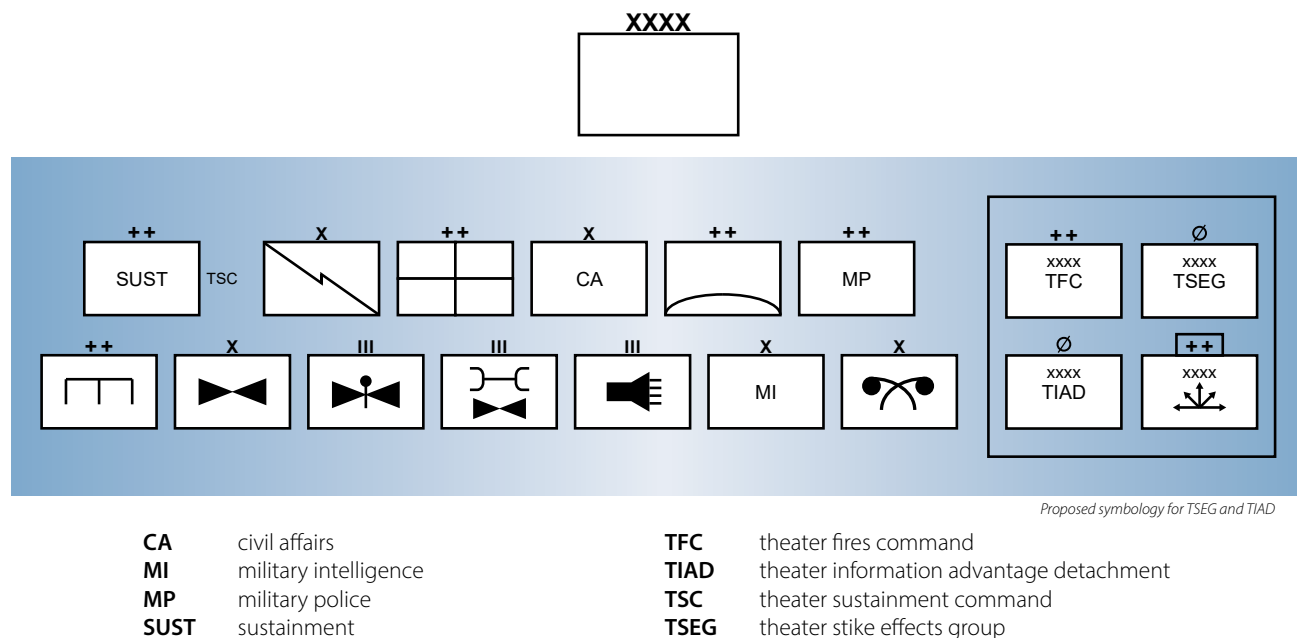
(Figure by authors)

Figure 2. Example of Expanded Theater Forces with Army 2030

theater information advantage detachment (see figure 2). These organizations provide new capabilities to the TA and JFCs while enhancing the land component command's ability to contribute to large-scale combat operations in MDO. For example, the MDTF synchronizes long-range precision lethal and nonlethal effects and long-range precision fires to assist the joint force's efforts to defeat enemy A2/AD networks to enable freedom of action. Even in competition, the MDTF can integrate joint, interagency, intergovernmental, and multinational capabilities and data to gain and maintain contact with adversary A2/AD networks.[31]

The additional demands of modern warfare also require evolution of the TA staff structure. The TA of 2030 increases personnel across the staff to increase capacity in current operations, future operations, intelligence, counterintelligence, fires/targeting, space, cyber, integrated air and missile defense, and sustainment. The priority TA staffs are projected to grow as much as 60 percent as part of Army 2030 (see figure 3). Staff expansion enables commanders to better integrate the new, complex organizations assigned and allocated to their headquarters. For example, the MDTF creates interdependencies across unified action partners. The staff must enhance its capacity to handle these new

requirements, as the TA's responsibilities have not decreased. Consequently, it is essential to maintain the projected growth for the TA to enable subordinate echelons during MDO.

Conclusion

TAs are essential to the success of the Army and the joint force in competition today and crisis or conflict tomorrow. No other echelon in the Army can perform the expansive roles and responsibilities of the TA without extensive augmentation. Even then, those echelons would not have the persistent presence in an AOR or the routine interaction with the CCDR to be as effective as today's TA. Evolving the TA is critical to ensuring its readiness to perform its mission through MDO in an increasingly complex OE, supported by a growing number of theater-level enablers. The Army should also reconsider the COMPO mix and assignment of critical theater enablers to ensure flexibility and responsiveness. There may be an opportunity to better balance the Army at the TA echelon by ensuring key formations are COMPO 1 and Service Retained. All of this ensures that the TA enables subordinate echelons to deter or defeat adversaries and achieve national strategic objectives. ∎
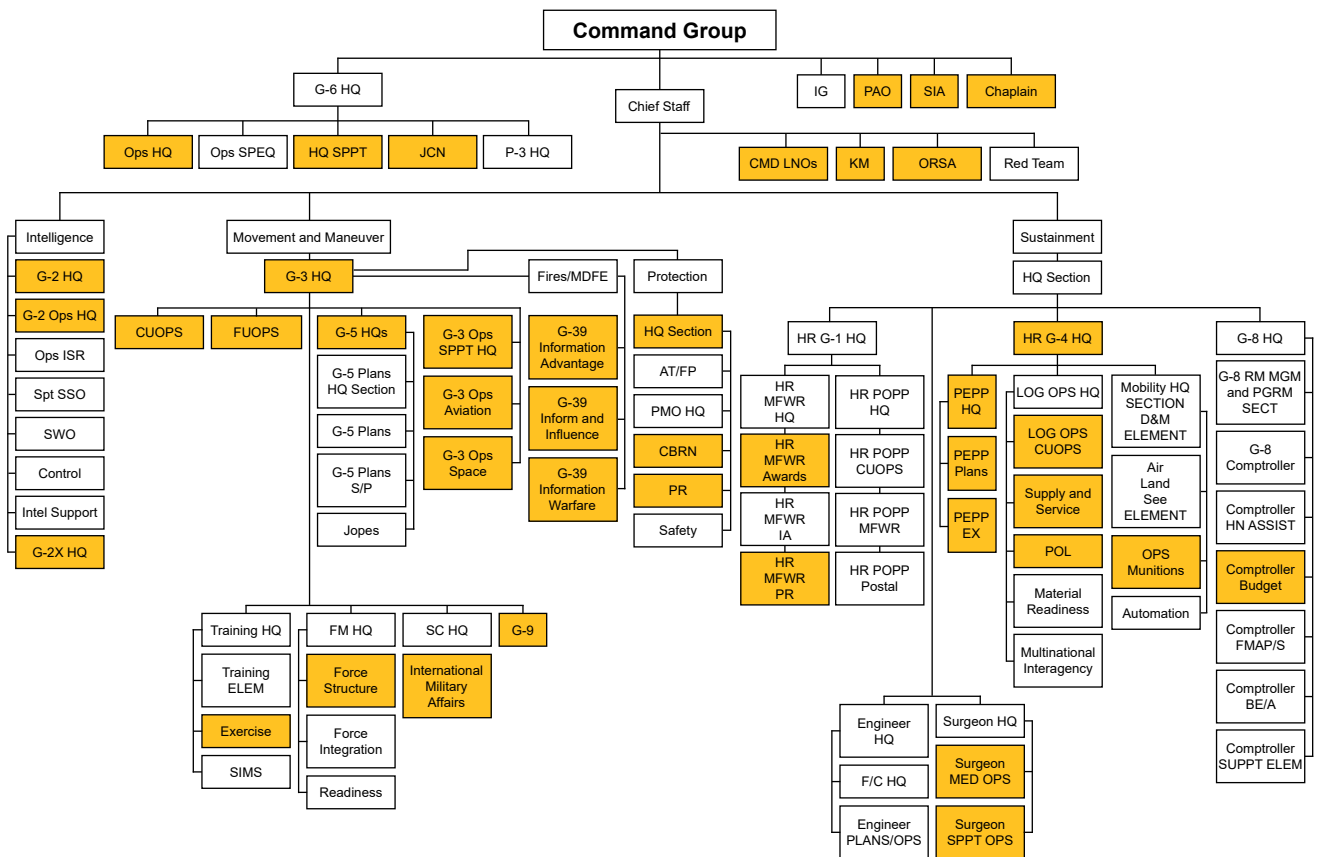
Yellow indicates sections with growth

(Figure by authors)

Figure 3. Theater Army Main Command Post in 2030 (Pending Army Senior Leader Decision)

Notes

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1. For an in-depth treatment of this history, refer to John Bonin, "Echelons above Reality: Armies, Army Groups, and Theater Armies/Army Service Component Commands (ASCCs)," in *Essential to Success: Historical Case Studies in the Art of Command at Echelons above Brigade*, ed. Kelvin Crow and Joe R. Bailey (Army University Press, 2017), 251–65.

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5. U.S. Army Europe and Africa supports both U.S. European Command and U.S. Africa Command.

6. 10 U.S.C. § 7013(b)(1)-(12) (2021). The functions of the Department of the Army include recruiting; organizing; supplying; quipping; training; servicing; mobilizing; demobilizing; administering; maintaining; and construction, outfitting, and repair of military equipment, buildings, structures, and utilities.

7. Army Techniques Publication (ATP) 3-93, *Theater Army Operations* (U.S. Government Publishing Office [GPO], 2021)

8. U.S. Department of Defense (DOD) Directive 5101.01, *DoD Executive Agent* (U.S. DOD, 2022). Executive agents can change over time. They are managed by DOD Directive 5101.01, and a list of the specific functions are maintained by the DOD Executive Agent website at https://dod-executiveagent.osd.mil/Agents/Search.aspx.

9. 10 U.S.C. § 164(c)(1)(A) (2023). The combatant commander is authorized to give "authoritative direction to subordinate commands and forces necessary to carry out missions assigned to the command, including authoritative direction over all aspects of military operations, joint training, and logistics." 10 U.S.C. § 7013(c)(4) (2021). "The Secretary of the Army is also responsible to the Secretary of Defense for … fulfill[ing] the current and future operational requirements of the … combatant commands."

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25. Air Force Doctrine Note 1-21, *Agile Combat Employment* (U.S. GPO, 23 August 2022).

26. Kenneth J. Braithwaite et al., *Advantage at Sea: Prevailing with Integrated All-Domain Naval Power* (U.S. Department of the Navy, December 2020).

27. For example, approximately 40 percent of division headquarters, 100 percent of maneuver enhancement and expeditionary combat aviation brigades, 60 percent of infantry brigade combat teams, 66 percent of medical brigades, and 70 percent of inland cargo transfer companies are in components 2 (National Guard) and 3 (Army Reserve).

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Authorities and the Multidomain Task Force

Enabling Strategic Effect

Maj. Steven C. Higgs, U.S. Army

As the operational environment evolves, the integration of advanced capabilities at the operational level in areas such as information and electronic warfare must remain firmly linked to the political and strategic-military authority. Within this evolving strategic landscape and with the emergence of the concept of multidomain operations (MDO), aligning a multi-domain task force (MDTF) with a theater army provides a conduit to access political authorities, linking strategic effects to operational formations. Retaining the MDTF at the theater army level enables the corps by ensuring the authorities of the geographic combatant commander are closely linked to the strategic capabilities within the MDTF. The aim of this article is to explore the command relationships and authorities necessary to fully operationalize the capabilities of the MDTF. By analyzing historical precedents and current frameworks, it seeks to enrich senior leader discussions and underscore the significance of strategic political-military alignment in modern military operations.

What Is the MDTF?

MDTFs are fires-based formations specifically designed to focus on the penetration and disintegration of threat antiaccess/area denial (A2/AD) systems (see figure 1). They are theater level, multidomain maneuver elements that synchronize long-range precision effects—such as electronic warfare, space, cyber, and information—with long-range precision fires.[1] MDTFs occupy strategic ground to employ high-technology weapon systems to create strategic advantages across large distances.[2] As part of a theater army, an MDTF ensures that highly capable organizations can gain and maintain access during competition to achieve effects of deterrence, and if deterrence were to fail, leverage positions of relative advantage as the joint force moves into crisis and conflict.

Authorities

The changes to the character of warfare naturally have an impact on the nature of political decision-making. As stated by Carl von Clausewitz, war is a "continuation of political intercourse, carried on with other means."[3] When political leaders decide on the use of force, they naturally must decide on the use or nonuse of available means to accomplish the strategic ends. This fundamental decision applies to whether the 101st Airborne Division is deployed or nonlethal effects are employed from the MDTF. At the strategic level, the linkage between political and military strategic leadership exists in the relationship and the authorities granted from the president and the secretary of defense (SECDEF) to the geographic combatant commanders (GCC) through the assignment, allocation, and apportionment of forces to their respective geographic areas (see figure 2).[4]

Assignment refers to service-provided forces that the GCC retains combatant command over. Combatant command is defined in the *DOD Dictionary of Military and Associated Terms* as "nontransferable command authority, which cannot be delegated, of a combatant commander to perform those functions of command over assigned forces involving organizing and

employing commands and forces; assigning tasks; designating objectives; and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command."[5] This authority means that the GCC retains, and cannot delegate, ultimate authority over all forces assigned to the subordinate component commands. When discussing the MDTF, the GCC is therefore only one echelon from direct control of the MDTF and the MDTF is only two echelons from the SECDEF.

The Pentomic Division

The strategic nature of the MDTF's stated capabilities and effects parallels that of nuclear weapons. One metaphorical case study to the command relationship and associated authorities' discussion is in the post–World War II Pentomic Division. Gen. Maxwell Taylor, the Army chief of staff from 1955 to 1959, led an effort to adjust the structure and capabilities of the army division into a highly mobile, nuclear-armed fighting force in preparation for war against the Soviet Union in Europe.[6] Described as the first offset, the stated purpose of arming the military with tactical nuclear weapons was to compensate for the smaller size of the U.S. formations with more destructive fires capabilities.[7] While the U.S. Army was smaller and more dispersed than the Soviet horde, it could deal much more damage by employing tactical nuclear weapons. The Pentomic Division structure consisted of five small battle groups per division, each armed with tactical nuclear weapons including the Honest John nuclear-armed rocket.[8]

1st Multi-Domain Task Force electromagnetic warfare specialist Staff Sgt. Orlando Varela demonstrates the wear of the Versatile Radio Observation and Direction (VROD) manpack system at Aibano Training Area, Japan, 18 July 2024. The VROD detects electronic frequencies and creates a virtual map of the electronic environment to enable an electronic attack on unauthorized transmissions. (Photo by Capt. Jamie Cottrell, U.S. Army Reserve)

The pentomic force structure enabled greater mobility by cutting roughly five thousand personnel from each division to roughly fourteen thousand and reduced the unit of employment from the World War II regiment to the pentomic battle group. Smaller divisions and smaller units of employment also allowed fiscal and personnel feasibility due to ongoing budget cuts and recruiting challenges. The adjustment to a nuclear-capable force to fight an unlikely nuclear war stood in contrast to the narrative that conventional warfare would remain.[9] In essence, the pentomic division was an atomic fighting force with striking power, but it lacked the mobility, flexibility, and communications means required for the more likely and politically suitable character of future, limited wars. Taylor's decision to push atomic capabilities down to the division level constrained the entire operational army from using military force in any scenario due to the political unwillingness to employ nuclear capabilities.

Shown here at the Aberdeen Proving Ground in Maryland in March 1961, a U.S.-developed M-388 Davy Crockett nuclear weapon is mounted to a recoilless rifle on a tripod. It used the smallest nuclear warhead ever developed by the United States. The division was armed with tactical nuclear weapons to offset the Soviet Union's numerical advantage during the Cold War. (Photo courtesy of the U.S. Department of Defense)

What's So Strategic About the MDTF?

Several parallels exist between the MDTF and the Pentomic Division, including fiscal and personnel constraints affecting the modern fighting force, the relatively rapid nature of the fielding of capabilities, and the nature of the discussion surrounding the decision-making. However, as with the Pentomic Division's reliance on the authorities to employ their nuclear capabilities, the present operational environment requires political willingness to use advanced intelligence, information, cyberspace, electronic warfare, and space capabilities from
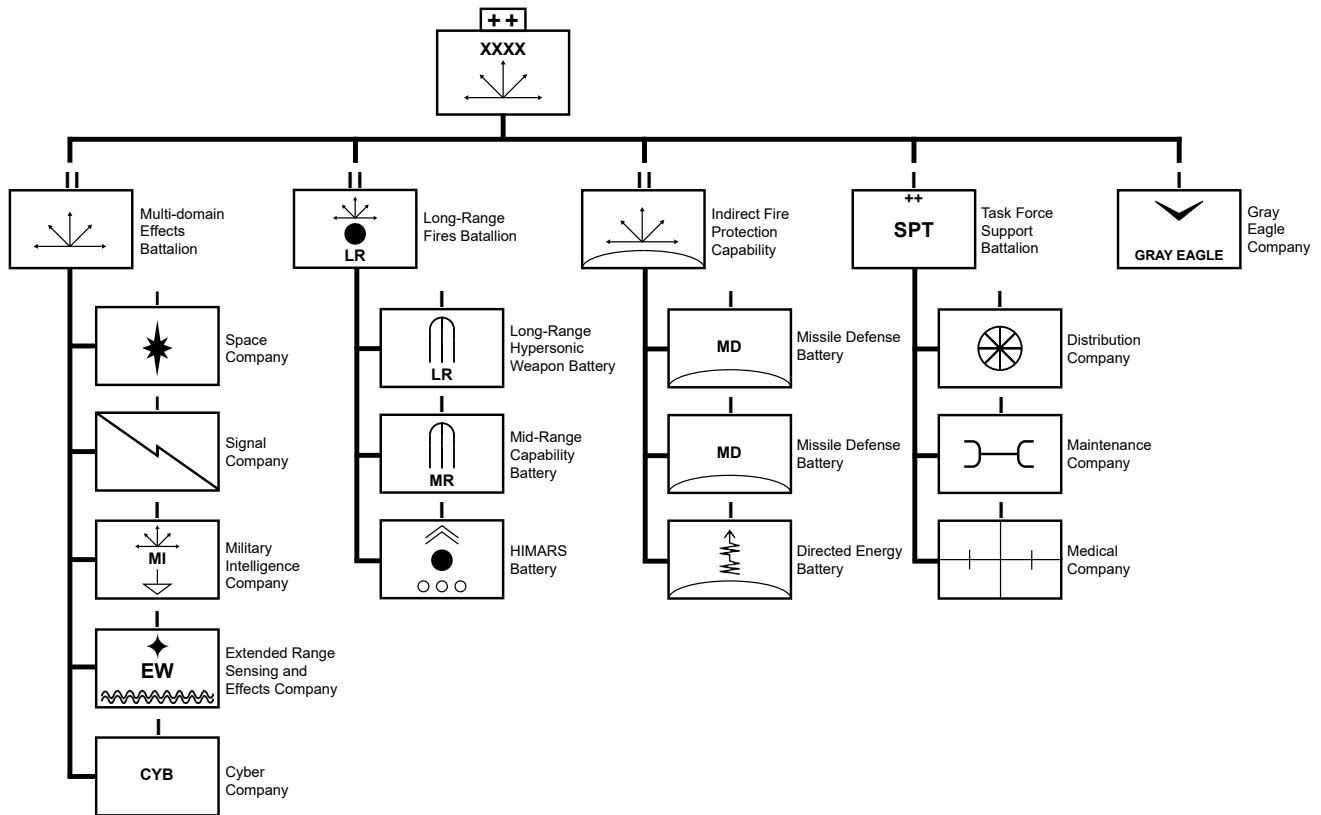
(Figure adapted from Requirements Integration Division, "Multi-Domain Task Force [MDTF], Intelligence, Information, Cyberspace, Electronic Warfare, and Space [I2CEWS]")

Figure 1. Multi-Domain Task Force Organization

within the multi-domain effects battalion, among other highly consequential offensive capabilities. As opposed to the Pentomic Division's prolific assignment of nuclear capabilities across the force, the MDTFs are the only formations receiving the most advanced capabilities.

The Cyber Center of Excellence describes these capabilities as instrumental in enabling penetration of advanced enemy capabilities: the multi-domain effects battalion "as part of the MDTF, is a unique formation that is designed to be forward postured to employ MDO fires in support of the Joint Force Commander's (JFC) strategic objectives in multiple domains to penetrate enemy anti-access and area denial (A2AD) defenses and enable joint force freedom of action."[10] The decision to keep the MDTF aligned with the theater army and not assigned or attached to the corps is emblematic of both the requirement to employ advanced MDO capabilities and the echelon at which risk decisions must be held. The MDTF can potentially cause significant damage to civilian infrastructure with its multiple gray-zone warfare capabilities—including

targeting foreign civilian networks, among other cyberspace and information capabilities—which pose an associated risk of inadvertent escalation.

The MDTF requires a decision cycle that can employ strategic assets to generate effects without going through multiple layers of command. Likewise, the theater army provides a link for the MDTF to directly participate in joint planning and targeting processes.[11] The theater army enables the MDTF to open and exploit windows of opportunity by actively integrating in the GCC-level Bureaus, Boards, Centers, Cells, and Working Groups (B2C2WGs).[12] The theater army functions as the element that translates the joint desired future state and integrates the capabilities and means of the MDTF into those processes. As shown in figure 3, the alignment enables the requests for authorization up to the GCC commander and, as needed, to the SECDEF and president in an effort to unleash the power of the MDTF in a timely and effective manner. The corps-level staff does not have the bandwidth for integrating into the four-star-level joint planning staff as the theater army,

Global Force Management – The Four A's

Assignment – Service Secretaries assign forces to CCMDs per SecDef direction – C2 mechanism to distribute forces to CCMDs

– Available for employment unless allocated to another CCMD (COCOM authority)
– Annual SecDef direction in Forces For Assignment Tables "Forces For"
– JS J-8 lead

Allocation – forces <u>transferred</u> from the assigned CCMD or Service by SecDef – C2 mechanism to temporarily adjust the distribution of forces to CCMDs

– Command relationship specified (normally OPCON)
– In fiscal year GFM Allocation Plan (GFMAP)
– Available for employment during specified dates
– JS J-3 lead

Apportionment – estimate of quantities of forces "reasonably expected to be available" globally

– CJCS planning guidance; no C2 relationship
– Estimate of quantities, not units
– Updated quarterly on JS J-8 SIPRNET page
– JS J-8 lead
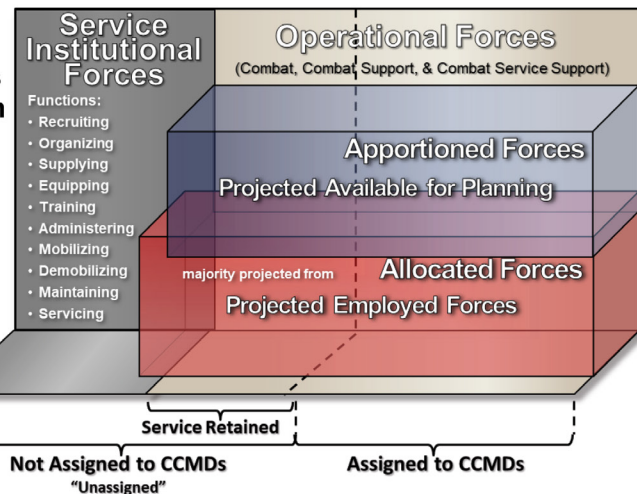
Assessment – analysis of proposed or executed outcomes

– Inputs to strategic/force development guidance and Congressional readiness reporting:
  • NDS, DPG, Posture, POM/PBR, Semi-annual Readiness Report to Congress (SRRC), etc

Service Institutional Forces
Functions:
• Recruiting
• Organizing
• Supplying
• Equipping
• Training
• Administering
• Mobilizing
• Demobilizing
• Maintaining
• Servicing

Operational Forces (Combat, Combat Support, & Combat Service Support)

Apportioned Forces — Projected Available for Planning

majority projected from

Allocated Forces — Projected Employed Forces

Service Retained

Not Assigned to CCMDs "Unassigned"

Assigned to CCMDs

1

(Figure courtesy of the U.S. Army War College)

Figure 2. Global Force Management: The Four As

nor should it. The corps exists to synchronize and enable multiple divisions in a broad range of military operations, and that is what the corps needs to focus on. Likewise, the theater army works to employ the MDTF and enable the corps unless augmented as combined joint force land component command, in which case the land component command works to employ the MDTF in support of, and as part of, the joint force.

Battlefield Geometry

The second reason the MDTF must be retained at the theater army or higher level of authority is because of the operational framework and the range of effects the MDTF generates in time and space (see figure 4).

A command's deep area, as defined in Army Doctrine Publication 3-0, *Operations,* "generally extends beyond

subordinate unit boundaries out to the limits of the commander's designated area of operations."[13] Deep operations, as defined in Field Manual (FM) 3-0, *Operations,* are "tactical actions against enemy forces, typically out of direct contact with friendly forces, intended to shape future close operations and protect rear operations."[14] Army Techniques Publication 3-94.2, *Deep Operations,* defines deep operations as "combined arms operations directed against uncommitted enemy forces or capabilities before they can engage friendly forces in the close fight."[15] The corps deep area is generally defined by the limits of the capabilities within the corps and the effects the commander can feasibly generate. The corps commander seeks to conduct effective deep operations to disrupt and interdict enemy forces, but the size of the deep area is defined by geography and capability. The
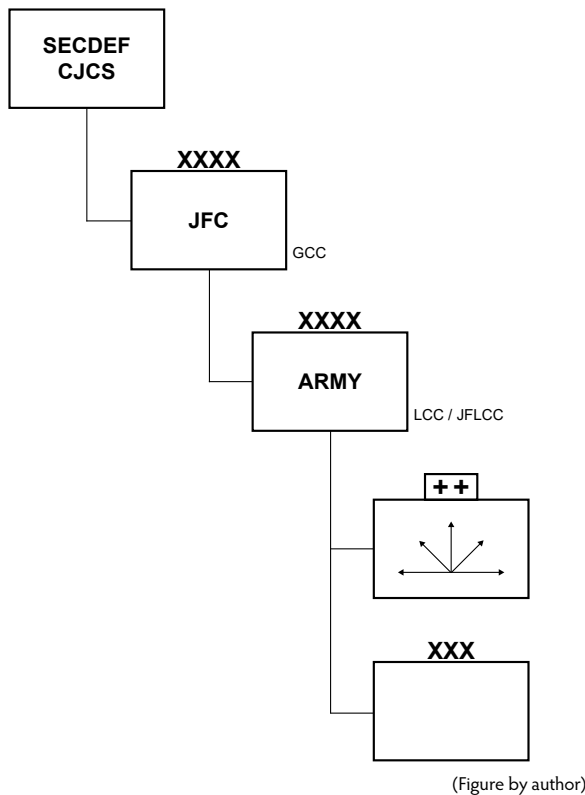
Figure 3. Task Organization from the Secretary of Defense to MDTF

(Figure by author)

measures of the deep area in FM 3-94, *Theater Army, Corps, and Division Operations,* are "based on friendly indirect fires systems, the ability to observe fires, and the ability to detect enemy forces."[16] The theater army commander, on the other hand, generally has a deep area that is constrained only by the limits placed by the GCC commander. This relationship thus enables the MDTF, when assigned to the theater army, to execute deep operations across the entire theater, targeting multiple enemy capabilities or formations through a convergence of multiple individual effects (see figure 5). With the MDTF conducting deep operations beyond the corps deep area, the opportunities for exploitation by the corps become much more practicable.

The MDTF alignment to the theater army is a seeming juxtaposition with the FM 3-0 emphasis on the corps and divisions as the forces fighting in large-scale combat operations.[17] Because of the way FM 3-0 is written, the argument can be made that the MDTF should be aligned with the corps. While the division is described as the principal tactical warfighting formation during large-scale combat operations, the corps is described as the echelon best positioned to be resourced to achieve convergence with Army and joint capabilities.[18] Additionally, FM 3-0 states that "Army forces must account for constant enemy observation, including the threat from unmanned systems that saturate the operational environment," and "Army forces take measures to defeat the enemy's ability to effectively mass effects while creating exploitable advantages to mass effects against enemy capabilities and formations."[19] While the corps is described as the echelon to achieve convergence and MDO effects, the corps does not actually possess the capabilities to deliver the effects as described in FM 3-0. Instead, the corps is the Army echelon that would plan and request MDTF effects to deliver windows of convergence.

The divisions cycling through the U.S. Army's National Training Center at Fort Irwin, California, and Joint Readiness Training Center at Fort Johnson, Louisiana, are training for the environment characterized by MDO, but without the capabilities to defeat the adversary's advanced A2/AD systems. Those capabilities reside echelons above the division at the theater army level and within the MDTF. The unit of execution is no longer the brigade or division or even the corps, but instead any warfighting element that is constructed to fight any conflict across the range of military operations, whether in a joint or combined task force setting. The Joint Pacific Multinational Readiness Center exercises stand as the premier training opportunity for the MDTF due to its multinational character and the stress placed on operational-level headquarters to test interoperability and staff processes.[20] In

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Friendly   **Hostile**

110 - 250km

55 - 85km

18 - 28km

200km

35km
ARTY

45km

24km

LC   **LC**

Division AO   Corps
AO

70km
MLRS   LCC/
Field
army
AO

150km
HIMARS

SA

29-35km
ARTY

SA   SA

300km
ATACMS

SA   SA

70-90km
MRL

Joint security area

SA   SA

500km
SRBM

AO	area of operations	LCC	land component command
ARTY	artillery	MLRS	multiple launch rocket system
ATACMS	Army Tactical Missile System	MRL	multiple rocket launcher
HIMARS	High Mobility Artillery Rocket System	SA	support area
LC	line of contact	SRBM	short-range ballistic missile
KM	kilometers		

(Figure from Field Manual 3-94, *Armies, Corps, and Division Operations*)

Figure 4. Doctrinal Template of Depths and Frontage

theory, the MDTF, while aligned with the theater army, enables any unit regardless of echelon, size, or composition to generate effects and to achieve exploitation. Joint Pacific Multinational Readiness Center-like events provide the opportunity to test the division and corps in an MDO environment with the MDTF as the key enabler.

Getting the Most Out of the MDTF

Rehearsing MDTF integration is a key challenge. Exercising the MDTF to truly enable the corps requires a high level of integration upward from the MDTF to the GCC more so than the integration from the MDTF down to the corps. The actions required at echelon to successfully generate convergence and exploitable gaps are more dependent on the MDTF to GCC linkage than from the MDTF to the corps. However, those systems and processes that grant the authorities for the MDTF to generate an effect for the joint task force must be rehearsed continually. While acknowledging the nature of the modern operational environment as being one of constant contact across all domains, the MDTF can best support the corps or any other warfighting element through real-time operations. Constant contact means that there are no operations in which the enemy is not observing or interacting with the MDTF. The challenge is integrating the corps, division, or joint force into actual operations and determining a way forward for how to simulate the types of massed effects the MDTF can provide for escalated operations. The size and dimensionality of modern warfare necessitate a different kind of testbed—one in which the ranges of National Training
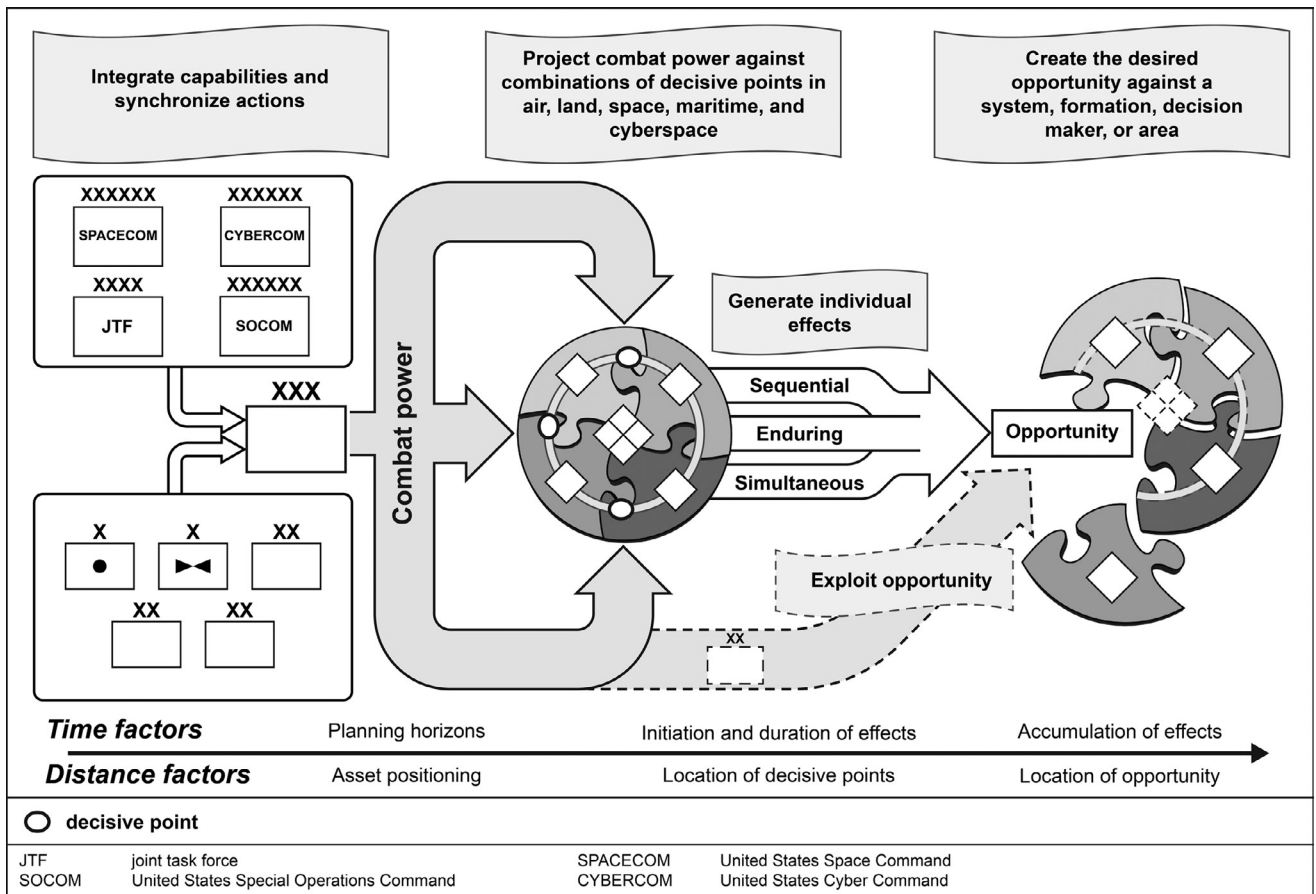
(Figure courtesy of the Combined Arms Doctrine Directorate)

Figure 5. Convergence

Center include cyber and electromagnetic targeting opportunities that are associated with the physical dimension. The size and scope of the current training environment likely requires some degree of expansion if the MDTF is to truly test and refine its processes for integrating up to the GCC to receive the authorities and then generate massed effects on the battlefield.

Another opportunity exists in leveraging the MDTF's position as an echelon-above-corps organization to test and field new concepts and capabilities. As noted previously, the division possesses limited tools necessary to fight in the MDO environment. The MDTF has the unique opportunity as the organization armed with exquisite capabilities that may, in the future, push proven capabilities down to the division when appropriate. In general, it is easier and less costly to prove the effectiveness of a capability in the testbed of the MDTF than it is to field it to an entire corps or division and then iterate at that scale.

Likewise, the MDTF as a future-focused organization has linkages to the Army's forward-looking acquisition and concepts organizations in the Army Futures Command and the Combined Arms Center. This enables a greater degree of testing, adjusting, and retesting of concepts and equipping to speed up the pace of adaptation in warfare.

The MDTF is purpose-built to address the primary threat of its aligned GCC, which is to create and open windows of opportunity for joint capabilities into contested environments. In a sense, while the corps and divisions are built to address any number of challenges across the spectrum of conflict and are built around their respective capabilities, the MDTF is focused on one specific problem within the *National Defense Strategy*—adversaries with advanced A2/AD capabilities—and are thus purpose-built organizations.[21] The linkage of the MDTF to the theater army creates the necessary access to authorities at the political-strategic

level in order to enable the massing of strategic effects to enable operational-level formations.

Subordinating the MDTF as a purpose-built organization under a capability-oriented organization would dilute its capabilities, slow its authorities granting time, and thus degrade its ability to enable the corps. Ultimately, the decision to link the MDTF directly to the intersection of political/military strategic leadership prevents the dilemma that was experienced by the Pentomic Division. ∎

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2024 Annual Estimate of the Strategic Security Environment
A Compendium to the 2024 Annual Estimate of the Strategic Security Environment

"Chief of Staff of the Army General Randy A. George has called on the force to revitalize professional discourse. The *2024 Annual Estimate of the Strategic Security Environment* supports this initiative by setting the foundation for cutting-edge research to understand the ever-evolving security environment domestically and internationally. The subsequent collective research inspired by this estimate informs military strategy and decision making and contributes to overall national security discussions. This framework ensures aspiring researchers are well equipped to assess emerging threats with informed perspectives and challenges them to propose innovative solutions to complex problems."

—Maj. Gen. David C. Hill, foreword to
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https://publications.armywarcollege.edu/News/Display/Article/3857902/a-compendium-to-the-2024-annual-estimate-of-the-strategic-security-environment/

An artilleryman assigned to 2nd Battalion, 17th Field Artillery Regiment, 2nd Stryker Brigade Combat Team, 2nd Infantry Division, fires an M777 howitzer during an artillery training exercise on 12 January 2023 in South Korea during Korea Rotational Force 12. (Photo by Sgt. Jerod Hathaway, 2nd Infantry Division Rotational Brigade)

Army Fires

Enabling Joint Convergence in a Maritime Environment

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Chief Warrant Officer 5 Steven Pressley, U.S. Army

Since America's emergence as a global power following the Spanish-American War in 1898, there has been a long running national security debate on what capabilities, composition, and strength our military services should possess to ensure our Nation's strategic interests abroad.[1] The experience of over 125 years of global conflict and competition has shown that the most efficient path toward victory lays in a balanced approach, predicated on joint interdependence and unified action. Over time, the military has recognized—through lessons learned in warfighting and war games, as well as the harsh realities of the federal budget—that the best way to complement the capabilities of our services and buttress their limitations is through increased integration and mutual support. It is the diversity of the joint force that gives it its strength across all domains, and each service must be prepared to support and enable each other's combined arms maneuver regardless of the operational environment. This is especially true when confronting the rising threat posed by China, which has embarked on a rapid, unprecedented, and well-documented campaign of military expansion and modernization that challenges the ability of the United States and its allies to counter their malign influence in both the western Pacific region and globally.

In the era of integrated deterrence, all services have an important strategic role in achieving our national policy ends.[2] In 2021, Secretary of Army Christine Wormuth accepted this challenge and laid out her vision for the employment of the Army in the Indo-Pacific to support the joint force and counter the rising threat with enduring American landpower.[3] Her guidance focused on five core tasks for the Army, which were further codified in the Army's capstone doctrine, Field Manual (FM) 3-0, *Operations*, subsequently released in October 2022.[4] More recently, in a May 2023 essay published for the Association of the U.S. Army, Gen. Charles Flynn, commander of U.S. Army Pacific, reiterated the service's commitment to being the "backbone of joint operations" and highlighted the Army's historic and enduring role in the maritime environment.[5] Among the "linchpin" tasks laid out by both Wormuth and Flynn, were establishing, building up, securing, and protecting joint staging areas and bases; providing command and control at multiple levels; and most notably, providing ground-based offensive fires to the joint force. This final task, and its implications, are the focus of this article. *In the Pacific, Army fires will be essential to enabling joint force convergence but will require new approaches to employment and revisiting traditional concepts of fire support in a maritime context.*

To understand why, we will review how Army fires are vitally important given some of the targeting challenges that the joint force will have to address in the Pacific theater. Next, we will explore what history can tell us about employing ground-based fires in maritime operations through a brief examination of a notable case study from the Second World War. Finally, we will conclude with some general observations about how we should employ Army fires in a future conflict. While modernization and technology will be discussed in this article, the focus of this effort is less about the tools and more about the rationale and methods for the employment of Army fires in the maritime domain. As we will see, Army fires will play an indispensable role as part of any operations in the Pacific and will truly deliver the steel in the Army's "linchpin."

Defining the Environment: The Chinese Targeting Challenge

As previously stated, the expansion and modernization of the People's Liberation Army (PLA) in the western Pacific are creating the conditions for functional, physical, and political standoff by offsetting the joint force's traditional approach to warfighting.[6] Their military capacity and capability enable the corrosive rhetoric and aggressive actions of the Chinese Communist Party, which seeks to destabilize the region and threaten the world order.[7] The United States and its allies, distracted by small wars and confronted with the challenges of enabling global security, have struggled to simultaneously modernize and maintain an appropriate force structure necessary to deal with the litany of emerging threats to U.S. interests. The result is that America is now faced with a broad and complex Chinese target set that exceeds the capacity, and in some cases the capability, of individual U.S. military forces in the region to cost-effectively deter and conventionally defeat without a fundamental shift in our approach to warfighting.

This challenge extends across all warfighting domains. In the maritime domain, the PLA Navy, with over 370 ships (not including sixty Houbei class patrol

Soldiers in the 1st Battalion "Dragons," 82nd Field Artillery Regiment, 1st Armored Brigade Combat Team, 1st Cavalry Division, coordinate fires 10 May 2016 with South Korean artillery batteries from the 26th Mechanized Infantry Division Artillery. The exercise, less than six miles from the demilitarized zone that separates North and South Korea, involved thirty self-propelled artillery systems from the United States and South Korea. (Photo by Staff Sgt. Keith Anderson, U.S. Army)

combatants armed with antiship cruise missiles), now has the largest fleet in the world. While America still retains an edge in submarine technology and undersea capabilities, the Chinese are gaining ground here too and fielding aircraft carriers at a pace that suggests they will have global power projection capability on par with the United States by 2030. In the air, Chinese theft of Western fifth-generation fighter technology has significantly closed the qualitative gap, while their production seeks to further expand the PLA Air Force (PLAAF) beyond the 2,700 combat aircraft they currently possess (which include six hundred multirole fighters) to surpass Russia as the second largest air force in the world.[8] Supporting their efforts to exert and extend their control of the air within the first island chain, the PLAAF has colluded with Russia to import and engineer one of the most robust integrated air missile defense structures on the planet, supporting a broad array of tactical and strategic surface-to-air missiles including the SA-20/21. Additionally, their domestic market has home grown the CSA-9 and are intent on fielding the new CH-AB-X-02 soon.[9] The Army, still the heart of their military, remains robust, and their strategic PLA Rocket Force (PLARF) has

fielded numerous long-range systems that can hold American interests and territories in the Pacific at risk from conventional attack, despite recent corruption scandals that have called the reliability of the force into question.[10] Of note, the PLARF is estimated to have thousands of missiles capable of ranging the Philippines and our bases in Japan from mainland China, as well as over five hundred DF-26 missiles capable of ranging Guam.[11] This arsenal also includes DF-17 hypersonic missiles that, when coupled with their coastal defense cruise missile force, has the potential to keep a naval task force at bay. In addition, the PLARF continues to pursue even longer-range weapons and is developing and fielding DF-27 hypersonic missiles (presently in low numbers) capable of ranging Hawaii with conventional munitions.[12] Reducing this standoff and

neutralizing the sensor and command-and-control (C2) array that supports it is a major task for the joint force. In the cyber and space realm, the Chinese are also incredibly advanced and can contest U.S. and allied advantage in the information space. In short, in the Pacific, there is no shortage of targets, and every day, the list gets longer. Defeating this while maintaining security elsewhere around the globe will take the entirety of the joint force effort as well as the support of our allies and partners in the region.

Given this reality, one could rightly ask, "Why don't we just buy more ships and aircraft if they are better suited to the environment?" This is a fair question, and this article does not suggest that our naval and air forces don't need additional funding to support this threat. What it does suggest is that all services have inherent limitations, and Army fires present the adversary with a unique dilemma that forces them to consider the land domain and how to pry U.S. forces from key terrain. The diverse target set developed by the Chinese requires the joint force commander to have an equally diverse portfolio of fires options to counter it, and the breadth of Army fires, both extant and in development, support this effort. Furthermore, highly advanced aircraft and capital ships represent huge expenditures, which offer great capabilities but also carry significant risks and are difficult to replace. The bottom line is the Army's sister services need help.

To see why this support from the Army is critical, one need only consider the challenges of warfare at sea. The Navy must be prepared for threats from every direction: air, surface, and subsurface. Its targeting enterprise must rely almost entirely on beyond-line-of-sight communications, limited by the bandwidth and communications capabilities of their network afloat and with little to no support from the terrestrial transport layer, limiting the amount of targeting data that can be shared between the combatants. This has a profound effect on the submarine force, whose tactical survival and employment is predicated on stealth and requires that they deliberately avoid contact and communication that may divulge their location to the enemy. The Navy's fires enterprise is further constrained by maritime sustainment operations and the complexity of rearming and resupplying while under way, which in many cases, limits their on-station effectiveness, the capacity of their magazines, and the volume of fires they can generate. In addition, the Navy must contend with the weather and the sea, which is often highly unpredictable and may inhibit the operations of carrier strike groups' other surface vessels.[13] Clearly, establishing

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The 3rd Multi-Domain Task Force fires the High Mobility Artillery Rocket System (HIMARS) at targets in the ocean from Pacific Missile Range Facility, Barking Sands, Hawaii, on 11 July 2024 during Exercise Rim of the Pacific, the world's largest international maritime exercise. (Photo by Sgt. Perla Alfaro, U.S. Army)

sea control within the First and Second Island Chains under the umbrella of formidable Chinese land-based fires will be a challenge. The ability for the other services to support striking vessels and defeating maritime targets will be a necessity. Accomplishing this, however, will not be as easy as it once was. Warships have always been designed to remain afloat in combat, and the survivability of modern enemy warships make them more difficult to sink than ever. Recent U.S. exercises designed to practice sinking ships, known affectionately as "SINKEXs," have illustrated just how resilient modern combatants can be to the types of munitions the U.S. military has developed over the last eight decades since we last engaged in a conflict with a major maritime power. As a notable example, during the 2005 deliberate sinking of the decommissioned aircraft carrier USS *America*, it took four weeks to sink the vessel after repeated attacks during an experiment to collect data on the survivability of supercarriers.[14] The fact maritime targets are harder to sink than ever before suggests that we need to temper our expectations as to what can be reasonable accomplished for a given level of effort. It may be sufficient for the Army to achieve "mission kills" to give the Navy the edge it needs to finish the job and achieve the access needed to pass the baton to another lead service, which will exploit that window of opportunity to consolidate the gains.[15]

The air component in the Pacific likewise has challenges with its ability to maintain a persistent presence in the region. Given the wide expanse of the ocean and reduced ranges of modern fifth-generation fighters, the Air Force will have to balance the need to position forward with the need to maintain airbase survivability under the threat of overwhelming Chinese ballistic missile fires. While the Air Force's adoption of the Agile Combat Employment concept and recent incorporation of mission command as a central tenet of airpower will assist in this effort, their ability to generate combat power forward for extended periods of time may be challenged.[16] Furthermore, the susceptibility of high-value airborne assets and our workhorse strategic bombers, like the B-52 and B-1, to long-range strategic surface-to-air missiles means that the joint force will have to deal with those threats simultaneously while addressing the coastal defense cruise missile and the ballistic missile threats. The simultaneity of addressing multiple threats, in depth and with varying degrees of protection, suggests that Army-fires-enabled

convergence provides the joint force with useful alternatives if they find themselves denied in a particular domain.

Even in the land domain outside of its own service, the Army can provide fires to our joint partners. During sustained large-scale combat, the U.S. Army has always worked alongside its brothers in the Marine Corps, assisting them in achieving the multidomain operations tenets of depth and endurance. Those challenges will be magnified as the Marine Corps achieves greater agility by pivoting toward expeditionary advanced-based operations as supported by *Force Design 2030*.[17] This pivot has notably streamlined their traditional fires structure, divesting much of its cannon artillery in favor of longer-range rocket and missile systems.[18] This decision places a sizable bet on preventing an enemy from achieving a joint forcible entry rather than the ability to defeat it once it occurs. While *Force Design 2030* makes the Marine Corps significantly faster and more capable of enabling maritime operations, it simultaneously makes them less resourced for a traditional close combined arms fight on land and more reliant on the Army to backstop its lightened structure with cannon artillery. In the key terrain of the Pacific, cannons will remain relevant because they deliver a different portfolio of munitions for longer durations and at a reduced cost than rocket and missile fires.

All these challenges point to a need for Army fires to support joint operations in a broad way. But the question remains, how best to accomplish this? What practices and procedures should the Army pursue to put its capabilities to work in support of the joint effort? Are there principles that are universal, regardless of operational domain, that perhaps we can apply in nontraditional ways? And what can the past tell us about how we can think about the future of Army fires in the Pacific? To examine these questions, we can look at a notable case study from our last major joint maritime combat experience during the Second World War to help chart a path.

Guadalcanal 1942: A Study in Army Maritime Fires and Joint Interdependence

The Battle of Guadalcanal, fought from 7 August 1942 to 21 February 1943, was the longest battle in the Pacific theater and the turning point in the war against Japan.[19] Following the battles of the Coral Sea and Midway, America had established sufficient sea parity to conduct amphibious operations in the Solomon Islands. This effort was of strategic significance as it sought to secure the eastern flank of the Southwest Pacific Area Command and ensure open sea lines of communication between the United States and Australia. Vital to this campaign was the seizure of the key terrain at Guadalcanal. The struggle for Guadalcanal is relevant in a contemporary sense because sea control remained contested throughout much of the battle. At least six significant sea engagements were fought during the campaign, which limited the ability of the Navy to provide continuous support to troops ashore.[20] This forced the services to maintain operations through a degree of functional separation, a condition that may be similar the initial phases of a war with China.

When examining Guadalcanal through the lens of the Army's multidomain operations doctrine along the lines of depth, endurance, agility, and convergence, one can easily see the utility of Army fires applied in the maritime domain. In enabling joint force depth and endurance, it is important to understand that Guadalcanal, despite being fought over an island one-sixth the size of Taiwan, was a large-scale combat operation, both at sea and on land. Following the initial expeditionary operation of the 1st Marine Division, led by Maj. Gen. Alexander Vandergrift, the Army began arriving in early October with the lead elements of the 23rd Infantry "American" Division. This de facto joint force land component command grew throughout November and December, adding the 2nd Marine Division, the 25th Infantry Division, and the 147th Regimental Combat Team. By January, despite the departure of the exhausted 1st Marine Division in early December, the land component and its associated air forces had expanded significantly and reorganized under the newly established XIV U.S. Army Corps led by Lt. Gen. Alexander Patch. The supporting fires force ashore had likewise grown, from three Marine direct support 75 mm and 105 mm field artillery battalions to a mixed composition of thirteen battalions organized across three division artillery units, including larger-caliber 155 mm howitzers. This did not include a separate coastal artillery battalion, which also supported the corps by providing protection to the staging

Marines work a 155 mm gun position on Guadalcanal in 1942. (Photo courtesy of the U.S. Marine Corps via the National Archives)

base at Noumea, New Caledonia. In this battle, cannon artillery was critical because the fight over key terrain on Guadalcanal was a close fight. The volume of fires was high as well, with some units expending upward of 330–500 rounds a day. Because of the high demand for these assets, the interoperability of Army and Marine fire support at Guadalcanal was essential; common surface-to-surface systems, munitions, and approaches to C2 enhanced cooperation, depth, and endurance.

Simultaneously, with the early capture of Henderson Field, the organic Marine air assets and various squadrons of orphaned Navy aircraft (arriving as a result of the losses of the USS *Enterprise* and USS *Saratoga*) were joined in early August by a squadron U.S. Army Air Force (USAAF) P-400s and later, P-39s.[21] This ad hoc organization, constituted under Marine control and subsequently referred to as the

"Cactus Air Force," demonstrated the agility in joint air operations C2 that will be necessary in any future fight with the Chinese. This formation was reinforced by USAAF B-17s of the 11th Bomb Group, which supported actions in the Guadalcanal campaign from their nearby base on the island of Espiritu Santo. While tested early, the airborne element of fire support likewise grew and delivered effects across all domains during the fight for Guadalcanal. As the battle progressed, the spatial depth and mass afforded by the presence of Army air, and the arrival of longer-range Army 155 mm howitzers, which showed up on 2 November, was decisive.[22] Following an initial U.S. naval setback at the

A Mid-Range Capability (MRC) Launcher from Charlie Battery (MRC), 5th Battalion, 3rd Field Artillery Regiment (Long Range Fires Battalion), 1st Multi-Domain Task Force, is loaded into a U.S. Air Force C-17 Globemaster III on 4 April 2024 at Joint Base Lewis-McChord, Washington. The system's deployment to the Philippines for Salaknib 24 marked the first time it was flown into the Pacific theater. (Photo by Capt. Ryan DeBooy, U.S. Army Pacific Public Affairs Office)

Battle of Savo Island and a series of costly at sea battles that pushed the United States to the brink of defeat, the timely arrival of Army fires and forces facilitated the consolidation of gains and the defense of the joint force on Guadalcanal. In the face of reinforced and relentless counterattacks from August to mid-November, the collective joint force wrested the initiative back from the Japanese and surged over to the offense in January, pushing the enemy to try to extricate itself from a now losing situation. Army forces actively supported the Navy's fight during these battles, throwing their weight behind the interdiction campaign against the Imperial Japanese Navy and reinforced the Marine Corps, allowing the Navy to focus its attention at sea. The operational endurance provided by Army forces, both on land and in the sky, set the conditions for resumed offensive operations that used fires to isolate the battle area and fix and finish Japanese forces ashore, enabling their ultimate defeat.

Within the human dimension, it should be noted that while the fires community of the Marine Corps and the Army might have been separated by statute, ashore, the services were extremely well aligned and worked well together. Artillerymen at Guadalcanal shared doctrine, training, and a professional culture that were ingrained at Fort Sill, Oklahoma, home of the U.S. field artillery. This supported common understanding and unified action across fire support and execution. The success of this integration can be illustrated in the artillery organization for combat during the battle of Mount Austen, which occurred in late-December 1942 and involved elements of the 2nd Marine Division fighting alongside elements of the Americal Division. One of the participating battery commanders, Capt. John Casey Jr., described the degree of fires integration in the October 1943 edition of the *Field Artillery Journal*, stating that the command/support relationship involved "two Marine 75-mm howitzer battalions … in direct support of two regiments of (Army) infantry, one Army 105-mm battalion supported a Marine regiment, two 105-mm battalions were providing reinforcing fires, and two batteries of 155-mm howitzers (one Army and one Marine) were

in general support."[23] From this, it appears that, in the close fight anyway, the ideal of "any sensor, any shooter, any C2 node" was achieved as early as 1942 in a very rudimentary but functional sense.

While all of this was happening at the tactical level, Army P-400s and P-39s and Navy scout bombers were attacking Japanese landing sites in the corps deep areas, and Army bombers were attacking Japanese troop transports, warships, and seaports of embarkation at the operational level. Factoring in simultaneous Navy actions at sea, one gets a clearer picture of what successful "convergence" looked like in the early battles of the Second World War.

Internal to the service, Army fires forces learned valuable lessons that remain relevant today about operating in a distributed maritime island environment. The challenges of the terrain; the cover, concealment, and conditions of the jungle; and the strength of Japanese positions necessitated new fires techniques and process adaptations. For example, the fires community experimented a variety of shell-fuse combinations to facilitate marking and penetrating jungle canopy, employed high-angle fires to mitigate the rugged terrain, and innovated the "time on target" fire mission, used for the first time during the battle, to leverage the simultaneity of surprise and mass against fleeting and protected targets. The limitations of ground-based sensors and observation in the jungle compelled wartime adaptation and promoted air-ground integration with Navy and Marine aircraft to act as spotters. This was critical due to the lack of quality maps, which precipitated a rapid and intense engineering effort to establish survey for the guns to achieve position control and enhanced precision and accuracy. Communications were also a major issue; heavy rainfall, terrain, and foliage in the jungle decreased the range and quality of fire-control-related transmissions and created a huge demand for upgraded radios suitable for the environment. Instituting change under fire is never easy, but

the lessons of Guadalcanal set the course for the future employment of the Army fires throughout the rest of the war and the environmental factors encountered continue to guide our modernization priorities for operations in the region.[24]

Studying Guadalcanal comprehensively, what becomes apparent is not only the value of having robust Army fire support in the maritime environment but also important factors that enhance its effectiveness: C2, engineer support, logistics, and intelligence support to targeting. Even prior to Guadalcanal, the value of these factors to Army fires forces was clearly understood and observed during the defense of the Corregidor.[25] There, Army coastal artillery, acting as stand-in forces, demonstrated a capacity to endure relentless assault by the Japanese, soaking up enemy combat power and quashing the initiative of vastly superior forces through a combination of fortitude and fortification, relenting only when their logistics had failed. In the same vein, intelligence support to targeting and preparation of the operational environment tailored to the maritime domain can significantly enhance the lethality and effectiveness of land-based fires. This level of fire planning requires doctorate-level awareness of not only the land but the littoral conditions as well. Future Army fires forces operating in the maritime domain will need to consider those factors that led their 1942 ancestors to strike the embarkation/debarkation sites and sea lines of communication of the Japanese at Guadalcanal.[26] This involves greater awareness of beach and tidal conditions, hydrology and currents, undersea terrain and obstacles, as well as other environmental features that shape the most likely and most dangerous courses of action for our adversaries in the Pacific.

At Guadalcanal, beyond functional considerations, traditional Army fire support planning principles—such as providing adequate fire support for committed units, weighting the main effort, providing immediately available fires to maneuver commanders, facilitating future operations, maximizing centralized control to the extent feasible, and never placing artillery in "reserve"—were also on display and regularly applied across the pantheon of available joint fires capabilities. These principles, commonly referred to in the artillery community by the acronym "AWIFM-N," endure because they are timeless and form the backbone of deliberate fire support planning. Future

Previous page: Rockets launch for a live-fire demonstration during Exercise Talisman Sabre 2019 on 8 July 2019 at Shoalwater Bay, Queensland, Australia. Talisman Sabre is a bilateral, combined Australian and United States training exercise in which the military services train with associated agencies to plan and conduct combined and joint task force operations. (Photo by Sr. Airman Ashley Maldonado, U.S. Air Force)

conflict, because of modern capabilities, will see these principles elevated from the tactical to the operational and strategic levels of war.

Past Is Prologue

The experience of Guadalcanal provides valuable lessons about how Army fires can deliver effects and enable decisive operations in a maritime environment. Faced with functional separation and a contested maritime domain at Guadalcanal, Army fires backstopped the expeditionary Marines and provided much needed range and lethality, enabling a rudimentary level of convergence that bought time for the Navy to recover and achieve maritime superiority. While today, the bomber and fighter aircraft that were once organic to the Army in 1942 no longer reside in the service, it is possible for Army fires to re-create a "Cactus Air Force-in-the-aggregate" through the pre-positioning and concerted employment of low-cost mass-produced unmanned aircraft systems providing intelligence, surveillance, and reconnaissance as well as lethal effects, in close coordination with tactical and long-range precision fires. Adopting this "Moneyball" approach to airpower and coupling it with effective surface-delivered firepower would allow the Army to shape the environment and influence outcomes at multiple levels of war while reducing the financial, logistical, and existential risk to the joint force.[27] Given the highly contested air environment that may exist in a war with China, this approach may ultimately be more cost effective in terms of both equipment and human lives than pre-positioning the actual Air Force within the threat rings of enemy integrated air defense systems. This is the de facto approach that has perpetuated the Ukrainian army for over two years in their current war with Russia.

Beyond enhancing range and lethality, the agile C2 structure for achieving maximum centralized control of fires at Guadalcanal irrespective of service was significant and further serves as a guide for how Army fires will need to remain responsive in a maritime environment, even if under the control of another service. As mission command empowers leaders at the tactical edge to execute appropriate to the situation, fires must be flexible enough to deliver immediate mass in support of the main effort regardless of whether that main effort occurs on land, in the air, or at sea. This will require all-domain awareness

and assured communications. Here again, the lessons of Guadalcanal are prescient—the communications challenges of the maritime environment experienced then persist and remain daunting. The robustness of the Army signal enterprise will work to ensure that U.S. forces can not only shoot but also communicate in a degraded and potentially denied communications environment.

Finally, the Japanese reinforcement and subsequent withdrawal of forces from Guadalcanal reiterates this idea that to secure key terrain, the enemy must come within range of land-based Army fires, support expeditionary amphibious operations, and deliver a force ashore. In so doing, it is vulnerable, both during transition and in its continued support to the amphibious force. The fight for the land and control of its resources, populations, and terrain will be decisive. Perhaps more importantly than the operational aspects of retaining key terrain and perpetuating a joint campaign plan is the strategic and morale effect of bolstering the national will in the minds of the American public, who have difficulty conceptualizing the movements of maritime and air forces but are very attuned to the persistent presence of ground troops and the gain or loss of territory. To that end, ground forces must have the tools at their disposal to not only support the maneuver of their joint colleagues but also the ability to effectively hold the ground they possess indefinitely. All of this suggests that the force best suited for sustained delivery of landpower must be present, supported by organic fires, ready and postured for large-scale combat operations.

Conclusion

After over 125 years on the global stage, America's position is once again under threat by great power competition. While the acute threat posed by Russia in the land domain remains significant, the rising maritime threat in the Pacific posed by our "most consequential strategic competitor" is not only driving public debate and national policy over the composition and capabilities of the joint force but is also forcing the military to relook its methodologies and operating concepts.[28] Successful deterrence and dominance in future conflicts is less about what we have in terms of quantity and more about how effective it is and how we use it. History is replete with examples of smaller, more balanced forces prevailing

over numerically superior ones. Diversity is a virtue. It presents an adversary with multiple dilemmas and inspires new and creative opportunities. The joint force can only accomplish this if it is balanced, and the Army is present to contribute its unique fires capabilities to the equation. Army fires can and must complement the capabilities of the air and maritime components in that environment. With the adoption of FM 3-0, the Army has taken the first doctrinal step in meeting this challenge. Equally as important, the Army fires community has responded with remarkable speed and has rapidly fielded an updated version of their capstone fires doctrine, FM 3-09, *Fire Support and Field Artillery Operations*, to provide authoritative guidance to the force and address the utilization of Army fires in the maritime domain.[29] This document draws on the lessons of the past, applies the context and capabilities of the present, and anticipates the environment of the future while describing, but not prescribing, new techniques and how to apply timeless fire support principles to maritime conditions. On the materiel front, the investments the Army has made to date have been a good start in posturing the force to step into this role, but more is needed. As Army materiel developers shift focus toward nontraditional roles for Army systems and apply science and technology to solving problems in the maritime domain, there must be a realization that these things take time, and we need to temper our expectations about what we will be able to accomplish in the near term. That said, enhancements in fire control, range, lethality, and both the processes and systems of C2 are coming and can contribute greatly. In view of the lessons on large-scale conflict coming out of Ukraine, this must be done at scale and in a manner that ensures the force is able to deliver the volume and the types of fires necessary to address the seemingly ever-expanding array of targets. New technologies must enhance our integration with our joint partners and allies and field low-cost solutions that can be manufactured rapidly and rushed to the point of need. In the near-term, as new systems come online, the joint force also needs to be prepared to explore alternative ways of integrating Army fires into a maritime setting through training and experimentation. In summary, the Army fires community can and will rise to the mandate laid forth in the secretary's Pacific vision, it will enable convergence in accordance with the multidomain operations concept, and it will ultimately deliver the steel in the Army's linchpin for the joint force. ∎

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Siren Songs: The Perils of Interwar Escapism
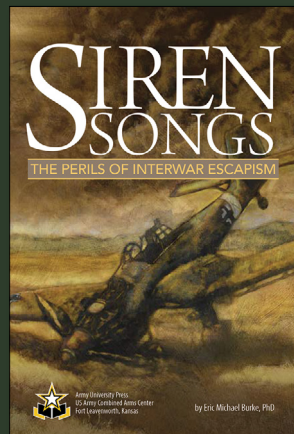
Dramatic outcomes in human conflict often involved a belligerent who miscalculates or underestimates another's tactics and prior preparations. In Siren Songs: The Perils of Interwar Escapism, Dr. Eric Burke engages moments where armies did not reconcile recent losses when developing doctrine in preparation for future wars.

To read this book online, visit https://www.armyupress.army.mil/Portals/7/Research%20and%20Books/2024/Dec/Siren-Songs-Burke.pdf.

Smoke and dust obscure the battlefield as camouflaged M2 Bradley infantry fighting vehicles support the final assault by members of the 2nd Battalion, 41st Infantry, 2nd Armored Division, during a company team attack exercise on 27 January 1986 at the Shell Point training area on Fort Hood, Texas. (Photo by William U. Rosenmund, courtesy of the National Archives)

Invest in Battlefield Obscuration to Win During Large-Scale Combat Operations

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Russian and Ukrainian tactics in the ongoing Ukraine-Russia conflict highlight the need for the U.S. Army to revive battlefield obscuration.[1] Two types of offensive operations—the combined arms breach and the wet-gap crossing—have shown a lack of obscuration capability, understanding, and use in the Russian and Ukrainian armies. This obscuration gap resulted in debilitating casualties on both sides, delaying progress or causing mission failure. It is prudent for the U.S. Army to learn from its tactics in this ongoing conflict and apply these lessons through doctrinal, organizational, and materiel investments.

When Russia seized more Ukrainian territory in February 2022, Russia quickly consolidated gains and constructed defenses, including a labyrinth of minefields, wire obstacles, and trenches.[2] These defenses are reminiscent of World War I when the battle lines stabilized and forces on both sides settled into complex defensives in depth across a wide battlefield. To overcome these defenses, Ukrainian forces attempted to breach the Russian lines in multiple locations with limited success. The Ukrainian military suffered casualties from these offensive operations because the Russians were able to observe their movement and mass a variety of fires, including antitank guided missiles, cannons, mortars, and heavy machine guns. The Ukrainians did not employ vast quantities of smoke, white phosphorus, or other means to blind Russian defenders costing Ukrainian lives in the breach.

Similarly, when Russian forces employ their bridging assets, they similarly do not mass obscuration to conceal their movements or enable maneuver. In the spring of 2022, Russia attempted to cross the Donets River using wet-gap crossing techniques. Among the list of failures in their operational planning, the Russian use of obscuration was minimal. It was reported that the Russians suffered the destruction of a battalion during the operation due to failed planning and execution.[3] Part of this can be ascribed to the lack of appropriate obscuration that would have temporarily blinded Ukrainian ground and air assets.

A key component missing from Ukraine, Russia, and the U.S. Army's tool kit is a panoply of obscuration means that blunts an adversary's observation capability. To affect large-scale combat operations (LSCO) in the current operational environment, the Army must reevaluate its position on battlefield obscurants to enable complex operations and reduce casualties. Conducting a breach on a heavily defended line requires adequate time to reduce obstacles and proof a cleared lane, whether mounted or dismounted. Obscuration is a critical component, providing the breaching force concealment to perform this complicated operation while maintaining combat power. Without an array of obscuration tools, the Army will suffer the same high casualty rates and potential mission failure that Ukraine and Russia suffered in their ongoing conflict.

Current State

The Army has relied on the same breaching fundamentals for decades. These five fundamentals are suppress, obscure, secure, reduce, and assault.[4] Although these fundamentals have not changed, the tools available for each have. Over the last few decades, the Army has divested obscuration capabilities due to myriad factors. These include the loss of Chemical Corps organizations, including smoke platoons, smoke producing equipment, and obscuration-related doctrine. Currently, the Army relies on mortar and cannon delivered obscurants for area coverage and vehicle mounted systems for individual armor systems (Stryker, Bradley, and Abrams platforms). Unfortunately, these limited capabilities are not enough to succeed in LSCO.

The obscurants available to Army combat units at echelon are at a nadir. At the platoon level, obscurants include hand-employed smoke grenades and grenade launcher (M320) smoke rounds.[5] At the company and battalion levels, the tool kit is not much larger; it only adds mortar (60 mm, 81 mm, and 120 mm) white phosphorus rounds.[6] At the brigade level, 105 mm and 155 mm cannon artillery can provide smoke rounds, but these compete for other, arguably equally important high explosive missions.[7] Individual vehicle systems use a vehicle obscurant smoke system to obscure their location, but these systems only screen a single vehicle and must be reloaded after one use.[8] These handheld, small arms, and indirect ammunition are a good start, but commanders need more capability to succeed in LSCO.

Although this appears to be a wealth of obscuration, it is not. These are most of the widely available obscurants available to Army combat units, and they are not enough to succeed in LSCO. One concern for the mortar and cannon obscurants is they are meant

to be used in a two-dimensional fashion. This means that they are employed between friendly and enemy units. They cannot obscure friendly units from aerial observation. Another concern at the tactical level with these tools is the binary choice commanders must make. For every cannon-delivered smoke round, a high-explosive round is not being directed against enemy equipment or troops. The same applies to hand grenades, grenade launcher rounds, and mortar rounds. The United States does not use white phosphorous rounds against troop formations due to a convention on certain conventional weapons.[9]

As seen in Russia's wet-gap crossing operation, there is a need for a ground-based, persistent, area obscuration solution. Dated solutions such as the M56 Coyote and M58 Wolf provided the capability to obscure visual and infrared observation. However, they are old systems and are not widely available to combat units. The Army does have the Screening Observation Module (SOM) that is more capable than the M56 Coyote but is not widely available.[10] Compounding the availability concerns, the SOM does not produce a large enough cloud for an extended length of time. The SOM can only screen half an acre for twelve minutes before it needs refueling.[11] The M56 was capable of screening visually for ninety minutes or against infrared for thirty minutes across a much larger area. Further, the SOM's weight at sixty-four pounds is too large for dismounted operations. The Army needs more tools to enable obscuration at echelon supporting critical operations like combined arms breaches and wet-gap crossings.

Beyond the limited tools available, new technologies complicate the issue. Again, the Ukraine-Russia War provides salient examples of the need for obscuration. The proliferation of unmanned aircraft systems (UAS) has exacerbated equipment losses and casualties. Russia has been able to field UASs to observe, report, and destroy Ukrainian forces.[12] A single kamikaze-style UAS has been capable of destroying main battle tanks at an alarmingly low cost. And they are effective attacking the least protected part of the tank: the top. Due to Russia's massing of observation platforms, Ukraine changed its tactics to using dismounted infantry to clear mines only at night.[13] This methodical means of breaching will not gain ground quickly and goes against combined arms theory. And Russia is not the only U.S. adversary in the UAS game.

Iran has been supplying Russia with drones as well because Russia has been unable to keep up with its own demand.[14] Iran has been reported to have a well-established production capacity that not only fills its need but is also capable of supplying others.[15] Iran has been reported to support other potential adversaries, including Houthis in Yemen.[16] It is probable that the United States or its allies could face a similar scenario where a large quantity of observation assets can observe and attack breaching operations.

Obscuration is needed for other critical battlefield operations. Wet-gap crossings are arguably more complex and difficult than a combined arms breach. A brigade combat team owns all the capabilities to conduct a combined arms breach; a wet-gap crossing requires more capability, making it a division or corps operation. Not only does it require more capability, but it also takes more time to accomplish. The time required to conduct a wet-gap crossing could be measured in hours or days whereas a combined arms breach would be measured in minutes. Erecting an assault float bridge is a time-consuming process that happens without natural cover as vehicles cross.

Many of the currently fielded counter-UAS focus on destroying the UAS or breaking one of its communication links. As shown at the 2023 Association of the United States Army annual conference, many vendors are attempting to sell the military counter-UAS

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Ukraine's Ministry of Defence shared satellite images 11 May 2022 of destroyed pontoon bridges and military vehicles littering the banks the Siverskiy Donets River, an area Russia previously controlled about twenty-five miles east of Kharkiv. The bridges were destroyed to thwart a Russian advance. (Photo courtesy of the Defence of Ukraine via X)

systems.[17] The Army has fielded interim solutions including fixed site, mounted, and dismounted/handheld systems.[18] These are necessary because obscuring an operational environment all day, every day is unreasonable. However, these solutions appear to be the main effort of the Army's counter-UAS efforts. The Army needs to expand counter-UAS solutions including obscuration means and methods.

Commanders do not have enough material solutions to enable a multicorps conflict in any geographic combatant command. Near-peer threats loom large, and the potential for LSCO has increased. It is time that the Army recognizes this gap and begins to fill it.

Solutions

Using the doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy (DOTMLPF-P) model, several recommendations can improve the current state of the Army to better prepare for LSCO.

Doctrine. The Army needs to adopt obscuration in its lexicon more formally. A potential solution could be the addition of obscure as a tactical mission task in Field Manual (FM) 1-02.2, *Military Symbols*. As the foundational field manual describing operational terms and graphics, a friendly focused tactical mission task of obscure could be defined as "a tactical mission task in which the unit employs all available means to conceal the location of friendly units and/or terrain features from enemy observation." An enemy focused task to obscure could be "a tactical mission task that denies the enemy the ability to locate friendly forces and target them with direct and indirect fires." Either of these would provide commanders the ability to tactically direct assets to preserve combat power through denying enemy observation. Without a formally defining and codifying obscure as a tactical task, commanders will assume it is being incorporated. If it were formally defined, commanders would

focus combat power, use it as a shaping effort, and enable critical events like wet-gap crossings and combined arms breaches.

Further, the Army needs to revive significant elements of FM 3-101-1, *Smoke Squad/Platoon Operations*.[19] This manual described battlefield applications of smoke (e.g., obscuring, screening, protecting, and marking) and visibility criteria (e.g., haze, blanket, and curtain). When thinking of using obscuration methods, commanders and staffs must be sure to provide a clear task and purpose. At times, there may even need to be multiple tasks and purposes to distinguish the effect of the obscuration such as facilitating movement to a position or enabling an assault element.[20] Combined with a formal definition of obscuration, these doctrinal definitions will enable combat formations to employ the tools appropriately.

Organization. At times, organizations are thought of as a magic wand. Create an organization to do something, and it will be done. Caution must be maintained, especially considering the latest Army structure changes that Secretary Christine Wormuth recently enacted.[21] It is true that the Chemical Corps, at one time, trained its forces to provide obscuration. The Chemical Corps no longer includes smoke as part of its mission. The proponent of FM 3-101-1 was the Chemical Corps when it was published in 1994. The manual included the organization of heavy division mechanized smoke platoons, corps mechanized smoke platoons, and corps motorized smoke platoons. It is worth reevaluating the need for smoke generating units that can provide another means of battlefield obscuration as the Army continues to evaluate future needs supporting LSCO. The proliferation of UAS should encourage this look as well when evaluating the protection warfighting function.

This is not to say that the Army of the 1990s must return. With the latest change to Army structure, the Army is making greater organizational investments at the theater strategic and operational levels. With fewer tactical units available in the current force, units may need to be able to execute obscuration tasks in their current structure. It is, however, worth evaluating whether tactical units responsible for critical operations, including wet-gap crossings and mounted breaches, need additional combat power. Including a smoke squad in multirole bridge companies or in a combat engineer company-armored are potential solutions worth investigation.

Materiel. The Army needs to evaluate the breadth of tools available to deploy, fight, and win against a near-peer adversary. Even as the Army pursues unmanned systems, the need for obscuration is paramount. As of the writing of this article, Ukrainians continue to pour manned platforms into the breach, and Russians continue to inflict high casualty rates. If the Ukrainians were inserting unmanned platforms into the breach, there is a finite quantity that they possess. Although soldiers are at a reduced risk from an unmanned platform, the regenerative capability of these platforms is not infinite. Obscuration would conceal the movements of any platform and assist in preserving combat power. They could also deceive an adversary if used at multiple breach points or crossing locations to blunt an adversary's ability to mass effects.

The Army owes it to its soldiers to find health-conscious solutions that reduce exposure risk. That is not to say that there are zero health concerns, but the Army must attempt to reasonably reduce health-related hazards. The Army must find the balance between reduced health risks and effective smoke employment. It has been known since at least 1957 that exposure to certain obscurants create health concerns.[22] In 2012, the Army sought to develop high-performance smoke compositions without toxic chemicals. This research, development, testing, and evaluation continues to this day without complete solutions through the U.S. Army Combat Capabilities Development Command's Chemical Biological Center.[23] The Army needs to request additional funding to accelerate these developments. Fighting and winning in LSCO requires obscuration means and methods that preserve friendly combat power to achieve decisive action supporting campaign objectives.

Obscuration is not the only tool needed. We must apply lessons learned when improvised explosive devices became the norm during the Global War on Terrorism. Expanding on these lessons and adding the proliferation of UAS creates the need for a tool kit, not a single tool. Defeating UAS prior to its appearance, known as "left of launch," is a part of the solution.[24] Static camouflage nets are another needed capability. The Army must evaluate its needs when mobile to defeat myriad observation platforms to maintain combat

A small drone flies through the smoke during a simulated chemical attack against a humvee convoy during the 86th Training Division Warrior Exercise 86-21-03 on 19 July 2021 at Fort McCoy, Wisconsin. The event marked the first time drones were incorporated into an 86th Division training exercise. (Photo by Sgt. William A. Parsons, U.S. Army)

power. Obscuration can add to the tool kit but must not be thought of as the only tool.

Counterargument

Some might say that obscuration is antiquated. In a three-dimensional world with five warfighting domains, and increasing artificial intelligence and autonomous capabilities, they would say obscuration is a wasted investment. Money could be directed elsewhere to speed up decision-making. Although AI and autonomous capabilities need investment, obscuration is not a binary choice. The Army needs to invest in obscuration accounting for these emerging technologies. The Army will still face a shortage of critical systems, no matter if they are manned or unmanned. The preservation of combat power should drive the need to invest in battlefield obscuration tools and technologies. Although autonomous and robotic technologies remove humanity from direct harm, these systems are expensive and will be destroyed en masse.

Others might say that obscuration is unnecessary in large-scale, multidomain combat operations. The speed that they expect war to happen would outpace

an anachronism such as copious amounts of smoke. War will move too quickly to need prolonged obscuration times or a panoply of tools. This is also inaccurate because the Ukraine-Russia conflict displays how war bogs down temporally and becomes an attritional conflict. Obscuration is needed across the spectrum of conflict—using it at rapid speed when acting with haste as well as when conflicts slow for deliberate operations. Wet-gap crossings might not need to be full closure operations, but even rafting operations require three-dimensional obscuration to preserve combat power in the operation and for future engagements.

Conclusion

Investing in battlefield obscuration doctrine, organizations, and materiel are necessary to deploy, fit, and win in LSCO. The Army needs to identify capability

gaps in this arena to ensure it can deliver the decisive force to the decisive point. Preserving combat power should not be seen as ancillary to seizing an objective—it is critical to it. The blood and treasure that Russia and Ukraine have shed should show the Army that it is an investment worth making. ■

Notes

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What Can We Learn from Measuring Unit Culture?

Preliminary Evidence from a Data-Centric Approach to Organizational Performance

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"Do you inspire your soldiers?" The brigade commander asked this question intently as he looked out across an audience of dozens of command teams during a brigade leader professional development event. What sparked the question was the fact that just days earlier, the brigade's grassroots data analytics team had discovered a relationship between soldier "inspiration" at the company/troop/battery (CTB) level and fewer harmful behaviors during the previous quarter. This analysis provided empirical evidence that enabled an evidence-based conversation about a potential way to reduce harmful behaviors across the brigade.

"Data analytics" can be an intimidating term, invoking complicated statistical methods best left to scientists and academic researchers. The truth is that a wealth of knowledge exists within the data that tactical formations produce, and anyone can unlock it with a basic level of technical skill. The resulting insights allow commanders to make data-centric decisions based on evidence informing—not replacing—experience and gut instinct. The brigade commander's question above shows how integrating the art and science of data to construct a compelling narrative about what factors might help us achieve our desired outcomes.

A recent article introduced the data-centric approach to unit culture in 1st Stryker Brigade Combat Team, 4th Infantry "Ivy" Division (1/4ID).[1] Since then, the brigade has gained three main insights from its approach to "culture analytics"—in addition to the inspiration results mentioned above, we also discovered that soldier perceptions of their level of professional development are correlated with higher retention results. After analyzing recent Stryker gunnery scores, we also discovered that the strength of a company's culture is positively correlated with that company's lethality.[2]

While these three examples provide limited evidence from a single snapshot in time for a unit, they are examples of potentially more wide-ranging results and

Soldiers assigned to the 4th Infantry Division walk onto a land navigation course during testing for the Expert Infantryman, Soldier, and Field Medical Badges on Fort Carson, Colorado, on 4 December 2023. Land navigation prepares Ivy soldiers for navigating unfamiliar territory in a combat situation. (Photo by 1st Lt. Collin Wampler, U.S. Army)

provide tangible examples of how insights form data can inform command decisions.

Grassroots Data Analytics at the Brigade Level

Take the data analytics team that found these results for example. The Raider Analytics, Innovation, and Data (RAID) Team was founded in 1/4ID to support the secretary of the Army's second objective to build a modernized, data-centric force with a deeper data-informed sense of the battlefield.[3] The team generates insights supporting problem-solving and decision-making by analyzing the brigade's data on harmful behaviors, equipment readiness, and lethality.[4] These insights have allowed the brigade to direct company commanders on where to leverage their resources most efficiently and have also informed the 4th Infantry Division on what aspects of mounted machine gunnery table contribute to higher lethality

among crews, supporting the division's "Creativity and Innovation" initiative within its Ivy Arc leader development framework.[5]

The RAID Team is a grassroots effort in the sense that its members participate voluntarily and on their own time outside of their regular positions in the Army.[6] The team comes from all corners of the brigade. They are infantry platoon leaders, master gunners, battalion executive officers, the brigade provost martial officer, and other soldiers who collaborate regularly to produce data-backed results. Most are motivated only by a desire for a more effective and more efficient force and a passion for data analysis. None have been trained by the brigade to accomplish these objectives—thus far, the team has run solely on its members experience with data analysis in their prior education and experiences.

Data analysis in this form is effective because the Army already collects treasure troves of data that are

ripe for examination. Data records are maintained in Vantage, Global Combat Support System—Army, unit internal trackers, and surveys such as the Defense Organizational Climate Survey. This data is often recorded, stored, and forgotten. Once a couple years go by and leadership changes, how can the Army expect to improve its effectiveness when these valuable insights are never discovered and passed on? All these numbers need is a single data-literate soldier to clean the datasets and perform data analysis to find hidden relationships.

These insights are not meant to replace experience and gut instinct. Rather, they inform commanders to make data-centric decisions that complement the experience within our ranks. These insights give commanders an empirical position that can dispel uncertainty. The brigade commander's question above shows how integrating the art and science of data to construct a compelling narrative about what factors might help us achieve our desired outcomes.

A Bottom-Up Approach to Data-Centric Decision-Making

At its core, data analysis is a two-step process: collect the data and then analyze it. Although there are vast amounts of datasets in the Army, it is important to organize the preexisting data and collect more data to measure factors of interest that are not captured by traditional methods. Once we have a pool of measurable variables, we can then proceed to conduct analysis using regressions, machine-learning algorithms, and other methods familiar to team members. None of these methods require expensive platforms. All our research has leveraged free software like R-Studio and Python.

The basis for this article stems from results gathered in the Ivy Raider Culture Survey that we disseminated throughout the brigade to quantify various dimensions of unit culture at the company level.[7] It leveraged a short cell phone-based survey to collect over three thousand soldier responses across thirty-seven CTBs in February 2024. This recorded numerical responses across seven numerical culture "measurables"—such as quality of information flow or the extent to which their leaders cared for and valued them—on a 1-to-10 Likert scale.[8] We compiled the survey responses into a spreadsheet and calculated an average score for each CTB.

Using this survey, we quantified what was only an abstract concept before, allowing us to use mathematics to then discover what drives how "inspiring" leaders are, or, on the contrary, what negative effects uninspiring leadership may tangibly have on our formations. The real world is very complex, however, so it can be difficult to reveal the relationship that soldier inspiration has on a company's prevalence of significant incident reports (SIR) when there are countless other variables that drive harmful behaviors to consider. This is where the vast data collection in the Army comes in.

To investigate the relationship between harmful behaviors and soldier inspiration, we need to incorporate additional variables that may influence a company's number of SIRs to home in on the effect that soldier inspiration has on harmful behaviors independent of outside variance. We used additional variables such as unit type, demographic information pulled from Army Vantage, percentage completion of a CTB's retention mission, and number of SIRs over the past quarter to narrow down the variance in our model. Some variables proved to have no effect on SIR prevalence and were dismissed of. Others proved to capture some of the variance and improve our model.

With the dataset built, we applied statistical methods to detect relationships between culture measurables and outcomes of interest in the data. These methods consisted of two types of standard data linear models: ordinary least squares and logistic regressions. These models tested for statistically significant relationships between variables and estimated the size and direction of these relationships. Statistical significance is important as it indicates whether a correlation is more due to a causal relationship between variables, or if these correlations exist more through chance.

Unit "Inspiration" and Soldier Harmful Behaviors

As mentioned above, when we investigated the relationship between unit culture and harmful behavior, we found a surprising result—only one culture measurable stood out as insightful. There was a statistically significant, negative correlation between a CTB's average score on the inspiration question and the number of SIRs it experienced during the previous quarter. The survey question asked soldiers to respond from 1 to 10
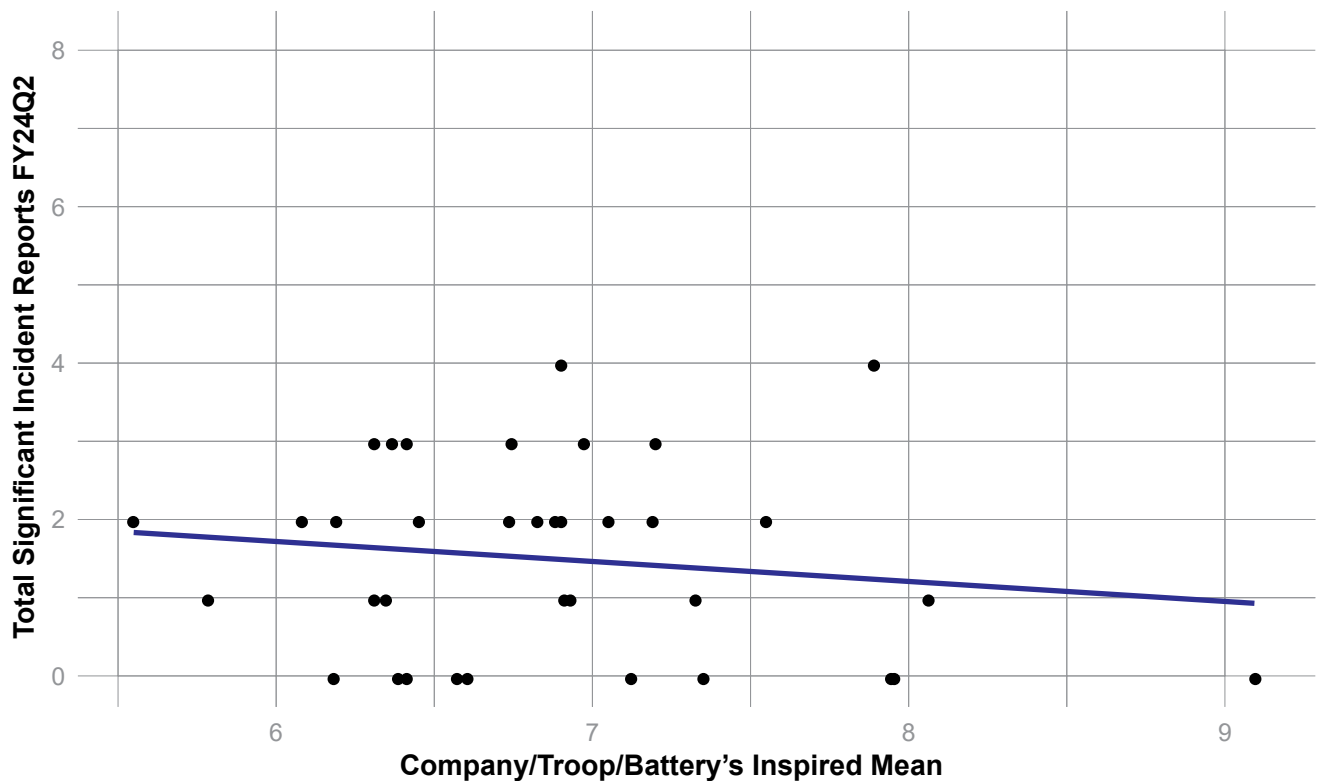
(Figure by authors)

Figure 1. Linear Relationship Between Serious Incidents and Unit Culture of Inspiration

on the following question: "My leaders inspire me and motivate me to do my job."

An ordinary least squares regression model (controlling for unit type, gender, and average Army Combat Fitness Test scores) suggested that one additional point on a CTB's inspiration score was correlated (at very high confidence) with 2.7 fewer SIRs during the previous quarter. Using a linear logistic regression model, we found that one additional point on a CTB's inspiration score was associated (at high confidence) with 20 percent lower probability of it having an additional SIR during the previous quarter. The scatter plot in figure 1 illustrates the linear relationship.

These results suggest that when formations are more inspired by their leadership, fewer soldiers choose to engage in harmful behaviors (for various reasons requiring further investigation). While this result is preliminary and requires further research to verify its robustness and applicability to other units, it provides actionable data discovered using simple data modeling. It provides commander teams evidence—and a

working hypothesis—on where to focus their efforts to reduce harmful behaviors.

Unit "Inspiration" and Mounted Machine Gunnery Lethality

Based on preliminary findings, inspiration's effects also transcend harmful behaviors and can potentially improve lethality as well. In the most recent mounted machine gunnery training for 1/4ID, we captured each crew's gunnery scores on Table VI. Table VI is a maneuver live-fire range for mounted platforms that is required to certify that a crew is "Distinguished," "Superior," "Qualified," or "Q2" if they fail to achieve the standard score.

We ran a logistic regression to measure the effect that inspiration had on company-level Table VI averages, controlling for the weather that each company experienced while testing their qualifying iterations. We found that a company's average soldier inspiration was positively correlated with that company's average Table VI scores to a degree that was statistically significant at

Soldiers from the 4th Battalion, 9th Infantry Regiment, 1st Stryker Brigade Combat Team, 4th Infantry Division, provide covering fire with M249 weapon systems during the Joint Readiness Training Center 25-02 rotation at Fort Johnson, Louisiana, on 3 November 2024. (Photo by Spc. Isaiah Mount, 4th Infantry Division Public Affairs Office)

the 99-percent level. In simpler terms, the more inspiring a crew felt their leaders were, the better those crews performed on Table VI.

It was difficult to pinpoint the degree that this effect had on Table VI scores because we were working retroactively with mounted machine gunnery datasets that varied in completeness and depth across battalions, but our analysis gave us empirical evidence of what we already suspected. Inspiring leaders inspire more lethal formations.

Soldier "Development" and Retention

Achieving an annual unit retention mission can pose a challenge to command teams. Soldiers decide to reenlist for a variety of individual reasons; many factors likely drive unit retention, such as economic conditions, bonuses, and family concerns. While these factors are usually beyond the control of command teams, they can impact various aspects of their unit climate and culture. Evidence about what unit factors are correlated with better retention results would thus be useful for decision-making.

We applied a linear regression model to our unit culture data to investigate these factors. We found that one culture measurable was insightful—a statistically significant relationship existed between a CTB's average score on soldier "development" and percentage completion of their fiscal year 2025 (FY25) retention mission (see figure 2). This prompts soldiers to answer the following question on a 1–10 scale: "I am being developed professionally and have a clear path to achieve my goals."

One additional point (out of ten) on a CTB's development score is positively correlated (at 95 percent confidence) with twenty-eight additional percentage points on FY25 retention mission completion. The result holds when controlling for unit type. No other question was statistically correlated with retention results.

So What? Applying Insights from Data

Why should Army leaders care about data sets and regression models? There is no substitute for the vast experience in our formations, and empirical evidence isn't intended to dismiss of the "gut instinct"
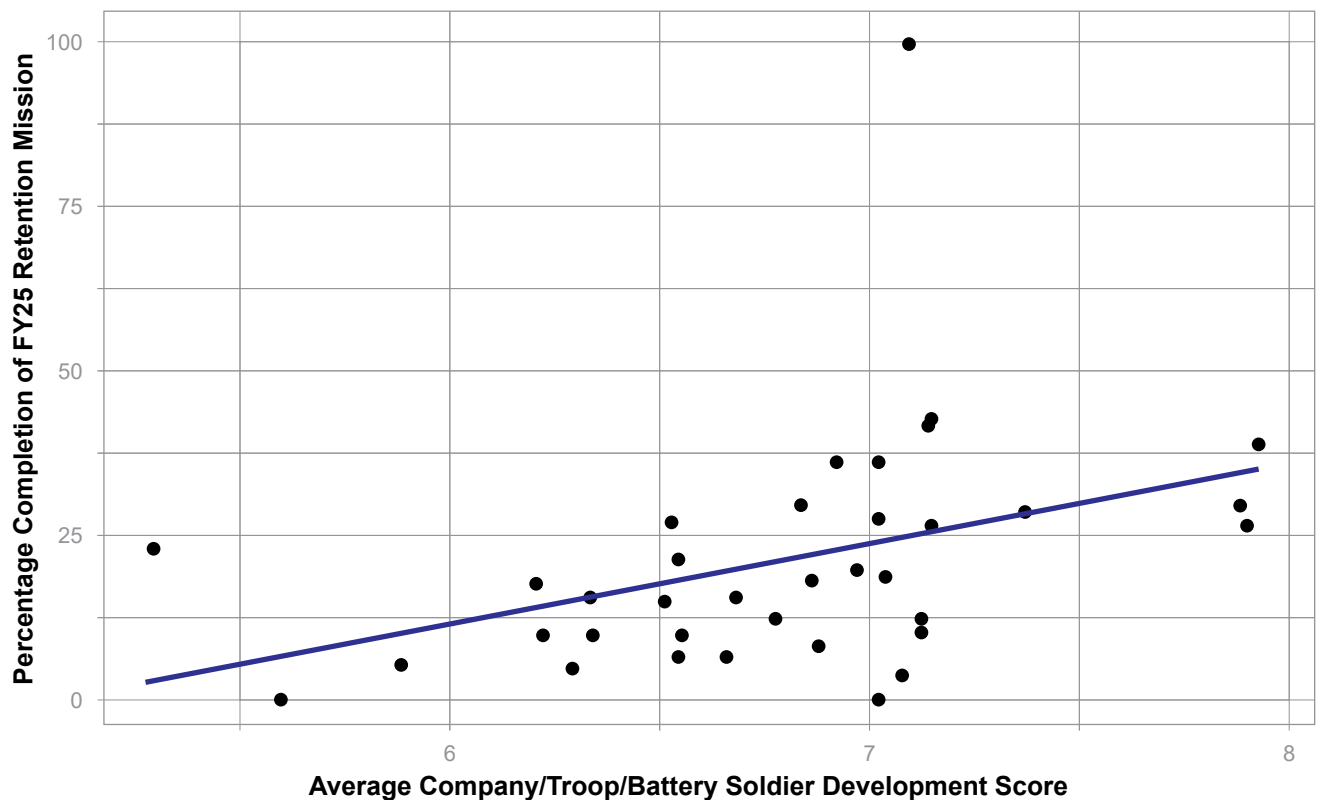
(Figure by authors)

Figure 2. Linear Relationship Between Soldier Development and Unit Retention

commanders must leverage to make swift and decisive actions. We argue that data analytics does not simply tackle academic questions but can provide insights to help inform decisions with real-world impact. These insights help leaders decide where to most effectively focus their limited time and resources to achieve their missions and drive the results the Army needs. As discussed above, our empirical evidence suggests that leader investments in developing and inspiring soldiers may yield positive effects on unit retention, harmful behaviors, and lethality.

Commanders can focus on soldier development through better training, professional schools, and career fairs to increase retention levels within their units. They can focus on inspiration through unit heritage events, competitions, awards, and engagement leadership, which may allow them to spend less time managing SIRs and more time training for their combat missions. Although these are preliminary results, they provide a hypothesis—not inconsistent with the authors' anecdotal evidence—that leaders across the Army can test within their own formations.

Limitations

It is important to note the limitations of these initial results. First, the Ivy Raider Culture Survey was gathered during a snapshot in time. Unit climate varies over time. There are numerous reasons why this snapshot could yield different results than results gathered a few months later. Survey responses may be more positive or negative during major field exercises during which high-tempo operations can alter a soldier's perceptions. Soldiers may have rushed through survey responses, misunderstood the questions, or altered answers for fear of consequences even though the survey was clearly stated to be anonymous. Any of these reasons has the potential to shift survey responses and alter relationships as a result. Another concern is lack of participation—CTB total responses varied from twenty to 150. Small sample sizes may have skewed the results.

Additionally, it is important to note that while we possessed enough data to perform this analysis and provide actionable results, we were working with retroactive datasets that did not highlight all the dimensions of our questions as much as we would have liked. For example, we only were able to use half of Table VI crew information because some battalions recorded incomplete weather information. We also were not able to control for important factors such as crew composition and whether the crew fired on their task-organized original vehicle. These gaps do not discredit the results published in this article, but they demand the need for more research and better data collection in the future to reinforce our findings.

While it is important to keep in mind that the results do not perfectly reflect reality, they do provide an empirical foundation to make command decisions in these areas that previously did not exist at the tactical level. Moving forward, we intend to refine the survey and its delivery to maximize it as an accurate measurement of unit culture. Additionally, we will deliberately check the statistical results against anecdotal evidence to ensure they are consistent with reality. Numerous conversations with leaders and soldiers have in fact bolstered the results above. Ultimately, the empirical results help create a narrative that supplements—but does not replace—leader experience and intuition.

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The Way Ahead: Driving Toward a Modern Army

These results would be a mere flash-in-the-pan without a clear road to follow them up, a compelling leader professional development session and little more. These results help us foster a feedback loop, driving constant iteration and improvement. Based on our work, the 4th Infantry Division revised its gunnery standard operating procedure to standardize data collection during mounted machine gunnery across the entire division, providing more complete and more robust datasets that will yield more results in future iterations. The Ivy Raider Culture Survey will be refined and disseminated bimonthly moving forward, providing routine snapshots that will verify our results and allow commanders to keep pulses on their unique unit cultures.

The RAID team is also not a special case that would fail in other organizations. Grassroots data analysis can be conducted in any tactical formation from the company to the division level. As stated above, the RAID team was born from only a few data-literate soldiers and officers in the 1st Brigade. Even with these individuals, we have barely scratched the surface to access the talent within our own brigade, as the RAID team has grown solely by word-of-mouth. Every brigade and battalion has access to diverse skill sets that could answer tactical questions with empirical evidence just as the RAID team has.

In the future, tactical data analysis could be leveraged on deployments and in combat to track enemy trends and enable rapid, focused decision-making. Officers in S-3 shops could analyze enemy rocket attacks and determine risk factors and statistical dangers with only a laptop. Commanders could determine where to most efficiently allocate combat power by recording simple data and discovering points to exploit in enemy postures.

Conclusion

Data analytics is not a panacea or crystal ball, but simply places another tool in a leader's kit bag, allowing them to detect otherwise unseen relationships between factors around them. Knowledge of these relationships—especially regarding something as intangible as unit culture—can inform faster and better decisions, moving us closer to decision dominance.[9] Ultimately, data analytics strives to generate evidence allowing

leaders to achieve better outcomes more efficiently by revealing factors that drive readiness across the Army.

The results discussed in this article are not the final answer, but rather the beginning of a methodology and mindset that may help us answer important questions. Future unit culture surveys may undercut these results, causing us to critically question what we thought we knew to be true. Such results would be valuable, potentially suggesting that our environment has changed and that we must reprioritize our efforts.

More importantly, these studies shed light on how to truly care for soldiers by developing and inspiring them. In theory, giving soldiers time off or light duty may seem like the right answer for a commander who wants to increase retention and reduce SIRs. However, if our research holds true, soldiers may be more driven by professional development and inspiring leadership than we think—a finding consistent with the "Army People Strategy."[10] The results of our grassroots data analysis sheds light on what it means to take care of soldiers and achieve the mission. The tools are within reach of all units; leveraging it is an important step toward becoming a more data-centric Army ready to win the next fight. ■

Notes

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6. Taylor Graham, "The Project Prevention Journey: Raider Analytics, Innovation, and Data Team (RAID-T) Efforts to Forecast and Reduce Harmful Behaviors," Army.mil, 18 April 2024, https://www.army.mil/article/275437/the_project_prevention_journey_raider_analytics_innovation_and_data_team_raid_t_efforts_to_forecast_and_reduce_harmful_behaviors.

7. Anyone who is interested in learning more about how we structured the culture survey can reference Bowen and Bate, "Cohesion, Performance, and Readiness," which goes into greater detail.

8. The Likert scale is a scale that is used to measure subjective opinions, using options that range from "Strongly Agree" to "Strongly Disagree."

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A Chinese paratrooper coaches South African peers on how to use Chinese rifles during "Airborne Platoon," a tactical training exercise held at a military training ground in China's Hubei Province in July 2017. Chinese news sources report that a total of seven countries participated; among them, Russia and Kazakhstan. (Photo by Ernest Gunasekara-Rockwell, courtesy of Air University)

Nine Narratives Destroying American Diplomacy and How to Counter Them

Louise J. Rasmussen, PhD

To deliver for our own people, we must also engage deeply with the rest of the world.

—2022 National Security Strategy

This article is not about peace. It's about how America is failing to advance its most powerful tool to succeed in competition, deter armed conflict, and win decisively if necessary—its people.

If you find the title misleading, you've caught a glimpse of the tangled-knot-too-tied we currently face. Our idea of diplomacy as an instrument used only on the edges of conflict may not have gotten us in noticeable trouble in the past. But the game has changed.

Modern threats can't be defeated by poking at them with a stick. Trends working against the values of democracies everywhere are so enmeshed in the fabric of how the whole world operates no one nation can address them alone. Relationships with allies and partners no longer serve a ceremonial purpose—they're essential to the confident collaboration and exchange of knowledge, equipment, and access required to launch a response that stands a chance of turning the tide.

The U.S. *National Security Strategy* and the American people, too, eye a cornerstone of the solution to this crisis: We need to strengthen our ability to understand and engage authentically with the world.[1]

Yet, our investment in the Americans we charge with performing this function is dwindling. Across the Department of Defense (DOD), programs promoting diplomacy skills, international awareness, and cultural competence are disappearing.[2] Why? Because it's hard to measure their contributions to national security objectives. Without justification, funding is redirected.

I'm an applied psychologist who's spent twenty years doing studies, instruction, and consulting with the DOD Language, Regional Expertise, and Culture programs. In this article I share nine narratives I hear in conversations that distract us from solving the measurement problem. These are stories that keep us from developing programs that effectively help national security professionals achieve valued outcomes in environments where people don't think like them.

I also share my views on countering these narratives. My hope is to contribute to a discussion and collaboration to determine how we align our resources with our pressing requirements.

1. Diplomacy Is for Diplomats

Here's an influential narrative: understanding foreign cultures and engaging with the people in them is for diplomats.

According to the *Oxford English Dictionary*, diplomacy means "a profession."[3] But it also refers generally to skills in managing relationships and dealing effectively with people. In our accounting sheet for power, diplomacy occupies its own column separate from the military.[4] This may give wind to a story that it is for State Department personnel, and the only people in the DOD who need these skills are those who execute special or irregular types of missions, like foreign area officers, civil affairs, security cooperation and security force assistance professionals, advisors, and intelligence analysts.

We know every American we send overseas or who engages with visitors on U.S. soil can make or break foreign relations.[5] The State Department sends approximately fifteen thousand foreign service officers overseas each year, whereas the DOD sends about 173,000 service members. We've committed to the requirement that all military commands incorporate an understanding of foreign civilian environments to mitigate harm.[6]

Yet, current priorities dictate that navigating other cultures is not a core competency within the DOD.[7] As preparation to engage with the world, most national security personnel are equipped with little more than brief computer-based training and messages like "be respectful."

Consider this response from a service member when asked how they would approach a scenario where a Southeast Asian military partner hadn't followed their instructions: "I would talk to him and probably be like, 'Respectfully, thank you for volunteering to help rip out the work you did incorrectly. Now you can do it right.'"[8]

If our goal is to build international relationships that are real, as in transformational not transactional, a *please and thank you* instruction doesn't cut it. It's not enough to intend respect. We must understand how and why, *and* be able to earn it, too.

Having interviewed more than seven hundred service members about using cultural skills and understanding in their jobs, I've found the "Ugly American" idea to be deceptive.[9] It directs attention to the bully in the room. Most Americans mean well, want to do good, and welcome opportunities to improve their ability to engage with others.

A soldier from the Indiana National Guard's 2nd Battalion, 151st Infantry Regiment, 76th Infantry Brigade Combat Team, arm wrestles with a member of the Japan Ground Self-Defense Forces in a friendly match during Orient Shield, 31 August 2018. Japan, with approximately fifty-five thousand permanently assigned active-duty service members, hosts the largest contingent of U.S. military personnel abroad. (Photo by Spc. Joshua A. Syberg, U.S. Army)

In a time where even the effectiveness of cultural programs for DOD specialists is questioned, rendering them in jeopardy, how do we change ideas about whose abilities to work with the world we invest in and why?[10]

Competitors already affect change using gray-zone methods straddling U.S. government areas of responsibility.[11] We must rewrite our *responsibility narrative*. Diplomacy is for everyone. It's for all personnel who make decisions in relation to people who don't think the same way they do.

2. We Don't Need This in Strategic Competition

This narrative circulates: strategic competition means international awareness and cultural skills are less important.

The story goes in this new environment, dominance centers on economic levers and maintaining information and technological superiority. Since we mostly work with partners, we're fine so long as we don't do anything egregiously insulting.

Not everyone agrees with this spin.

In the words of Nicholas Burns, U.S. ambassador to the People's Republic of China, at the 2023 U.S. Global Leadership Coalition Summit, "Managing competition and cooperation with China is all about people to people relationships. There's no replacement for a diplomat, or a man or woman in uniform showing up."[12]

Roads to relationships can be winding. Imagine speaking with a Southeast Asian officer about his navy's capabilities. It's been a long day, and communication is slow. Your partner struggles to translate technical terms into English and often repeats, "Your Navy is big." You're both tired. Suddenly, he says, "You know the chicken?" You're instantly confused. "The chicken," he repeats. "You know, lunch." You slowly agree. You know what a chicken is. "How long can chicken fly?" he asks. "Uhm, not very far," you reply. "500 meters," he exclaims, "if you drop off the side of ship."

Do you each walk away from this exchange frustrated or with a deeper connection?

A People's Liberation Army (PLA) Air Force Y-20A heavy-lift transport with low-visibility markings lands Chinese military personnel at an undisclosed location in 2021. Along with the Y-20U tanker variant in development, this aircraft extends the range of PRC's fleet of refuelable fighters and bombers and expands the PLA's expeditionary capabilities. (Photo courtesy of the Ministry of Defence of the Russian Federation)

The pressure is on for Americans who "show up." China is the world's largest diplomatic power and increasingly outmatches the United States in contact hours abroad.[13] There are three hundred thousand Chinese students in the United States every year, and a recent count of American students in China is 382.[14] Compared to China, the U.S. military currently maintains more bases and personnel abroad in support of various missions. But the People's Liberation Army is noticeably expanding its global footprint along with the advanced platforms as well as logistical and expeditionary capabilities needed to sustain presence beyond China's borders.[15]

In the minds of service members I've engaged with, strategic competition has both increased the requirement for cultural understanding and complicated it.

Here are some of the questions they grapple with: How can we predict what kind of influence China can have in Venezuela and work accordingly? How do we integrate with an East Asian partner force previously trained by Russia?

Service members tell me, "We need the ability to be ready to go to any region, anywhere on the globe, and work with anyone. We need to change our mindset with short notice and have strategies that help us adapt."

Let's change the *competition narrative*. A new environment means new requirements. We can train to these.

3. We Don't Have Time

Most leaders I meet see value in programs that help their people understand and work better with others at home and abroad. A recurring hedge is "we just don't have the time to do it."

There's something to this. Deployment tempos are high, and mission orders are often released at crunch time. Learning about a new region and culture competes with ensuring readiness on warfighting skills and completing tasks like getting immunizations, visas, and family affairs squared away.

While this narrative holds truth, it's led us astray. Focusing on cultural preparation as something to squeeze in when getting ready for a specific assignment has led us to pursue the shortest possible amount of time to teach culture. Is it a week, a day, an hour?

Let's first tackle a core belief that supports this narrative.

There's a tendency to think culture is fundamentally about knowledge; the more cultural information you have, the more culturally competent you are. Since there's so much information that could be learned, it's overwhelming.

Here's the problem. We've lost the link between culture and doing the job, and that has discouraged us from seeking alternative ways to define and meet the requirements. As a result, we continue to waste time.

> Yes, really. Service members tell me, "Understanding culture helps us accomplish objectives faster."

Understanding culture helps us connect, and relationships help us get things done. That's just for starters. Understanding the culture, history, beliefs, and motivations of partners and allies helps us appreciate why organizational processes and hierarchy are the way they are so we can make realistic plans to improve them. It helps us get underneath risk avoidance so we can manage it. It helps us assess the level of buy-in to U.S. proposals and set realistic timelines.

One major I spoke with said this about the culture-speed relationship: "[In Korea] you can't force change from the bottom up and you can't expect the top down to go quickly. You can waste time asking something from someone with zero influence. Understanding culture … it's like swimming with a swimsuit versus with all your clothes on. You go faster in a swimsuit."[16]

We'll never have efficient programs to develop time-saving cultural capabilities if we don't take time to develop them. China and Russia take a long view.[17] Can we?

First, our *time narrative* must change. Here's a new story to get started: time spent learning culture accelerates our ability to shape the future.

4. We Can Just Bring in an Expert

Certain people are experts when it comes to culture, and we can just bring them in, and they can tell us what we need to know.

This story is pervasive.

> " We've lost the link between culture and doing the job, and that has discouraged us from seeking alternative ways to define and meet the requirements. As a result, we continue to waste time. "

After realizing in the early 2000s that service members could engage better with people outside the United States, eyes went to social scientists.[18] A host of culture programs and cultural advisor job billets were created.[19] Culture centers of excellence were stood up.[20] These efforts aimed to infuse social science and native cultural expertise into military training and operations.

Many of these initiatives no longer exist, but legacies remain. One is the lingering perception that culture is hard. The inherent quest for depth in social science combined with increased information access makes it difficult to scope what should be learned; hence, a perceived time crunch.

A more perilous progeny is the idea that culture programs exist to increase sensitivity and accommodation. A scientist's goal is to learn, and their methods involve a host of practices enabling them to blend in and be passive observers.

A national security professional's goal is to make decisions that compel change. Service members, teachers, and scholars agree that seeking sensitivity and accommodation in the context of national security isn't just ineffective; it's dangerous.[21]

In the words of Dr. Eli Berman, a research director at the UC Institute on Global Conflict and Cooperation, "It falls into the trap of being naïve of what the true objectives of the partner are. And that's a lack of discipline and a lack of thoughtfulness."[22]

So, what happened? We skipped a step: defining requirements. We started *doing* first and attempted to

When Iraqis misunderstood his soldiers' mission on 3 April 2003, then–Lt. Col. Chris Hughes, commander of the 2nd Battalion, 327th Infantry Regiment, urged his infantry to back off and take a knee to keep from making enemies of civilians. Hughes's formal Army training for dealing with this type of situation had involved using "a helicopter's rotor wash" to drive away the crowd, or fire warning shots. His creativity played a significant role in inspiring a critical examination of military regional and cultural preparation in the early 2000s. (Images courtesy of Maj. Gen. [Ret.] Chris Hughes, U.S. Army)

retrofit requirements afterward. National security professionals need organic cultural expertise, but not just that, they need a practical kind of cultural expertise.[23]

What does that look like and how do we teach it?

Industry has been using job analysis for one hundred years to ensure they invest in capabilities that matter. We can benefit if we turn the *expertise narrative* upside down.[24]

Instead of modeling social science, we should use its methods to discover the cultural skills and knowledge service members need to develop expertise in making decisions, achieving outcomes, and creating change. This will provide more targeted programs with articulated requirements and ties to measurable value propositions.

5. We Can Just Google It

This idea is spreading fast: with the explosion of information technology and global accessibility, engaging successfully across cultures is a matter of having the right apps.

Technology provides information access at a rapidly increasing volume and speed. Artificial intelligence (AI) can synthesize information, write messages, and participate in meetings for us. It might even someday alert us to potential communication breakdowns. The Defense Advanced Research Projects Agency is exploring AI-enabled cultural translators—a machine translation tool with social and cultural understanding that can detect and interpret sociocultural factors, emotions, shifts in communication, and give real-time alerts to possible miscommunication.[25]

Someday.

"Put butter on the forehead." This is the first step in a Google translated recipe for Danish meatballs. Forehead and frying pan are the same word in Danish.

Now, imagine the response to "write a 150-word email to an Egyptian general informing him that we can't deliver the equipment to the airfield we originally promised. Be respectful but firm."

Today's generative AIs will do what we ask in a second. But even when using it in English, we must edit to make sure we don't sound like robots.[26] When using it with a foreign audience, without understanding the culture, we fly blind on giving instructions. When checking the answers, we won't know what we're missing.

Is my tone on point? Is the emphasis right, focusing on what can't be done instead of what can? Should I be less direct? Do I paint a picture of my context and considerations? Put a personal touch to my message and include emotion?

Wait, my generative AI was "raised" in a Western culture. When instructed to be respectful, will it behave like the service member who started their sentence, "Respectfully …"?

Picture a real-time scenario. You're working in Africa, and a doctor from a French nongovernmental organization asks

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you, "Why do Americans hate black people?" Standing next to you is the leader of a local military unit you're training; he's listening intently. Your pulse increases. You start speaking. Your AI-tool alerts—you're agitated—impending cultural collision. It suggests a message in your earpiece. Do you trust it without verifying?

Technology can enhance decision-making, improve learning, and provide new avenues for engaging with the world.[27] It can't replace critical thinking.

Revising the *technology narrative*, we can explore the skills and knowledge people need to best leverage technology as support, not replacement for thought. Within this story, perhaps we can focus on developing the abilities to read between the lines, distinguish fake from real, and better realize our potential to engage with other humans.

6. It's More of an Art Than a Science

A narrative exists that understanding other cultures and engaging effectively in them is more art than science. That is, it's a unique talent only a subset of the population will ever possess.

I've heard this in countless side conversations: "This culture stuff, it's not for me. It's for so-and-so on my team. He's good at this." And it's not just people saying this about themselves. I hear this from educators too. "This student doesn't get it. He's just not a people-person."

There's a widely held belief that some people are socially adept (extraverts) and others aren't (introverts).[28] This simplified social dichotomy supports the belief that some people are natural purveyors of the art of engaging across cultures. Calling this ability art makes it special and unbounded, convincing us that we'd be foolish to force development through training, let alone try to measure it.

National security professionals engage in settings so complex that it can seem getting it "right" requires a magic brush. How else can you paint a message that inspires intended outcomes or change by accommodating one person while breaking the expectations of another?

Introverts, in reality, often have excellent social skills.[29] Artists spend lifetimes exploring the application of scientific parameters in their pursuit of aesthetic masterpieces. And there are simple habits and strategies anyone can learn to be more effective in engaging across cultures.[30]

Instead of calling it *art*, we should champion the idea that you can get better at working across cultures no matter who you are.

Changing the *talent narrative* creates value all around. We acknowledge that requirements are not only definable but also measurable. We motivate and empower people to seek and ask for opportunities to improve.[31] With priorities and resources in place so people have access to learning and practice, we'll have greatly expanded the workforce we put toward our key objectives.[32]

7. Experience and Exposure Are Enough

A story circulates that experience with and exposure to foreign people and cultures is sufficient to improve cultural competence and the ability to engage internationally.

Several organizational approaches are born from this narrative. For specialists like foreign area officers, in-region training is a mandatory experiential stage of their professional development. One goal of International Military Exchange Training programs is exposure—exposing U.S. service members to foreign perspectives and vice versa. In military field training and exercises, service members with experience deploying overseas are used as cultural subject-matter experts to teach the next generation.

This narrative has us on thin ice. The relationship among experience, exposure, and the development of cultural capabilities is complex.[33] Sometimes, exposure hardens our hearts. Just because we see how people think and live in other places in the world doesn't mean we're going to like them and seek to engage and learn. This goes both ways. Just because people from other parts of the world meet us doesn't mean they'll like us, gain understanding, or give us opportunities to learn from them.

That's not all. Education science teaches us that humans don't learn from experience and exposure automatically—it requires effort.[34] This means cultural understanding and diplomacy skills aren't acquired by osmosis.

It's not as bad as it sounds. It's not that experience and exposure aren't valuable, but you can't reach a faraway destination just by learning how to drive a stick shift. With systematic support mechanisms in place to ensure deliberate, varied practice, and reflection,

experience *can* be a powerful source of learning.[35] Other professional areas, like medicine, have realized valuable business outcomes of teaching experiential learning skills.[36] It makes doctors better problem-solvers and their patients report increased happiness.

Here's a new *experience narrative*: with effort, we can make cultural experiences possible road maps for future practice. This idea could open doors to exploring programs that help people maximize cultural learning

be an expertise check. Without it, there's a likelihood I could fill in gaps with incorrect assumptions that may lead to operational mistakes."

When it comes to operating in foreign cultural contexts, training should include tests of the validity of one's assumptions and provide platforms for losing and learning.[37]

A wider concern is that some walk away from instruction with the idea: "Now we've got this covered."

> "We can make cultural experiences possible roadmaps for future practice. This idea could open doors to exploring programs that help people maximize cultural learning while they're on the job.

while they're on the job. Which, all in all, seems like a great return on investment and resources.

8. We're Already Doing It

Culture is already baked into everything we do by design. Additional requirements mean "extra" time and cost.

I hear this: "We don't need a class on culture because we already cover this … in Operational Design, Red Teaming, Military Deception, Survival-Escape-Resistance-Evasion school, Casualty Assistance …"

Some of these courses, like the last three, do by design touch on engaging with people. Though, the rapport you work on is different than working with allies and partners.

Courses like the first two prepare service members to think about people from other cultures. They give guidance and practice with frameworks for "getting inside the minds" of foreign populations and planning accordingly. Service members I've spoken to tell me these courses help them overcome blind spots and understand different cultural perspectives. They learn that how they see another country is different than how these countries see themselves.

Some service members raise the question, "Who checks my work?" They say, "In the classroom we rely on the cultural savvy of teaching staff. When I make decisions without a physical connection to the environment, it can be hard to identify what the ground truths are. For my deductions to hold weight, there needs to

Once you know something, it can be hard to imagine others don't.[38]

Not everyone gets these courses, though. They're graduate level and offered midcareer, at which point they're optional and require command approval. Using culture on the job is a team sport. Think about it this way, an awesome quarterback is nothing without great receivers. For a person executing a plan underpinned by cultural considerations who isn't in on the "reasons why," left and right limits will be murky, and completing the forward pass pure luck.

Great courses exist that hit learning objectives relevant to cultural understanding and engagement. So, in a sense we are doing it. It's sort of invisible, though, making it difficult to see how much is happening and for whom.

What's an alternative framing for the *by-design narrative*? We do it on purpose, like we mean it.

With this story, we could design deliberate learning paths and progression. Cultural capabilities would be institutionally valued for everyone. Imagine if getting better at engaging with the world counted toward promotion.

9. We Can Get the Job Done Without It

Recall the major who said you swim faster in a swimsuit. One implication of his observation is that understanding culture helps you do the job quicker. Another is you can get the job done without it.

FACTOR / SUB FACTOR / DISCUSSION TOPIC

Cultural

- **History**
  - Significant Events
    - Important Dates
    - Legislation
    - War/Conflict
    - Sociocultural Trends
  - Folklore, Legends & Myths
- **Beliefs**
  - Worldview
    - Biases/Prejudices
  - Narratives
  - Religion
    - Beliefs
    - Practices
    - Rituals
- **Values**
  - Ethos
  - Norms
    - Moral Code
    - Code of Behavior
    - Taboos
    - Sex and Reproduction
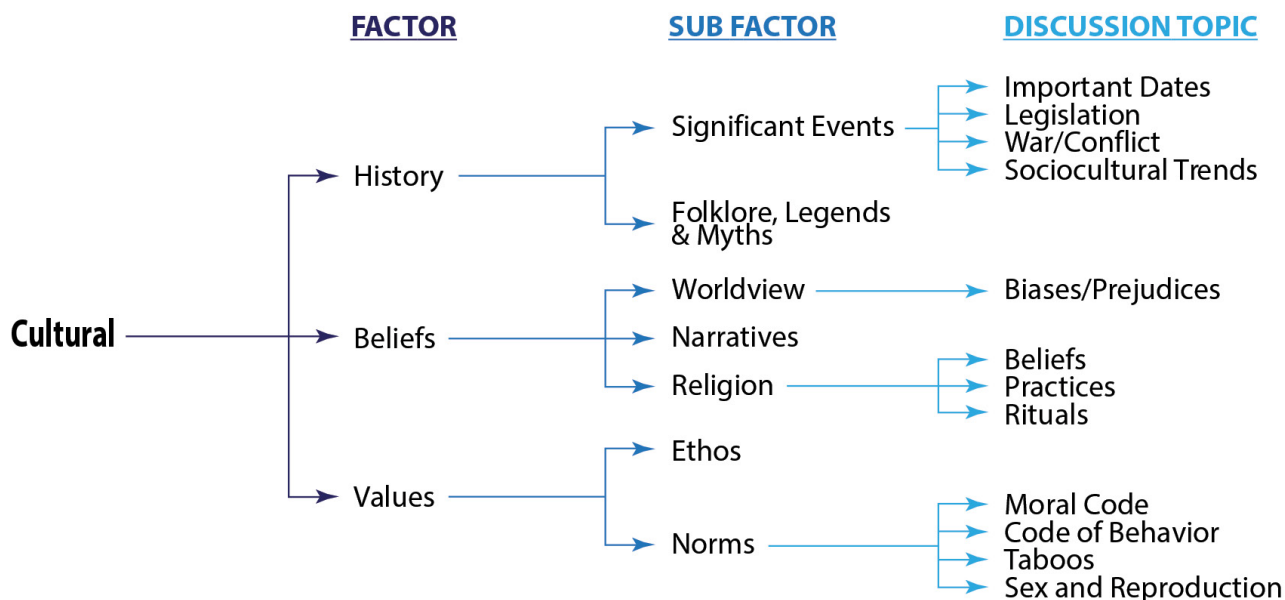
The Socio-Cultural Analysis Framework was developed to streamline existing Army approaches to listing, describing, and assessing socio-cultural indicators for operationally relevant purposes. It presents a taxonomy including nine domains with twenty-eight associated factors, and eighty-six subfactors. Shown here is the cultural domain, which "gives insights into the way people think, the reasons for their beliefs and perceptions, and what kind of behavior they can be expected to display in given situations." (Graphic from Global Cultural Knowledge Network, *Socio-Cultural Analysis Framework: A U.S. Army Guide on How to Research and Write Socio-Cultural Analyses*)

Americans get things done. We tend to believe that doing something is better than doing nothing.[39] Execution is the goal, and complexity-induced paralysis is an undesirable outcome.

Accordingly, national security practitioners have many tools to distill clarity from complexity. A commonly used one is PMESII-PT (political, military, economic, social, information, infrastructure, physical environment, and time).[40] This template allows planners and decision-makers to capture everything they know about a foreign location in table format. Other templates are specifically designed to capture culture.[41] Their intent is to help people understand the environments they make decisions in so they can develop good plans that achieve acceptable results in a timely manner.

A recent study, though, shows that military decision-makers struggle to think creatively.[42] Some see the spreadsheet approach as creating a cumbersome, ineffective, "check the block" mentality. They argue for further simplification.[43] Others say spreadsheets give an illusion of knowing—you have all the parts but no concept of how they go together. What we need is better questioning skills.[44] Others again say standardized decision processes, and the war games and exercises they're

practiced in risk teaching service members to "play the game." What we need is a way to test the validity of assumptions against an adversary that reacts. An adversary that thinks. We need to build in surprise.[45]

Currently, we continue to use these frameworks, and we continue to get things done. Like the Cheshire Cat observed, you're bound to get somewhere if you walk long enough. The problem is, once we've chosen a road, it's hard to imagine choosing another.[46] We're left with little inspiration to look for what's missing.

The gap appears to reside somewhere in the connection between information and flesh.

How do we use analysis to make inferences about actual humans and incorporate these into decisions we make about them? Inferences that allow us to manage expectations, plan communication, exert influence, display competence, and build relationships in spaces where people think differently.

How do we discover alternative courses of action? Alternatives to how we typically do things that fit our intent and the processes that are possible and acceptable in a new environment? Where locals and partners may not trust one another, share information with, or desire to protect each other.

An artist's rendering of Chinese shipping giant COSCO's $3 billion port project in Chancay, Peru, once completed. Twenty-two nations in the U.S. Southern Command's (USSOUTHCOM) area of responsibility have signed onto China's Belt and Road Initiative. Army Gen. Laura J. Richardson, USSOUTHCOM commanding general, told attendees of the Aspen Security Forum in July 2024, "I worry about the dual use nature of that. These are state-owned enterprises by a communist government. I worry about the flipping of that to a military application." (Photo courtesy of the Peruvian Ministry of Transport and Communication)

How do we redefine our criteria for success? Reshape them when our partners, allies, or adversaries have goals that are hard to imagine because they're not what we'd want for ourselves. When it's important to be seen as most powerful—without necessarily being most powerful. To achieve progress for some people, not others. To reject innovation because it changes aspects of your world that hold value.

Can we get the job done without it? We can get *a* job done without it.

Here's a way to recast our *execution narrative*: paraphrasing Gen. Anthony Zinni, understanding culture helps us understand what the job is.[47]

We Can Flip the Script

The nine narratives present barriers to prioritizing deliberate development and deployment of people who, by design not by chance, engage and expand America's influence in the world. But we can flip these scripts.

In my experience, when service members say they don't have time or don't need culture programs, they're not rejecting the function, only its form. They appreciate the value of the intended capabilities, perhaps more deeply than anyone.

Overcoming obstacles to change in our thinking is a first step. The next is to invest in defining the actual requirements and design solutions that effectively meet needs. Solutions that are engaging have sound objectives including skills to practice and quantifiable outcomes, as in performance we can hear, see, and measure.

Who knows, programs that help us engage better with the rest of the world might even directly deliver results for ourselves. An NCO I spoke with said it best:

> I've had good teams and we've gotten the job done. But there were a lot of internal struggles because of differences. This person is religious, and that person isn't, so they see things differently. Our purpose brings us together, but still, work's a lot harder when you're trying to overcome internal noise in your head about another person. If you have that awareness, if you want to change, you know where to start.[48] ∎

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The flags of the People's Republic of China and Vietnam painted on a concrete wall. (Photo by MasterSergeant via Adobe Stock)

Sino-Vietnamese Defense Relations

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Since the U.S. pivot to the Indo-Pacific in 2011, countries in the region have fallen squarely in the middle of a competition for influence between the United States and the People's Republic of China (PRC). One country in particular, Vietnam, stands above the rest in terms of potential to influence the stability and prosperity of the Indo-Pacific. Vietnam has tremendous promise in industry, with a large and young labor force along with a great wealth of natural resources, including the second largest reserve of rare-earth metals and third largest reserve of tungsten, among others.[1] Vietnam is not a petty state either, with a military that consistently ranks among the world's ten largest standing armies with around 482,000 active-duty personnel and nearly five million reservists.[2] Vietnam's military receives consistent reforms to its

forces and updates to its arsenal, embarking on modernization and defense budget increases.[3] Vietnam also consistently engages with the international community on issues of importance such as international maritime law and climate change.[4]

Recognizing this potential, the United States has steadily increased engagement and cooperation with Vietnam. These overtures culminated in President Joseph Biden's visit to Vietnam in September 2023, during which Vietnam elevated its relationship with the United States to a "comprehensive strategic partnership," Vietnam's highest level, setting the United States on par with Russia and China.[5] Accompanying this relationship upgrade are plans for economic cooperation, particularly in the critical areas of rare-earth metal extraction/processing and semiconductor manufacturing, along with proposals for arms deals.

However, in December 2023, Vietnam also hosted PRC President Xi Jinping, and with that visit came thirty-six agreements on cooperation between Vietnam and the PRC in various areas.[6] Following this, at the start of 2024, Vietnam embarked on a series of political purges and issued the secretive Directive 24, all designed to reinforce the Vietnamese Communist Party and resist foreign, particularly Western, influence.[7] These developments caused concern that the relationship between the United States and Vietnam was losing traction, and that the progress that was made would be lost with a Vietnamese pivot toward China.[8] Vietnam then hosted Russian President Vladimir Putin in June 2024, and increased cooperation between Vietnam and both Russia and China seemed to mark Vietnam's decisive relapse into authoritarianism, moving cooperation with the United States and its allies out of reach.[9] However, such a perspective lacks the appropriate nuance necessary when considering Vietnamese foreign policy.

Vietnamese leaders consistently express two guiding principles for their foreign policy that help to contextualize Vietnam's actions when considering recent events. These are the "Four Nos" and "Bamboo Diplomacy." The Four Nos consist of no participating in military alliances, no siding with one country to act against another, no foreign military bases, and no using force in international relations.[10] The Four Nos doctrine emphasizes Vietnamese neutrality and explains why Vietnam is able to gain American, Chinese, and Russian security

assistance. Bamboo Diplomacy is an expression of Vietnam's autonomy and reflects the balancing act that Vietnam has to embark on.[11] Vietnam must keep its aggressive neighbor China at bay while maintaining its old friendship with Russia and forging a new path forward with the United States. The direct result of centuries of colonization and being caught in the crosshairs of great powers, these foreign policy concepts inform Vietnamese decision-making.

Various considerations must be made when assessing a military relationship between two states. This article's focus centers on military diplomacy, conventional security cooperation, and internal security cooperation. Within these categories are activities such as key-leader engagements, joint military exercises, professional military exchange, and others. While not an exhaustive list, these aspects provide valuable insight, and both the frequency and substance of cooperation are vital in determining the strength of a defense relationship along each dimension. For instance, infrequent action and a lack of tangible results indicate a weaker relationship. Individual activities may not offer substantial insights into military-to-military relations, but a comprehensive analysis promises a clearer and more accurate picture.

The fears of losing Vietnam as a potent partner are overstated, and given the complete historical and geopolitical context, Vietnam's relationship with the United States has not diminished and can only improve. This article assesses the status of Sino-Vietnamese defense relations and explores the implications of their military collaboration in the context of the recent cooperation between the two countries. By evaluating Vietnamese military engagement with the PRC through the lens of Vietnam's foreign policy, this article seeks to allay fears that a potent partner in the Indo-Pacific will be lost to China.

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Military Diplomacy

Key leader engagements between senior defense officials are a foundational part of military-to-military relations and are a consistent fixture in dialogue between neighbors Vietnam and China. The relationship between China and Vietnam is characterized by routine high-level meetings that reflect the security environment experienced by both countries. For instance, in 2017, the Chinese Ministry of National Defense cancelled an event in Vietnam in response to heightened tensions in the South China Sea.[12] When relations improved in 2019, high-level defense meetings resumed, expanding to include internal security matters in 2023 and greater naval/maritime engagement in 2024.[13]

Memorandums of understanding (MOU) constitute tangible results from key-leader engagements and provide indicators of the strength and vitality of a military-to-military relationship. The first defense MOU between the two countries is a 2019 agreement that pertains to military medical cooperation and professional military exchange.[14] There were no MOUs signed until September 2023, when in the days shortly following the conclusion of Biden's visit to Vietnam, the Ministries of Public Security in Vietnam and China affirmed that they would deepen cooperation on internal security matters.[15] Significant growth in Vietnam and China's military relationship came in December 2023 as Xi made his first visit to Vietnam in nearly five years. Amid the thirty-six agreements signed by the PRC and Vietnam, the two countries also signed another MOU on internal security and one on future joint patrols in the contested Gulf of Tonkin.[16] Further Sino-Vietnamese cooperation consisted of an MOU on political security in January 2024, coinciding with the initiation of Vietnam's political purges.[17] Perhaps the strongest advancement in these two countries' relationship is an April 2024 MOU on establishing a hotline between the Vietnam and China's navies, marking their very first MOU related to resolving maritime disputes.[18] This set the stage for an unprecedented 3+3 strategic dialogue in December, prioritizing diplomacy, defense, and public security. Despite the novelty of this diplomatic mechanism however, analysts do not anticipate Vietnam's current posture to lean toward China, but rather is a natural outcome in order for it to consolidate its position in the South China Sea.[19] It is clear from these agreements that cooperation between Vietnam and the PRC increases as Vietnam experiences instability in domestic politics and when Vietnam increases engagement with the United States, constituting responses made under duress.

Conventional Security Cooperation

Despite the extensive level of engagement, defense cooperation between the PRC and Vietnam is somewhat weaker when it comes to conventional military matters than the dialogue would suggest. This comes as no surprise, given that the two countries have a long history of military antagonism. Areas of conventional military cooperation consist of combat exercises among the two countries' armies, navies, and air forces, professional military exchanges, and defense technology coproduction and purchases.

The defense relationship between the PRC and Vietnam is considerably weaker regarding military exercises. From 2003 to 2022, there were no conventional, bilateral army, navy, or air force exercises between Vietnam and China.[20] The bilateral exercises that both Vietnam and China did participate in were focused on policing, emergency, and medical scenarios.[21] The conventional exercises that had Vietnamese and Chinese involvement were all multilateral, such as Aman Youyi 2023.[22] Multilateral exercises have fewer participants per country, given the expenses associated with conducting training events of that nature, and so do not present an opportunity for Vietnamese and Chinese forces to cultivate an exclusive relationship that reflects the discourse surrounding the two countries.

Professional military exchange generally refers to exchanges of military officers to study at another country's command/staff college. The exact size and frequency of exchange between Vietnam and China are uncertain but are moderate in scale. There is a sustained relationship between the National Defense Academy of Vietnam and the Defense University of the People's Liberation Army (PLA) dating back to 2019 that includes training courses on possible areas of cooperation.[23] In addition, China's Naval University of Engineering and the Dalian Naval Academy lists Vietnam as one country among many that had cadets receive instruction aboard the *Zheng He* training ship.[24] In 2016 and 2024, Vietnam and the PRC held a young officer exchange program in which the

Xi Jinping (*left*), China's president and general secretary of the Communist Party of China Central Committee, holds a welcome ceremony for Tô Lâm, Vietnam's president and general secretary of the Communist Party of Vietnam Central Committee at the square outside the east gate of the Great Hall of the People on 19 August 2024. Xi held talks with Lam, who was on a state visit to China, at the Great Hall of the People in Beijing. (Photo by Zhai Jianlan, Xinhua)

Vietnamese delegation received tours of PLA installations and units along with exposure to Chinese weaponry.[25] As well, in May 2024, the ground force units of both countries initiated discussions and preparation for another junior officer exchange, this time focused on border tasks.[26] The professional military exchanges that Vietnam engages in with the PRC is only somewhat comparable to the annual exchanges conducted with the United States in scale.[27]

Given the data gathered from open sources during this research, there is no evidence of defense technology coproduction between Vietnam and China. As well, there is no available evidence of any defense technology imports or exports between the two countries since the Vietnam War.[28] Vietnam's principal source of arms imports is Russia, but in recent years, it has reached out to the United States and its partners to diversify its armaments.[29] Vietnam's lack of definitive military alliances means that it can select from a wide range of countries to act as suppliers, and despite this, China is largely absent from involvement in Vietnamese military procurement.

However, on 24 October 2024, Vietnamese Minister of Defense Phan Văn Giang and Vice

Chairman of China's Central Military Commission Zhang Youxia signed a "Letter of Intent" on strengthening military cooperation, with defense industrial cooperation and military trade being included for the first time.[30] While the details of the letter are vague, Vietnam is not expected to procure high value weaponry, but rather focus on noncombat equipment and technology transfer in order to develop its own capabilities. This is due to the fact that there still remain territorial antagonisms between the PRC and Vietnam, and so such a letter of intent cannot be construed as anything more than continued diplomatic balancing and investigating means for equipment diversification, rather than a trend toward a PRC friendly alignment.[31] All of this holds true even as Chinese firms were invited to attend the Vietnam Defense Expo for the very first time in December 2024, as Chinese firms made up

only two out of over 140 different participants at the expo, but fourteen U.S. firms in were in attendance.[32]

Internal Security Cooperation

In contrast to conventional security cooperation, internal security cooperation is the dominant feature in the Sino-Vietnamese relationship. Vietnam has subscribed to the conceptual framework of a "Community of a Shared Future for Socialist Countries" [社会主义国家命运共同体] set forth by Xi, and with that comes an extensive partnership formed with the purpose of upholding regime security between the two countries.[33] The components of the military internal security relationship consist of the maritime, land, cyberspace, and intelligence domains.

From 2006 to the present, China and Vietnam have regularly conducted joint coast guard patrols in the Gulf of Tonkin, and exchanges among coast guard personnel strengthen cooperation on maritime law enforcement.[34] China has also hosted joint exercises such as Aman Youyi in 2023, which focused on combating piracy and law enforcement at sea, but these exercises were not bilateral and were exclusive to Vietnam and China.[35]

Border security and operations on land are also a major area of cooperation, with China and Vietnam working together to crack down on illicit activity and illegal migration.[36] The PRC's People's Armed Police and its Ministry of Public Security have received extensive requests for training for police and paramilitary units in Vietnam to develop their internal security capabilities.[37] The land exercises between China and Vietnam like Thiên Thành 2016 and Peace Rescue 2021 emphasize counterterrorism operations and mass medical emergencies.[38]

Further internal security engagement between Vietnam and China takes place in cyberspace and serves as a foundational part of internal security strategy, enabling tighter control and surveillance. This sort of collaboration takes the form of partnerships, training programs, and mutual agreements that are aimed at boosting political security and resisting external threats. For instance, the Chinese company Meiya Pico and the Guangxi Communist Party's Baise Executive Leadership Academy provide Vietnamese officials with digital forensics and cybersecurity training that focuses on surveillance and censorship.[39] As well, there is a strong similarity between the two countries in the language and methods employed in passing and enforcing internal security laws. A line-by-line analysis of Vietnam's Cybersecurity Law and China's Law on Cybersecurity reveal strikingly similar regulations, terminology, and enforcement mechanisms.[40] All of this cooperation culminates in Vietnam's Task Force 47, a military cyber unit that mimics and takes inspiration from China's approach to internet governance.[41]

Despite this level of common training and methodology, intelligence exchanges between Vietnam and the PRC are limited and new. Following Xi's visit to Vietnam in December 2023, the two countries agreed to share intelligence to protect regime security and counter "color-revolutions," marking the first time that both Vietnam and China have referred to regime security in a joint statement.[42] With that said, China also broadly shares intelligence with ASEAN for counterterrorism cooperation, border crime prevention, and maritime security operations, with the most recent agreement taking place in November 2023 among China, Cambodia, Thailand, and Vietnam.[43] Whether there is a direct exchange of intelligence between Vietnam and the PRC in these particular instances is uncertain, but this demonstrates potential for increased intelligence cooperation between the two countries.

Of note, however, is that cyberattacks between the two countries reveal a lack of trust that would preclude any widespread or particularly significant intelligence sharing. In 2017, coinciding with a resurgence in tensions within the South China Sea, Vietnam experienced an uptick in Chinese cyber espionage attacks, targeting both official and corporate entities in Vietnam.[44] As well, during the COVID-19 pandemic, the Vietnamese government employed a cyber espionage group known as APT32 to hack into Chinese servers to obtain information about COVID-19 when the PRC proved to be lacking in transparency about the crisis.[45] In light of these developments, it is no surprise then that broad and direct intelligence exchanges between the PRC and Vietnam have not been forthcoming.

Friction Between Vietnam and the PRC

While the relationship between Vietnam and the PRC presents ample opportunity for cooperation, there remain two notable points of contention: China's claims in the South China Sea and the PRC's growing

influence in Laos and Cambodia. Centuries of mutual hostility and Chinese domination have ingrained a strong distrust in Vietnam of its northern neighbor, exacerbated by the PRC's increasingly global reach.[46]

Vietnam refuses to acknowledge the PRC's Nine-Dash Line claim in the South China Sea, and insists

in order to return Cambodia into its orbit and break up Vietnamese influence in Southeast Asia following Vietnam's ousting of Khmer Rouge and its installation of a pro-Vietnam regime.[55] Vietnam feels as though it is boxed in, and all of its neighbors are states that are not aligned with its interests. Both Laos and Cambodia

> "Even amid the uptick in cooperation with China, Vietnam will likely not reverse its relatively favorable stance with the United States given the persistent threat that China poses to Vietnamese national interests."

that the Paracel and Spratly Islands belong to it and not China on the basis of historical use and according to UN conventions on the Law of the Sea.[47] Of particular note is that Vietnam maintains the PRC illegally invaded and seized the Paracel Islands in 1974, then controlled by the Republic of Vietnam, which would have been granted to the current Vietnamese regime following the Communist victory in 1975.[48] In consolidating its occupation of the Paracel Islands and part of the Spratly Islands, the PRC has engaged in construction of artificial islands, extended economic activity into Vietnamese waters, and deployed China Coast Guard and maritime militia ships to harass Vietnamese vessels.[49] Such behavior has resulted in standoffs, clashes, and Vietnam's own artificial island construction.[50] In fact, such confrontations over the South China Sea date as far back as 1994, and prominent incidents garnering international attention include the 2005 shooting of Vietnamese citizens by Chinese maritime police and the 2014 Hai Yang Shi You incident during which the PRC moved an oil rig to contested waters near the Paracel Islands.[51]

Furthermore, the PRC's growing influence over Laos and Cambodia causes Vietnam significant consternation.[52] Laos previously saw Vietnam as its closest ally and partner but pivoted toward China in pursuit of funds and projects related to China's Belt and Road Initiative.[53] Cambodia fell under Vietnam's sphere of influence since imperial times, but it has since repudiated Vietnam and contests border claims in Vietnam's south.[54] There was also the historical issue of China initiating the 1979 Sino-Vietnamese War

stymied Vietnamese efforts to act on its South China Sea claims in ASEAN and China supports both countries in unsustainably harnessing resources in the Mekong River, much to Vietnam's detriment.[56] None of these issues are regarded as minor disputes by Vietnam and only work to compound a historical reluctance to advance a relationship with the PRC.

Implications

Regardless of Chinese pressure, Russian overtures, and internal purges, the relationship between the United States and Vietnam promises to remain fruitful and constructive for both sides. Even amid the uptick in cooperation with China, Vietnam will likely not reverse its relatively favorable stance with the United States given the persistent threat that China poses to Vietnamese national interests. Moving forward with Vietnam, it is important to understand what signals the United States can convey that will lead Vietnam to be most receptive to U.S. overtures. This requires an understanding of Vietnamese foreign policy concepts, the China factor in Vietnam's foreign policy, and Vietnam's perception of the United States. It is important to note that while Vietnam may rely on China for internal security assistance, Vietnam unequivocally looks to the United States to help it develop capabilities to counter external threats.[57]

Vietnam recognizes the value of having the United States as a partner over China, not the least because the United States' interests are not inherently opposed to Vietnam's. However, in addition to the China factor, Vietnam is reluctant to engage further with the

Secretary of Defense Lloyd J. Austin III walks with Vietnam Minister of National Defense Phan Văn Giang prior to a bilateral exchange at the Pentagon, Washington, D.C., on 9 September 2024. (Photo by Petty Officer 1st Class Alexander Kubitza, U.S. Department of Defense)

United States because it perceives the United States as a "fair-weather friend" and remains suspicious of U.S. intentions regarding regime change.[58] Given the United States' history of wavering commitments, especially that with South Vietnam in particular, Vietnam is unwilling to stake everything on the United States, lest it has to face the PRC alone at a crucial juncture. As well, Vietnam remains a communist state that is profoundly authoritarian and repressive. The United States' commitment to maintaining human rights and its dialogue toward Vietnam on the matter causes these ideals to be conflated in Vietnam's mind with calls for regime change, something that the communist elite cannot accept.

Because of the threat to Vietnamese interests that China poses and the significant imbalance in power between the two states, Vietnam has very limited latitude in its foreign policy actions before the PRC exerts pressure on its southern neighbor.[59] Any outreach or engagement with the United States or even Russia must be accompanied with corresponding assurances to China that Vietnam would not replace the PRC as a partner, lest Vietnam feel the brunt of Chinese diplomatic pressure. As a result, the United States can only expect gradual progress when engaging with Vietnam, and any cooperation with the United States will have a counterbalance to it.

Nevertheless, despite misgivings and difficulties, Vietnam remains a partner with exceptional capability for promoting stability in the Indo-Pacific.[60] Vietnam's latent potential will enable it to punch above its weight in the region, if only it would be able to fully engage in the cooperative frameworks present in the region with the United States and its allies. Biden's visit to Vietnam in September 2023 marked major progress that cannot be turned back, despite Vietnam's internal politics and relations with U.S. adversaries Russia and China. In the days following Putin's visit, Daniel Krittenbrink, U.S. assistant secretary of state for East Asian and Pacific affairs, arrived in Hanoi and reported that ties between the United States and Vietnam have never been

stronger.[61] Following that visit, on 10 July, the USS *Blue Ridge* was granted permission to conduct a port call at the harbor Cam Ranh Bay, an exclusive honor given its status as one of the finest deepwater harbors in Asia.[62]

Furthermore, the recent death of the Vietnamese Communist Party's General Secretary Nguyễn Phú Trọng and the appointment of Tô Lâm as his successor presents an opportunity for diplomatic inroads in the coming months.[63] While Nguyễn Phú Trọng presided over the relationship between the United States and Vietnam since 2011, with all of the developments that came of it, he was the leader of a conservative, Marxist-Leninist faction in Vietnamese politics that was nevertheless suspicious of the United States and fearful of "color revolutions."[64] His death marks the fading influence of this old guard in Vietnamese politics, and his replacement Tô Lâm has a reputation for pragmatism that would make him more willing to seek a stronger partnership with the United States.[65] Tô Lâm inherits a Vietnamese government that is dominated by security officials and lacking in economic experience.[66] It should be expected that Vietnam will seek external assistance to maintain and grow the momentum it has built in international commerce, with the United States well poised to grant Vietnam the help it needs. This is especially apparent in Vietnam's desire to gain market economy status from the U.S. Department of Commerce, which recently declined to upgrade Vietnam's status from nonmarket economy but noted the positive direction it has taken in recent years.[67]

At present, Vietnam's relationship with the United States only has potential for growth, contingent on continued U.S. overtures. It is worth noting that the United States' persistent support for Ukraine can serve as sign that perhaps the days of fair-weather friendship are over, provided that Ukraine can make progress against Russia.[68] From this conflict, Vietnam sees the value of deepening its relationship with the United States and being amenable to it, with the potential for the United States to provide Vietnam the support it needs in a future contingency. Vietnam has also expressed willingness to engage in human rights dialogue when the Biden administration reached out with plans for economic cooperation without broaching the topic of regime change or reform.[69] Taking avenues of nontraditional security cooperation could build the foundations of trust for Vietnam and the United States to engage in deeper traditional security cooperation.[70] In the near future, if China continues aggression in the South China Sea, or continues to incite Laos and Cambodia against Vietnam, sentiments in Vietnam will be more favorable to the United States.[71] It will be up to the United States to capitalize on these opportunities to build a more secure Indo-Pacific with buy-in from the region. ■

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The Army Civilian Corps' Elusive Culture of Commitment

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The *National Defense Strategy* (*NDS*) characterizes the twenty-first-century global security environment as increasingly volatile, complex, uncertain, and competitive, shaped by a decline in the long-standing rules-based international order, a resurgence of great power competition, and predatory economics. It further calls for the development of "a more lethal, resilient, and rapidly innovating Joint Force, combined with a robust constellation of allies and partners … to provide the capabilities and agility required to prevail."[1] To that end, the United States is increasingly focused on developing military capabilities that are designed to enable success in a complex and ambiguous operational environment.

Nested within the *NDS* objectives, the "Army People Strategy" (APS) describes the Army's overarching vision to transform its talent management practices to attain the strategic outcome of a ready, professional, diverse, and integrated force.[2] The "Army People Strategy–Civilian Implementation Plan" (APS–CIP) operationalizes the overarching APS with respect to strategic civilian workforce transformation outcomes along four lines of effort (acquire, develop, employ, and retain civilian talent), each with specific objectives supporting total Army readiness.[3]

The APS identifies Army culture as a key cross-cutting enabler to achieving its strategic outcomes. A brief internet search of *organizational culture* yields myriad definitions, so for the purpose of this article and consistency with their other articles, the authors use the APS definition: "Culture consists of the foundational values, beliefs, and behaviors that drive an organization's social environment, and it plays a vital role in mission accomplishment."[4] In a previous article, the authors posited the Army is challenged in its ability to realize enterprise-wide changes to enable a culture of commitment.[5] In this article, they now assert that the Army can mitigate that challenge by investing in programs that produce and employ what leadership expert John C. Maxwell characterizes as Level 5 "Pinnacle" civilian leaders who are empowered to promote a culture of commitment throughout the Army Civilian Corps (ACC) as a means to accomplish more efficiently and effectively the Army's mission (see the figure).[6]

What Is the Army Civilian Corps?

The Total Army consists of two distinct communities of practice: the profession of arms and the ACC.[7] Civilians have supported soldiers since 1775, initially in critical departments like quartermaster, ordnance, transportation, and medical.[8] Today the ACC numbers nearly 300,000, with members serving in over five hundred occupational series filling critical Department of Defense roles. DA civilians bring diversity of thought and experience based on education, training, and employment in the private sector and other government agencies, and the ACC is one of the largest, busiest, and most successful elements within the Department of Defense. DA civilians are an integral part of the Total Army team, working on a scale and with an impact

Civilian Education System Advanced Course students complete a floor puzzle that utilizes analytical thinking, problem-solving and teamwork at Rock Island Arsenal, Illinois, 12 February 2019. Students had to work together to complete the task in one hour. (Photo by Rhys Fullerlove, U.S. Army Sustainment Command Public Affairs)

not found anywhere else.[9] Today's ACC is engaged in a host of functions never envisioned in the late eighteenth century, representing a significant component of the Nation's Total Army People Enterprise.[10] ACC members provide leadership, stability, and continuity across the generating force, enabling soldiers to focus on warfighting. Additionally, ACC members deploy overseas as part of the expeditionary civilian workforce to support Army operations in combat theaters.

What Is an Organizational Culture of Commitment?

The concept of organizational culture stems from the term culture as defined by social anthropology.[11] Although the study of organizational culture has been applied to the qualities of specific groups in social living arrangements like tribes or villages, the authors of most organizational culture studies assume some reference to Edgar Schein and the levels of organizational culture.[12] A culture can be characterized as invisible or visible, strong or weak, or productive or destructive—or a combination of one or more characteristics—and it is often confused with a corporate strategy. Kathryn Baker outlines in her work that many early proponents who studied organizational culture assumed that a strong culture was beneficial because it fostered motivation, commitment, identity, and solidarity that facilitated internal integration and coordination.[13] Moving forward, the authors correlate the APS vision of the desired ACC organizational

culture to Baker's characterization of the ideal strong corporate culture.

Consistent with the common views of organizational culture presented by Schein, John P. Kotter and James L. Heskett, Elizabeth A. Martinez et al., and Eric Flamholtz, the authors assert that a strong corporate culture manifests a relationship to financial performance in not-for-profit government organizations that are focused on mission accomplishment and public resource stewardship.[14] On the positive side of the argument, Flamholtz asserted, "Culture affects goal attainment. More specifically, companies with 'strong' cultures are more likely to achieve their goals than those with relatively 'weak' cultures."[15] Conversely, Kotter and Heskett indicated, "Corporate culture can have a significant impact on a firm's long-term economic performance … performance degrading cultures have a negative financial impact."[16] One can see through various studies the linkages between organizational culture and economic outcomes; however, researchers also connect organizational culture, change management, and leadership with an organization's successes or failures—including its long-term viability. John Maxwell describes the characteristics of successful leaders in organizations and these characteristics of Maxwell's *5 Levels of Leadership* are consistent with the Army's leadership definition: "The activity of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization."[17] With goal attainment, a key characteristic of strong cultures, it is evident that the Army not only desires but also requires leaders of exceptional quality to effect positive change, achieve organizational missions, ensure lasting and auditable economic viability with respect to resource stewardship, and, of critical importance, model and inculcate organizational commitment as a component of overall organizational culture.

Organizational *commitment* is generally defined as the strength of the bonds developed by an individual employee with their employer or corporation. Sugato Lahiry defines organizational commitment as the psychological strength of an individual's attachment to the organization.[18] In a sense, organizational commitment is a representation of the employee's relationship with an organization. Therefore, the employee-employer bond can be strengthened or weakened according to the perceived strength of the employee's attachment to the organization. If the employee perceives that the organization's conduct or performance diverges from their desires, or the employee perceives a lack of trust on the part of organizational management, the employee's commitment level will naturally suffer. Conversely, if the organization's bonds with the employee are strong, the employee feels a sense of commitment to increase productivity or effectiveness.

Using organizational development as a platform, organizational culture would be a key element in fostering changes in an organization. The employee's relationship strength is exhibited in (a) their willingness to stay with or contribute to the organization even under adverse conditions, (b) the improvement of their work productivity even in terms of credit to the organization instead of the individual, and (c) reduced turnover. A strong organizational culture is assumed to generate heightened employee motivation to increase

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productivity, manifest extra effort to achieve results, and engender a tendency for employees to give of themselves for the greater good of the company. For example, a program manager has within their position description a requirement to advocate for the program. However, if the program becomes obsolete, should they continue to advocate for its continued existence—basically manifesting an attitude of "compliance with the status quo"—or should they model authentic commitment to the organization and advocate for the program's elimination and resource redistribution, regardless of the personal or professional costs? In a culture of compliance, the program manager is more likely to continue advocating for the program as a means of satisfying their position description requirements and avoiding lower performance ratings.

A corporate culture of compliance has changed from a role of what a corporation should do as a good steward and member of the community to one of legal and financial risk aversion. In the Army, this culture manifests in a strict adherence to viewing regulations as "thou shalts" and "thou shalt nots." Organizational incentives, or culture, are more about maintaining checklists of regulatory, legal, or ethical obligations or metrics of success than rewards for innovation. This situation is routinely seen in the end of fiscal year spend-losing-something-in-the-next-allocation money management approach. Notwithstanding the Army's desire for innovation and good stewardship and despite the Army's internal audit processes, discussions and interviews with midlevel DA civilian managers reveal a greater emphasis on compliance than on innovation.

On the surface, there might appear to be a conflict between an organizational culture of commitment and one of compliance, but that is not the case. Rather, any confusion is a result of the perception of why we do the things we do. A culture of compliance drives leaders to deliver mission success as the standard for maintaining the individual status quo or for reward within the organization. However, employees with a culture of commitment seek to develop—through actions, incentives, and norms—leaders who are driven to do more for the intrinsic reward of leaving the organization better than they found it and delivering mission results regardless of individual accolades. One can view cultures of commitment and their leaders as ambiguous environmental innovators versus incentive effects and risk aversion

maintainers who operate in a calculated risk management matrix environment.

Why Should the Army Invest in Level 5 DA Civilian Leaders?

To appreciate fully why the authors advocate for Level 5 DA civilian leaders, it is appropriate to ask, "Who are these leaders?" and "How can they be recognized?" Leader development training and education is a global, multibillion-dollar enterprise. With such an investment, one can conclude that leadership can be taught, learned, enhanced, honed, and generally developed in employees whether the person is an intrinsic leader, a natural leader, or one with potential. Leadership is especially important to our Army and those who lead the Army's greatest asset, its people. Army Doctrine Publication 6-22, *Army Leadership and the Profession*, reads,

> The ideal Army leader serves as a role model through strong intellect, physical presence, professional competence, and moral character. An Army leader is able and willing to act decisively, within superior leaders' intent and purpose, and in the organization's best interests. Army leaders recognize that organizations, built on mutual trust and confidence, accomplish missions.[19]

Maxwell described leadership as a journey of developing and establishing principles through this progression model (as shown in the figure).[20]

Maxwell described the first, or lowest level, of leadership as one of position, which is the place in most organizations where leadership normally begins. In a traditional organizational structure, a company consists of hierarchical leadership positions from frontline supervisor to chief executive officer. Level 1 leaders are granted authority according to their position and expectation to direct subordinates' work. Subordinates follow the Level 1 leader out of compliance and recognition that the company has empowered the leader who develops or refines the concepts of adhering to regulations, policies, and organizational charts and norms. Leaders who rely solely on positional authority tend to generate the minimum subordinate productivity from those who operate from a perspective of compliance (with minimum expectations) rather than one of commitment (to something larger than self). At

5 Pinnacle
RESPECT
People follow because of who you are and what you represent.

4 People Development
REPRODUCTION
People follow because of what you have done for them.

3 Production
RESULTS
People follow because of what you have done for the organization.

2 Permission
RELATIONSHIPS
People follow because they want to.

1 Position
RIGHTS
People follow because they have to.

(Figure adapted by authors; original by John C. Maxwell, *The Five Levels of Leadership: Proven Steps to Maximize Your Potential*)
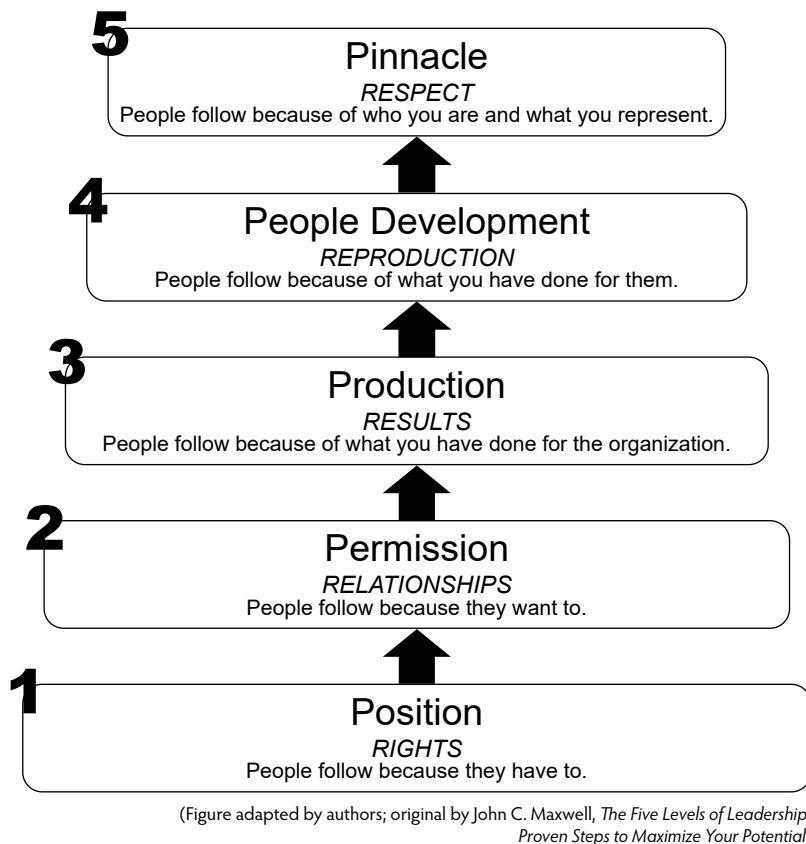
Figure. Maxwell's 5 Levels of Leadership

the end of the day, there is nothing inherently wrong with operating out of compliance if standards are met and missions are accomplished; however, in that case, one just has to manage expectations about the organizational environment.

If Level 1 leadership is about position and compliance-based operations, Level 2 leadership is more about the relationship between the leader and the led. As the Level 1 leader grows and develops, they begin to understand that engaging with and understanding subordinates, treating them with dignity and respect, and developing authentic but professional relationships increases their influence. This increased influence translates into improved productivity and results in subordinates becoming more team oriented. At Level 2, subordinates are more engaged, are invested in the relationship, and voluntarily follow the leader. Level 2 leaders develop positive influence practices as they understand the return on their energy investment in workforce relationships. At this level, the leader begins developing an authentic sense of commitment to team

members by relying more on people skills versus positional authority.

Even as Level 2 leaders develop people skills focused on investing in and encouraging team members, the outcome for the organization remains with achieving results. Level 3 leaders gain and leverage technical credibility and leadership influence practices to enable teams to generate better than minimum results for the organization. In 2013, GovExec reported that the federal government loses $65 billion annually through disengaged federal employee lost productivity.[21] Similarly, a 2021 Gallup poll reported only 34 percent of employees were engaged and 16 percent were actively disengaged.[22] Although disengaged employees represent a drain on productivity, customer service, and profitability, *actively* disengaged employees are disgruntled, disloyal, affect workforce stability, and, if not appropriately addressed, can potentially harm a company's reputation. Level 3 leaders are focused on effectively getting things done; they build influence through personal credibility, modeling a *leader-out-front* approach to encourage employees to achieve personal and team goals. They efficiently organize people, time, material, and other resources and, by doing so, help improve morale and reduce workforce turnover. Finally, Level 3 leaders become organizational change agents who solve problems by motivating the workforce to pursue effectively their clearly defined missions and objectives.

Level 4 leaders take the company to the next level through effective workforce investments. They develop their followers into leaders who drive decision-making and mission accomplishment down to lower levels, thereby enabling more efficient processes and procedures in which the organization's work is actually accomplished. Maxwell characterized Level 4 leaders as reproductive by nature. They reproduce themselves by enabling subordinates to develop other leaders who engage the workforce, build authentic work relationships, increase team and organizational commitment, and, ultimately, generate increased production and profitability.

Where Level 3 leaders are *organizational* change agents, Level 4 leaders are personnel change agents, and they are not easy to come by. Organization-wide Level 4

all, appreciate that when you develop a leader, you gain not only that individual's trust and confidence but also that of their followers.

> " Although the Army has demonstrated proficiency in producing ACC leaders, their utilization falls short, ultimately resulting in organizational inefficiencies and ineffectiveness. "

leader development is a direct outcome of the deliberate investment in its people, leaders, and organizational support structure. They require a management support structure that is characterized by clear intent, autonomy, and authority to execute (some might say a mission command-based environment), and the personnel, budget, and resources required to execute the mission. Level 4 leaders invest time, energy, and money into growing others as leaders. By modeling key attributes and competencies, they live model organizational commitment, and, by extension, they challenge others to do the same.

An organization that is staffed with Level 4 leaders is agile, effective, and innovative. Given the challenges with developing Level 4 leaders, it's not surprising that Maxwell stated that Level 5 leadership is the most difficult to attain. Whereas many can be trained, educated, and developed into Level 4 leaders, Level 5 leadership requires a higher level of natural talent, dedicated effort, skill, and intentionality. Leading at Level 5 requires leading through the other four levels. Leaders understand the need to grow followers who share their commitment for success, can lead from the front, and are willing to empower subordinate leaders to execute missions without micromanagement. Level 5 leadership is characterized by mission command principles with which leaders at all levels are empowered to act with disciplined initiative within the commander's intent. Level 5 leaders work for organizational success for their own personal or professional credit; for an authentic Level 5 leader, the success is about the organization and its people, not themselves. Level 5 leaders strive to leave a positive legacy and a successor who can create and sustain an agile organization; who not only understands but also believes in the organization's vision; who can energize Level 3 producers; and above

Why Are Level 5 DA Civilian Leaders and ACC Organizations That Embody a Culture of Commitment So Difficult to Find?

In our opinion, it all comes down to the tension between leader production versus leader utilization. Although the Army has demonstrated proficiency in producing ACC leaders, their utilization falls short, ultimately resulting in organizational inefficiencies and ineffectiveness. We assert that there are significant discrepancies in the selection, development, and assignment processes for Level 5 ACC leaders compared to their military counterparts, and we advocate for a more deliberate and effective utilization of committed ACC leaders.

We acknowledge that the Army has a long history of training leaders and understands how to produce them; however, we suggest that it doesn't routinely execute those processes effectively with respect to ACC leader selection, development, and assignment. If you are inclined to stipulate that the DA civilian's leader production approach is good enough, then the relative scarcity of exceptional ACC-led organizations that are both efficient and effective would seem to indicate that the ways that we use those leaders is failing. We characterize that shortcoming as an enterprise-level disconnect between an ACC leader's *production* and effective *utilization* of that individual's commitment.

In a recent survey of DA civilian leaders that we conducted, the majority of respondents believed that the Army has embraced a substantial resource commitment to civilian leader development, surpassing benchmarks set by private industry. Moreover, the active pursuit and funding of opportunities for DA civilians offers choices for personal and professional growth,

aligning with the principles of Level 5 leadership. Additionally, a majority of the respondents acknowledged that the Army Civilian Leader Development

several Army War College classmates were selected by a centrally managed board to lead larger organizations or to assume a key developmental assignment, while he

> "After several years of formal data collection efforts like the Federal Employee Viewpoint Survey and informal collection efforts like the authors' most recent survey, it is becoming more apparent that it is time for the enterprise to take a hard look at addressing the ACC talent management elephant in the room."

Program (CLDP) incorporates a wealth of knowledge in the courses and a proactive commitment to lifelong learning and self-development.

However, several senior civilian leader respondents commented that, despite those programmatic strengths, a more deliberate consideration appears to unravel challenges that underscore the need for targeted investments.[23] Additionally, the hit-or-miss nature of the CLDP, contingent on individual participation, raises concerns about the consistency of leadership development outcomes.[24] Furthermore, a majority of the respondents offered criticisms about the effectiveness of specific courses such as the Supervisory Leader Development Course, which point toward the need to invest continuously in curriculum development, delivery, and graduate assessment efforts. Many respondents opined that, although the Army has made significant progress in developing civilian leaders, a discrepancy remains between the emphasis (degree and type) it places on how and why it develops leaders in both Army communities of practice (i.e., the profession of arms [soldiers] and the ACC). To illustrate this observation, one respondent commented that "the Army considers resident training as an imperative for the uniform [sic] leaders yet online training is sufficient for civilian leaders."[25]

Recent developments in the CLDP include a number of developmental or experiential opportunities designed for further development of an individual's executive core qualifications; however, the opportunities are not aligned to specific key and developmental assignments that produce follow-on strategic utilization as is implemented by the uniformed personnel management system. One survey respondent shared that

was relegated to seeking his own postgraduate assignment on USAJOBS or via a central selection board that made assignment recommendations not based upon Army key position requirements but rather on a list of open positions posted to USAJOBS by commands.[26] Survey responses made clear that the two most immediate CLDP participation detractors are a lack of clarity on post-training assignment availability/selection and the perceived lack of senior leader value placed on CLDP graduates when projecting/recruiting Level 5 billet requirements. We believe that if the Army implemented targeted CLDP improvements—particularly at the Level 5 ACC leader echelon—combined with steadfast commitment to leadership development and utilization, it could better field a cadre of ACC leaders characterized by humility, will, and an unwavering dedication to advancing both individual and collective success within its civilian ranks.

We acknowledge and respect the legally binding nature of the federal government's merit system principles and prohibited personnel practices. Having said that, after several years of formal data collection efforts like the Federal Employee Viewpoint Survey and informal collection efforts like the authors' most recent survey, it is becoming more apparent that it is time for the enterprise to take a hard look at addressing the ACC talent management elephant in the room. To be clear, we are suggesting it is time to commit to designing and implementing senior DA civilian, talent management practices similar to those that have proven effective for the profession of arms and corporate America. Two ACC workforce management process components would transform senior ACC talent management:

first, replace local selection for Level 5 assignments with centralized selection at an appropriate command echelon; and second, develop a process whereby Levels 3 and 4 DA civilian leaders can contractually commit to being considered for and ultimately integrated into a comprehensive talent development pipeline comprised of technical training, leadership education, leader developmental assignments, and executive core qualifications development without the process being perceived as violating any merit system principles or prohibited personnel practices until such time as the associated principles and practices are revised or eliminated. We think both ideas warrant inclusion in the next APS–CIP version *or* a stand-alone DASA-sanctioned research operational planning team.

The authors assert that they underscore in this article the critical importance of fostering a culture of commitment within the ACC as an essential component of our national defense strategy, and that perhaps the most effective way to achieve that end state is to improve the way that the Army develops and employs Level 5 DA civilian leaders. The ACC and its diverse talent pool and expansive skill sets are an indispensable component of the Total Army, contributing significantly to mission readiness and operational success. As the Army moves further into the twenty-first century, ACC members will be increasingly called upon to demonstrate an authentic commitment—a profound dedication if you will—to an organization's values, beliefs, and shared goals. A culture of commitment within the ACC fosters innovation, promotes leadership at all levels, and drives excellence in performance.

As we have explored in this article, the journey to cultivate an organizational culture of commitment begins with effective leadership. Level 5 leaders who prioritize organizational success over personal recognition are instrumental in creating an environment in which commitment thrives. These leaders not only develop themselves but also nurture the growth of future leaders, thereby ensuring a legacy of excellence. The implications of such a culture are far-reaching. Studies have consistently demonstrated the correlation between a strong organizational culture, mission accomplishment, and financial performance. Furthermore, a culture of commitment empowers individuals to go above and beyond, resulting in increased productivity, reduced turnover, and an unwavering commitment to the organization's long-term success. We strongly believe that the imperative for the Army to invest in ACC development in general, and Level 5 DA civilian leaders, in particular, cannot be overstated. The dedication and excellence of the ACC is pivotal to Total Army readiness. By investing more effectively in and utilizing Level 5 DA civilian leaders, combined with deliberate efforts to nurture an enterprise culture that values commitment above compliance, we can improve the ACC's potential to achieve the APS–CIP's strategic outcome of a "ready, professional, diverse, and integrated force."[27] ∎

Notes

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Terminological Terrain

How to Map and Navigate Jargon in Professional Writing

Dr. Elena Wicker

Fire. What comes to mind when you read that word? To the camper, fire means warmth and sustenance, and the trouble of getting it lit. The firefighter asks what type of fire and determines the best way to extinguish it. To a human resources professional, the person under discussion isn't coming in to work the next day. If a teenager says this to you, your outfit is probably excellent. The soldier hears the word and pulls the trigger.

Communities that share a common endeavor or profession, like the military, medicine, technology, and others, develop their own specialized words and phrases.[1] These words are recorded in reference documents and are taught to new members of the profession through training and education. For questions of meaning, a lawyer will reference *Black's Law Dictionary*, a doctor will search Stedman or Taber's lexicon, and the soldier will reference Field Manual 1-02.1, *Operational Terms*, or other strategy, theory, and doctrine.[2] Of all American professions, the military doesn't have the most technical language, but there are still a comparable number of words of military jargon than are in the average English-speaker's working vocabulary. "Milspeak" is quantitatively its own language.

The ability to use the right words and the right sources is a part of Army professionalism and is a necessary skill when

(Graphic from Bureau of Land Management, *Gobbledygook Has Gotta Go* [1966])

contributing to professional journals and debates. Instead of killing all jargon on sight, a more worthwhile skill is the ability to identify jargon and make an informed choice about when and why to use it. It is difficult to analyze our vocabularies, but it is possible with practice. Jargon is a tool to help you express ideas and build arguments, but only if you can identify and wield it intentionally.

Obstacles to Mapping Terminological Terrain

There are four core challenges that arise when trying to identify and find balance with jargon: function, belonging, fragmentation, and recognition. As you write, these will undermine your ability to explain your arguments in clear language.

First, jargon is extremely functional. It exists for a reason: to rapidly and accurately transmit complex information. Brevity codes are a great analogy for military jargon more broadly.[3] Brevity codes are one-word military codes, typically used over the radio, that signal far more complex ideas. If you say "mud," you are telling the receiver that you've spotted a ground threat, but it hasn't fired yet. "Pond" means carry out the jamming plan laid out in previous orders. Spelling out each message takes more words and more time. However, brevity codes only work if both sender and receiver have the same understanding of the code word. A brevity code means nothing to someone who has never been taught multiservice brevity doctrine. Army words are extremely functional within the Army but mean nothing to those outside the profession.

Second, if you don't use the appropriate language, you could be identified as an interloper or worse, incompetent. Carl Builder describes the Army as a "guild," an "association of craftsmen who take the greatest pride in their skills, as opposed to their possessions or positions."[4] The ability to use Army language accurately and appropriately is a sign of understanding and belonging in the Army guild. Unfortunately, this means that any lack of understanding could have negative consequences. If someone reveals that they do not understand the language, they may be reprimanded or sidelined. This is why it is so rare to hear someone ask what jargon means or what acronyms stand for, even when most in the room couldn't explain the jargon themselves.

Third, there are many smaller dialects within the broader set of Army jargon. Military jargon is extremely fragmented. Language emerges around a specialized set of skills, and words are developed as needed. The U.S. Army has seventeen basic branches, twenty-three functional areas, and nearly two hundred military occupational specialties (depending on how you're counting). These include infantry, engineers, West Point professors, and range widely from bandmasters to astronauts. There are higher-level terms that everyone shares, like permanent change of station (PCS), but technical specialties vary widely. Specialties whose tasks are closer to one another (like infantry and armor) have more jargon in common. Those whose professional tasks are more different will have greater difference in language. For example, an Army bandmaster and an Army astronaut might both have permanent changes of station, but their work requires entirely different vocabularies.

Finally, a suite of cognitive biases makes it hard to analyze our own vocabularies.

First, we forget how we know what we know. We assume that other people have the same background knowledge as we do. (They often do not.) This is the curse of knowledge, or the *curse of expertise*.[5] For each soldier, every school, branch, assignment, deployment, and experience has contributed to a unique mosaic of background knowledge.

Next, the more frequently we are exposed to information, the more we assume it is true. This is *repetition bias* and *illusory truth*: the more you look at it, the more it seems right, even if you know

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better.[6] This is how you miss spelling errors after four or five edits of the same paragraph. This is also the bias that Vladimir Putin's "firehose of falsehoods" relies on.[7]

Third, the illusion of *explanatory depth* makes us think that we understand complex systems … until we are asked to explain them.[8] If asked whether you understand how an M1 Abrams works, you might say yes. But could you name every component and explain how each acts and interacts, step by step? Can you describe exactly how, *in plain language*, "multidomain operations" are supposed to work? (There are certainly folks who can do both, but they are in the minority.) Jargon is a great enabler of explanatory depth illusions: you can use the technical term without ever having to explain exactly what it is or how it works.

Lastly, humans rarely explain themselves as they communicate. Jargon is rarely defined, and acronyms are rarely expanded. This is how we can learn how to use an acronym correctly in a sentence without ever having learned what it stands for. Despite these biases, it is entirely possible to learn how to actively recognize and work with your professional language.

How to Navigate Gobbledygook

Technical dialects have risen from necessity, and over the course of military training, that language becomes normalized in your speech and writing. It can be very hard to identify your own jargon. As an exercise, consider the following sentences from the opening of the current Field Manual (FM) 3-0, *Operations*:

> FM 3-0 expands on the Army's capstone doctrine for multidomain operations described in ADP 3-0. It describes how Army forces contribute landpower to the joint force and integrate joint capabilities into operations on land to achieve military objectives and fulfill policy aims.[9]

How many words in this example are Army jargon?

The answer is every single noun. They all have special relevance to the U.S. Army, making them coded words with hidden meanings. Even the word "land," which at first glance seems to be a standard English word, signals a specific domain of war and the Army's legacy of excellence in land warfare. Once you begin to actively look for jargon, you will notice it everywhere.

The ability to identify and selectively use jargon is a muscle that grows stronger with practice.

The average nonmilitary reader will not catch the significance of "land" as a domain of war. However, when you are writing for a professional publication such as in *Military Review* or another journal, the average professional Army reader will immediately understand the relevance of the land domain. In fact, the debates you are contributing to will require the application of professional language to complex questions. How do we learn to analyze our own vocabularies and writing, and then apply those abilities to professional writing?

(Graphic by author)

1. Read and Write

Anyone can write, but not all can write well … yet. Stephen King wrote that to be a writer, you must "read a lot and write a lot."[10] No shortcuts. You might hear the saying "it's only a lot of reading if you do it," but the idea that soldiers aren't readers is a myth. During World War I, books were sent alongside soldiers headed to the front in crates designed to bolt together into bookshelves.[11] A journalist described Army transports setting sail from Hoboken, New Jersey, as holding over double the number of passengers of a normal transatlantic voyage. There was no wasted space, "but there is room for books."[12] Articles and debates in professional journals have driven the development of the modern force, like Gen. Donn Starry's "Extending the

Battlefield" article in *Military Review*.[13] The U.S. Army has always been a reading and writing Army.

Writing styles, or genres, are often taught to us, sometimes unknowingly.[14] In his reflections on writing, Frank Gavin described the challenges of finding his own voice amid the conventions of academic writing.[15] His undergraduate students were unconvinced of the jargon-filled academic scholarship, but graduate students—future professors—are taught to emulate the bombastic byzantine writing style evinced by the seminal articles of their academic fields. We model our writing on what we read. This doesn't mean that you can only read professional journals to write for professional journals. Professional journals will keep you most up-to-date on developments in the Army profession, but there is no sole genre relevant to the Army reader. There are great works of doctrine, history, science fiction, poetry, cartoons, academic tomes, biographies, memoirs, memos, and others that have shaped the U.S. Army.

Every genre of writing develops meaning in a slightly different way that you can successfully emulate. This begins with structure. Take your favorite pieces of writing and turn them into outlines. Many articles start with a hook, introduce the argument, make their case, give some examples, and close with recommendations. Academic articles have a hook, a theory, a few case studies, a discussion, and close. These outlines are templates, telling you exactly what you need to write. As you test and experiment with these templates, certain structures will inspire you more than others. Read widely, pay attention to structure, and start putting pen to paper. (Or fingers to keyboard.) Just like physical training, practice and repetition hone your writing skills. Like any muscle, you must get in your writing reps and sets.

2. Assume It's Jargon (It Probably Is)

If you are writing about anything related to your current or prior work, it is a safe bet that you are using a lot of jargon. If an explosive ordnance disposal (EOD) technician is writing about explosives, they're using a lot of jargon. (And "EOD" is itself jargon.) The same is true of a strategist writing about strategy, or any soldier writing about the Army. Each prior assignment has taught you a set of technical jargon that you can now use fluently and unconsciously.

Language also evolves over time. What was once meaningless can become meaningful, and vice versa. In 1976, Col. Lloyd J. Matthews, an associate editor of *Parameters*, wrote "To Military Writers: A Word from the Editor on Words," which was a guide for authors describing twenty-five vague words that were "used to unimaginative excess."[16] He laid out elements of "Pentagonese, military gobbledygook, and Army officialese," which he deemed obstacles to effective communication.[17] These overused words included configuration, image, interface, ongoing, orchestrate, parameter, scenario, spectrum, and utilize; these words are in common use today.

When talking about any topic relating to your prior assignments, education, or current work, your going-in assumption should be that, like FM 3-0, all your nouns are jargon. (And probably quite a few of the verbs.) Your cognitive biases will all be telling you that your writing is perfectly clear and free of any technical terms. Your biases are lying to you. Once you accept this fact, you can begin to shape it. This is necessary because, as Stephen King advises authors, vocabulary is "the bread of writing."[18]

3. Write for Your Audience

This is common advice, but it is often hard to follow. The Army is not a linguistic monolith. Different communities have unique technical language—words that mean something specific to that profession. If you are writing for your branch's professional journal, translation is less of a challenge. However, a writer in one Army branch attempting to reach readers in a different branch must think about translation. This is even more challenging if writing for the Army as a whole, if writing for the joint community, and especially if writing for a non-military audience. Remember fragmentation: Army astronauts need different terminology than Army bandmasters. The Navy speaks a different language than the Army. Read your audience's main journal and adopt their language to express your argument.

Here are examples of words that can cause problems in translation:

convergence, division, domain, experiment, force, friction, gravity, integration, range, momentum, kinetic, solution, transfer, unit, work.

These are all military terminology and jargon, evoking some multidomain operations and Clausewitzian principles of war, but they are also mathematical and scientific principles. Clausewitzian friction differentiates "real War from War on paper," but mathematical friction is represented by the equation $F = \mu N$.[19] Translation is a serious challenge for the military and scientific communities, not only because they often use different words, but also because the communities use the same words to mean very different things.

There are two simple ways to check if something is jargon or standard English: (1) ask someone with no prior military experience or exposure if it is, or (2) look it up in a *Merriam-Webster Dictionary*.[20] Standard English dictionary entries have numbered lists of definitions, typically ordered by how common the definition is. If your intended definition is not listed first, then there is a more common definition in use than the one you're thinking of. If you look up "operation," the military use is number six, preceded by "the quality of being functional" and the medical and mathematical meanings.[21] For the word "friction," the Clausewitzian meaning doesn't even make the list.

If you're writing for an Army professional journal, you also have FM 1-02.1, *Operational Terms*, or the *DoD Dictionary of Military and Associated Terms* at your disposal.[22] A *Military Review* article from 1972 on the military vocabulary stated that "those who try to understand the mysteries of military communication should have [the *DoD Dictionary*] handy so that they may look up baffling phrases."[23] If your word isn't in those documents, that doesn't mean it isn't a legitimate Army word, it just means that the word isn't codified in doctrine.

4. Just Tell Us What You Mean

We like to say, "words have meaning." I would update this to say that most words have meaning. George Orwell wrote in his essay, "Politics and the English Language," that when certain topics are raised, "prose consists less and less of *words* chosen for the sake of their meaning, and more and more of *phrases* tacked together like the sections of a prefabricated hen-house."[24] Every profession has their required prefabricated words and phrases. For the Army, those might be "multidomain operations" or "integrated deterrence." Political scientists must be able to talk about "ontologies" and "multicollinearity." These *can* have meaning, but they do not always. It is critical that you develop the skills to identify the difference.

A warning to writers and readers: in 1973, researchers hired an actor to give an utterly incomprehensible lecture on game theory to a class of medical students.[25] The lecture was a pompous script, crafted from academic jargon and designed to be utterly meaningless. After the lecture, students gave favorable reviews and some even said that they had read publications by "Dr. Myron Fox." The researchers later described how complicated language and confident presentation effectively overrode the students' "crap detectors," so they perceived gobbledygook as genius. Complex language presented confidently will hide logical flaws from both you and your readers.

If you have to say "well what I really mean is," then you're overcomplicating your writing. Just tell the reader what you really mean. Spell out your acronyms (or don't use them at all), define your jargon, and don't hide your points behind complex language. Simple language does not mean a simple argument; it ensures that others can understand and substantively engage with your writing. As Col. Matthews wrote in 1976, "The careful writer will always distinguish between the intelligently modern and the mindlessly faddish."[26] You're building arguments, not prefabricated Orwellian henhouses.

5. Jargon Is Your Friend, Not Your Enemy

It is possible to go too far with jargon removal. Randall Munroe of XKCD wrote a book called the *Thing Explainer* that only uses the thousand most used words in the English language.[27] In that book, a helicopter is a "sky boat with turning wings," which is hilarious, but this doesn't help an Army pilot. Army pilots need FM 3-04, *Army Aviation*, a full set of technical manuals, and more.[28] If you are contributing to a professional debate, you must use professional language. True "plain language" may undermine the intent of your writing.

Orwell wrote, "Never use a foreign phrase, a scientific word or a jargon word if you can think of an everyday English equivalent."[29] As a member of a professional community, when writing for a professional journal, sometimes the long word is the right choice. Rather

Sgt. 1st Class Amanda Tidmore (*left*) and Corbin Campbell, 305th Military Intelligence Battalion cadre, conduct research for the Kraken Analytics writing competition 17 April 2024 at the CW2 Christopher G. Nason Military Intelligence Library, Fort Huachuca, Arizona. (Photo by Staff Sgt. Spencer Bryant, U.S. Army)

than kill all jargon on sight, use your best judgment in light of number 3 on this list. Identify your audience and translate your argument into terms they understand. Munroe created a website called Simple Writer, where you can type in a sentence and it will flag any word that is not in the top thousand most common words of the English language.[30] Amusingly, if you put the FM 3-0 sentences from the jargon identification exercise above into the writer, it flags almost every word except "land," which is a word we know has special relevance to the Army.

A Jargon-Conscious Checklist for Writers

When I describe how to write with and without jargon, I present the following checklist. It expands on the researching, writing, and editing portions of the Harding Project's guidance for starting professional writing.[31] Again, this is not intended to strip all jargon out of your writing. This is to insert jargon recognition into your process.

- Identify topic and intent. What do you want to write about? Some journals publish suggested themes and topics, like *Military Review*, and these are a good place to start.[32]
- Identify target publication and check the submission guidelines. This will give you word count, citation style, and the journal's philosophy. If they have a writer's guide, read that too.
- Identify your audience's lexicon. Are you writing for an Army publication? Who is their readership mainly? Use this to calibrate your jargon use. (If you're writing for *Army Sustainment*, you can use more sustainer language. War on The Rocks? Take it out or define it as you go.)
- Write! Draft your article using submission criteria and audience language as best you can.
- Reread your work through your audience's eyes to identify technical language. First, just mark or highlight your jargon. You're looking for anything

having to do with your specific Army experience and any words that you hear a lot at work. Err on the side of assuming words are jargon; they most likely are.

- Look through your article again, and this time highlight every acronym. (There are few exceptions to this; "U.S." is one of them.) If you only use the acronym once or twice, spell it out and delete the acronym. If you use it more than twice, make sure that the acronym is spelled out the first time you use it. Keep all acronyms flagged for the next step; military acronyms are just abbreviated jargon.
- For each flagged word, ask yourself whether the word is critical to your argument. Does it name the debate to which you are contributing? Will your reader understand it? If the answer is an unequivocal yes to any of these questions, leave it. If the word is a stand-in for a complex idea, provide a sentence of explanation and cite the source. If the word is not critical, replace it with a standard English equivalent or your audience's synonyms. If you are at all in doubt, replace.
- Bonus tip #1. If you are writing for a public outlet and are trying to remove all your technical language, get a nonmilitary reader to look at your work. Nonmilitary readers are those with no prior military *exposure*. Uniformed service members, Army civilians, contractors, and most spouses are disqualified. They will have learned some amount of Army jargon and could miss technical language as they read your work.
- You've chosen which pieces of jargon stay and go, so now you need to revisit the length guidelines. Remember, plain language is almost always longer than jargon. You will likely have to get your word count back within the journal limits after you replace jargon.

- Bonus tip #2. Check your work's readability in Microsoft Word. This is under the "editor" button in document stats. It won't catch the short pieces of jargon that are easily mistaken for standard English (like "fires"), but it'll help you identify run-on sentences or unnecessary complexity in your article.
- Ensure that the content still says what you need it to say. Once you've edited out the appropriate amount of jargon, does your argument still make sense?
- Submit!

Finding Balance with Army Language

Writing guides don't say "kill your jargon" because jargon is inherently a bad thing, they say it because too many writers don't use jargon judiciously. Jargon is a precision weapon. Using jargon intentionally can establish your expertise, build credibility with your peers, and allow you to express complicated technical ideas. Eliminating jargon strategically builds trust with readers, increases understanding, reaches a larger audience, and allows more readers to engage with your argument substantively. Jargon should not always be killed; it should be wielded selectively and intentionally.

Don't be fooled into thinking that recognizing your jargon is easy or that you will be able to analyze your own vocabulary immediately. Community pressure, cognitive bias, and habit are working against your ability to identify your jargon and tame it. Take comfort in the fact that you are not alone on this journey. The ability to actively recognize jargon takes time and effort to develop, and it requires taking active steps toward understanding your vocabulary and how you use it. By understanding where jargon comes from, its functions, and how to recognize it, we can all begin to write and communicate more effectively.[33] ■

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Vietnam Combat

Firefights and Writing History

Robin Bartlett, Casemate, 2023, 288 pages
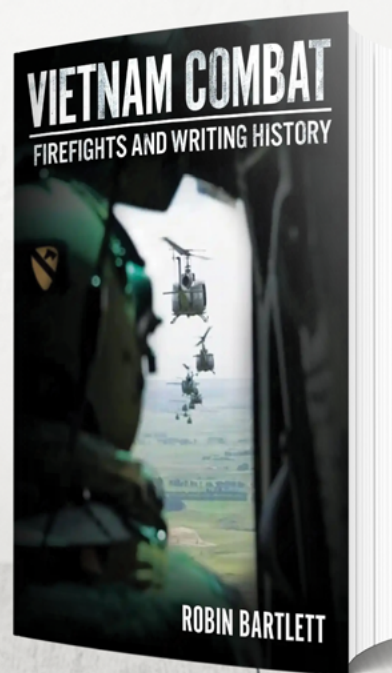
Lt. Col. Rick Baillergeon, U.S. Army, Retired

The past few years have seen a resurgence of Vietnam War memoirs. I have read many of these offerings and found several to be outstanding. These authors have clearly utilized this extended reflection time to produce powerful and personal memoirs of their own Vietnam War experiences. Within these recent offerings, the best memoir I have read is Robin Bartlett's incredible *Vietnam Combat: Firefights and Writing History*. It is a volume that will undoubtably impact every reader and generate a wide range of emotions within each.

In *Vietnam Combat*, Bartlett focuses on detailing his experience as an infantry platoon leader with the 1st Cavalry Division (Airmobile) during 1968–1969. Although his platoon leader time is the "main effort" of the volume, Bartlett delves into many other subjects with passion, sensitivity, and conviction. These include posttraumatic stress disorder (PTSD), the American public's treatment of Vietnam veterans in the past and the present, and the Vietnam War itself. I will discuss each of these in detail below.

Before beginning this discussion, it is valuable to understand why and how Bartlett crafted his memoirs after leaving the U.S. Army some fifty years ago. In various forums, he has listed three purposes for developing them. First, after talking to other Vietnam veterans, he felt he had some unique experiences he wanted to share. Second, he believed the process of writing his memoirs would be very cathartic and healing for himself. Finally, he wanted to share with readers why his feelings and beliefs regarding the Vietnam War had changed dramatically over the years.[1]

For Bartlett, the development of these memoirs was an extended endeavor. After completing an initial draft, he asked a few of his friends to review and offer comments and recommendations. The main discussion point was the audience for the memoirs. Bartlett wanted his memoirs to be read by general readers. However, the reviewers felt that he needed to "demilitarize" the memoir and make it more personal so it might appeal to broader readership. Bartlett took the advice to heart and spent two years reworking the volume. Finally, after twelve years of writing and rewriting, *Vietnam Combat* was ready for the public.[2]

Focusing on the volume itself, as highlighted above, Bartlett devotes much of his memoir to his infantry

platoon leader time. His road to this position took many twists and turns. Bartlett arrived in Vietnam in early May 1968 with orders to the 101st Airborne Division. However, because of the Tet Offensive and significant officer losses in country, all officers' orders were canceled. These officers would be reassigned to units with the greatest need. In the case of Bartlett, it was to the 1st Cavalry Division.[3]

Following a three-week acclimatization period, he arrived at the division and was assigned to Company A, 1st Battalion, 5th Cavalry Regiment. After meeting with the company commander, it was decided Bartlett would begin as the company's weapons platoon leader. This position enabled him to gain some valuable field experience and seasoning before moving to a rifle platoon. This period did not last long, however, and Bartlett took over his rifle platoon in three weeks.

When he took the platoon guidon, he was a twenty-two-year-old, recently promoted first lieutenant. He quickly discovered he was the second oldest soldier in the platoon (the oldest was twenty-five). The average age in his platoon was eighteen.[4] Many former platoon leaders were fortunate to have a "grizzled," old, highly experienced platoon sergeant to learn from. This was not the case with Bartlett, as he inherited a nineteen-year-old platoon sergeant.[5] He recalls his initial thoughts when joining the platoon when he states, "It looked like I was in for the greatest ride in my life. And I was."[6]

Bartlett's discussion of this "greatest ride" is superb. He recalls the highs and lows, the emotions, the pressures, and the challenges of his role as a platoon leader in combat. He details some of the over sixty airmobile combat assaults, ambushes, and search-and-destroy missions his platoon conducted. Within this discussion, I believe readers will find three events particularly impactful.

The first is Bartlett's vivid memories and powerful feelings when he lost a soldier during combat operations. Bartlett unfortunately addresses this several times in the memoir. As you might expect, the most poignant for Bartlett was the first time one of his soldiers (Sgt. Ron Roberts) was killed in action (KIA). He addresses this in the following passage:

> The days when I oversaw KIAs were always my worst days in Vietnam and Roberts, being the first, was certainly the worst of all. Here was a young man whose potential would never be fulfilled. His life ended far too soon. One might conclude that his enthusiasm and aggressiveness may have been responsible for his death, but that is how the Army had trained him and the path he chose to follow. After the chopper had removed Roberts's body, I asked one of my men to take a photograph of me so that I would always remember how I felt that day.[7]

The second are the four circumstances when Bartlett found himself face to face with the enemy. On each occasion, Bartlett was literally in a life-or-death situation. In these cases, he recalls that after the initial feelings of surprise and shock, his reflexes and training quickly came into play. Bartlett relates to readers one particular interaction that had a tremendous impact on him then and to the present. "To this day I can recall the actions, emotions, and sensations I felt that night, as clearly as when they happened. Twenty years later, I started to have daydreams and relive this experience as well as other on a frequent basis. I was worried that I was losing control."[8]

The final event is Bartlett's recollection of the night he was hit by shrapnel and lay in the jungle wondering if he would live. He states,

> So I lay there. I lay there from 2 AM to 6 AM. I thought about what was happening to me. I thought that I might be close to death. All kinds of thoughts flashed through my mind. What would my parents think if I died? What would my friends and relatives back in California think? What would they say? Who would come to my funeral? But mostly I thought about the life I had lived so far. If I were to die, would my life have had any meaning? Would my death have made a difference? If I died right then, would it have been worth it? What had I accomplished so far in my life? What had been the value of my existence? I had more questions than answers. But I did know one answer was, No, I have not accomplished anything in my life.

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If I died right then, it would not have served a purpose. I had more to do and more to give. I needed to stay alive to do those things—whatever they might be.[9]

Within *Vietnam Combat*, Bartlett weaves in many other subjects and thoughts he wants to share with readers. One of the principal subjects that clearly resonates throughout the memoir is the subject of PTSD. Bartlett immediately introduces this as it relates to him personally in his preface. He states, "But the traumatic experiences that I endured should have been acknowledged and brought to light. They were not. For many years, I simply locked all those events up in the titanium trunk located in the back of my mind … until—one day—they started to leak out. Then, I sought and received help from a psychiatrist friend. Writing this book, too, is an effort for me to come to grips with events from 50-plus years ago."[10]

Bartlett provides one of the best summaries of the effects of PTSD on life that I have read or heard. He states,

We all wear the chains of life we forge day to day. We also tend to relive and remember our negative experiences more frequently than the positive ones. Perhaps that is to remind us not to repeat our mistakes. And while my experiences occurred over 50 years ago, those events are as fresh and as real in my mind today as the day they occurred. There is rarely a day that goes by that I don't recall some event that happened to me during those 365 days. I am sure they will be with me for the rest of my life. They are the chains I drag behind me.[11]

Bartlett also utilizes his memoirs to address the treatment of Vietnam War veterans in the past and present. As with the preponderance of Vietnam veterans, he is saddened and bitter by the reception they received when they returned home. As the years have passed, Bartlett has seen that the hatred many Vietnam veterans received when returning home has now been replaced by general apathy or unfamiliarity with the Vietnam War. He affirms, "I have been extremely sensitive to the lack of awareness about my war. That is not only true for young people but from my own generation."[12]

In his preface, Bartlett provides some recommendations to the general public when they meet a Vietnam veteran. He offers,

I hope you will take time to ask your Vietnam vet to tell you his or her story. Listen and ask questions. Many still need to unburden themselves. We only wish to be recognized and to share our own "Stories from the Trail." We need someone to care. We need your empathy. Above all, please—always use the code words "Welcome home" rather than "Thank you for your service" when you speak with a Vietnam vet. These words are so meaningful to us. They will bring tears to our eyes and lumps to our throats.[13]

As stated earlier, one of Bartlett's purposes for writing his memoirs is to articulate his feelings on the Vietnam War. Over the past decades, Bartlett has found that his views and thoughts on the war have dramatically changed. The combination of his personal reflection and his study of the Vietnam War have greatly contributed to this reversal. Bartlett explains these changes to readers in the volume's final chapter.

There are numerous strengths displayed within *Vietnam Combat* that contribute to making this an incredibly valuable experience for readers. The first is the outstanding readability of the volume. Bartlett is extremely gifted at describing events in detail and, in a way, that makes readers feel they are in the environment he is discussing. His reviewers asked him to "demilitarize" the book and make it more personal, and he has clearly succeeded in each. You will find it difficult to put down once you begin reading.

In Bartlett's introduction, he provides readers why he was able to offer this detail. He states, "As I wrote, I was amazed at how many details my mind retained. At times, the writing transported me back to the day and time more than 50 years ago, and I relived the incident as vividly as it occurred. I saw the colors. I felt the fear. There was sweat on my face and underarms. I even recalled the smells."[14]

To complement his words, Bartlett has inserted a variety of visuals that are outstanding First, he has included maps and sketches, which greatly assist readers in understanding and clarity. Second, he has added nearly one hundred photographs and combat art pictures to the volume. Many of these come from his personal collection and obviously, greatly personalize the memoirs. Finally, he has placed a collection of North Vietnamese Army and Choi Hoi (Chieu Hoi)

surrender and weapons turn-in leaflets that are extremely interesting.[15]

One of the best decisions Bartlett made was to insert letters he wrote to family members and friends during the war into his memoirs. Obviously, these letters again add tremendously to the personalization of the memoir. The inclusion of these letters was not something Bartlett had originally planned to do. In fact, Bartlett did not remember these letters until after he was rewriting the volume.

He addresses this in the book's introduction. He states,

> While proofing and rewriting this manuscript, I remembered the 100+ letters I wrote home during my year in Vietnam that my mother had carefully saved. I think she had a premonition I might someday try to write this book. I had also sent a few letters to a college classmate who thoughtfully saved and returned them to me. I dusted the letters off, put them in chronological order and started reading what I wrote 50 years ago. I've included snippets from these letters in appropriate chapters in an effort to add more of my personal feelings at the time and provide insight into the juxtaposition between what actually happened and what I wrote home about.[16]

Another clear strength of *Vietnam Combat* is its organization. Many of us have read memoirs where the author continuously combines stories in a long chain. The result is quick confusion, and the volume can be a challenge to read and understand. This is not the case with Bartlett's memoirs. He has essentially dedicated one story or theme per sequential chapter (thirty-four within the book). These chapter breaks enable readers an opportunity to reflect upon what they just read (there is much to reflect upon).

The final strength I would like to highlight is the superb appendix section he has developed for readers. Within this section, he has placed a comprehensive glossary written in his own words and a segment providing detail on the friendly and enemy weapon systems addressed in the memoir. Most importantly, the author has provided an extensive resource section where readers can find websites focused on supporting Vietnam veterans (and veterans in general) causes; Gold Star organizations; family-related topics; information on Vietnam War memorials; and print media, podcasts, and books that have a Vietnam War historical focus. This section was unexpected but is a tremendous benefit for the public in the present and in the future.

In Bartlett's concluding paragraph, he states, "I started this book many years ago to tell some combat stories and events that I thought were unusual. Some of my experiences were gut-wrenching and horrific, some humorous and unbelievable. I hope I have accomplished that goal and that you, my reader, will take away some of the same feelings and understanding of my experience, keeping in mind that the story I've told is from the ground level, face to face with the enemy. It's a small-unit leader's 'boots on the ground' point of view."[17]

There is no question Bartlett has achieved his objectives within *Vietnam Combat*. He has truly provided us with numerous unusual experiences. Readers will find these experiences gut-wrenching and horrific at times and then humorous and unbelievable at other times. Thus, it is a memoir that initiates a wide array of emotions as you read it. Bartlett's ability to generate these emotions is extremely rare in a memoir. It is this characteristic which separates it from the preponderance of memoirs you read. I believe you will find it to be one of the best memoirs you will read.

There is really only one appropriate and fitting way to close this review—welcome home, Mr. Bartlett. ∎

Notes

1. "How and Why I Wrote This Book," Robin Bartlett, 21 September 2022, https://robinbartlettauthor.com/how-and-why-i-wrote-this-book/.

2. Ibid.

3. "History of the 1st Cavalry Division," 1st Cavalry Division Association, accessed 17 January 2024, https://1cda.org/history/. In the summer of 1965, the 1st Cavalry Division was certified to become an air mobile division and soon after began deploying to Vietnam. That fall, they became the first fully committed division in Vietnam. In November of that year, elements of the division were involved in the famous Battle of Ia Drang Valley (detailed in *We Were Soldiers Once … And Young*). In 1971, they became the last full division to leave Vietnam. Thirty soldiers from the division were awarded the Medal of Honor for valor during the Vietnam War.

Military Review

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Army University Press

4. Skip Vaughn, "Infantry Platoon Leader Recalls Best, Worst of Times," Department of Defense, 23 June 2021, https://www.defense.gov/News/Feature-Stories/story/Article/2668224/infantry-platoon-leader-recalls-best-worst-of-times/.

5. Dan Elder, "Shake and Bake Sergeants: How the Army Trained New Officers for the Vietnam War, Fast," HistoryNet, 2 February 2021, https://www.historynet.com/shake-n-bake-sergeants/. By 1967, the U.S. Army found it was in critical need of sergeants and staff sergeants in Vietnam. To assist, the Skill Development Base Program was developed. As part of that, the Noncommissioned Officer Candidate Program was created. It was designed to prepare soldiers to lead small units in Vietnam. Graduates were commonly called "Shake 'n Bake" sergeants. Bartlett's platoon sergeant was a graduate of the program.

6. Robin Bartlett, *Vietnam Combat: Firefights and Writing History* (Casemate Publishers, 2023), 59.

7. Ibid., 8.

8. Ibid., 100.

9. Ibid., 160.

10. Ibid., xiv.

11. Ibid., xiv; Susan Zieger, "Marley's Chains," The Dickens Project, 7 December 2020, https://dickens.ucsc.edu/programs/dickens-to-go/marleys-chains.html. Barlett's reference for the chains of life comes from the Charles Dickens classic, *A Christmas Carol* (London, 1843). In the book, Jacob Marley appears to Scrooge as a ghost clad in chains consisting of material items. "I wear the chain I forged in life," replied the Ghost. "I made it link by link, and yard by yard; I girded it on of my own free will, and of my own free will I wore it. Is its pattern strange to you?"

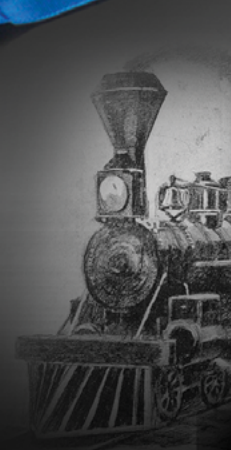12. Bartlett, *Vietnam Combat*, 232.

13. Ibid., xv.

14. Ibid., xx.

15. J. A. Koch, *The Chieu Hoi Program in South Vietnam, 1963–1971* (RAND Corporation, January 1973), https://www.rand.org/content/dam/rand/pubs/reports/2006/R1172.pdf. The Chieu Hoi Program (loosely translated as "Open Arms") was initiated by the United States in 1963. The program sought to entice Viet Cong and Peoples's Army of Vietnam soldiers and civilians to defect to South Vietnamese authority. There are a wide range of thoughts on the effectiveness of the program.

16. Bartlett, *Vietnam Combat*, xxii.

17. Ibid., 234.

Private Philip G. Shadrach

Private George D. Wilson

Medal of Honor: U.S. Civil War

Secretary of War Edwin Stanton presented the first Medal of Honor on 25 March 1863 to the surviving members of Andrews' Raiders whose mission was to sabotage a rail supply line in 1862.[1] More than 160 years later, the final two soldiers, Pvt. Philip G. Shadrach and Pvt. George D. Wilson, were recognized by President Joe Biden and posthumously presented the medal.

During the 3 July 2024 White House ceremony attended by the soldiers' descendants, the president remarked, "The very first recipients of the Medal of Honor were a small band known as Andrews' Raiders, … who led one of the most daring operations in the entire Civil War. Two soldiers … died because of that operation but never received this recognition. Today, we right that wrong. Today, they finally receive the recognition they deserve."[2]

Shadrach and Wilson, originally members of the 2nd Ohio Volunteer Infantry Regiment, joined civilian spy James Andrews, twenty-two soldiers, and two additional civilians in stealing a locomotive deep within Confederate territory on 12 April 1862 and steering it north toward Chattanooga,

Tennessee, creating as much damage as possible to the railways and telegraph lines along the way.[3] This would become known as the Great Locomotive Chase. The stolen train's conductor, William Fuller, gathered a party and took chase on foot before using several other locomotives to eventually catch up.[4] The seven-hour pursuit would end just eighteen miles short of Chattanooga with the group evading capture for over two weeks. Though all were eventually caught, most escaped. Eight were tried and hanged in Atlanta by the Confederates, including Andrews, Shadrach, and Wilson.[5]

Throughout the years, the soldiers who participated in the train hijacking received the Medal of Honor, with Pvt. Jacob Parrott being its very first recipient; however, neither Shadrach nor Wilson were recommended until recently. During the Hall of Heroes induction 4 July 2024 at the Pentagon, Secretary of Defense Lloyd J. Austin III said, "Their medals are new, yet their bravery is eternal. … Their story doesn't just inspire us, it challenges us. So we are not just here to honor their sacrifice, we are here to live up to their example."[6] ∎

Notes

1. "A History of Heroism," Congressional Medal of Honor Society, accessed 21 August 2024, https://www.cmohs.org/medal/timeline.

2. C. Todd Lopez, "Two Civil War Soldiers Receive Medal of Honor, Inducted into Hall of Heroes," U.S. Department of Defense News, 4 July 2024, https://www.defense.gov/News/News-Stories/Article/Article/3827750/two-civil-war-soldiers-receive-medal-of-honor-inducted-into-hall-of-heroes/#pop8266970.

3. Josh Boak, "Biden Bestows Medal of Honor on Union Soldiers Who Helped Hijack Train in Confederate Territory,"

Associated Press, 3 July 2024, https://apnews.com/article/medal-honor-biden-civil-war-locomotive-f951c46a9efe66be-4869fa3a78fef34d#.

4. Alex Horton, "Civil War Soldiers in Wild Train Hijacking Receive Medal of Honor," Washington Post, 3 July 2024, https://www.washingtonpost.com/national-security/2024/07/03/biden-civil-war-medal-of-honor/.

5. Ibid.

6. Lopez, "Two Civil War Soldiers Receive Medal of Honor."

(Graphic courtesy of the U.S. Army)